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Thursday Next, January 9.

IMPORTANT TO THE TRADE.

50,000 grand BULBS of LILIUM AURATUM (mostly in cases as received), 1000 Lilium auratum macranthum, L. auratum rubro-vittatum, L. auratum Wittei, 1200 L. longiflorum, 1000 L. Krameri, L. speciosum album and rubrum, L. Batemannise, L. Hansoni, L. Leichtlini, L. concolor, L. Tigrinum flore pleno, L. elegans atropurpureum and sanguineum, L. Thunbergianum "Alia Wilson," L. Coridion, L. medioloides, L. cordifolium, L. Japonicum Colchesteri, L. auratum Pictum, &c., just received direct from Japan. Also several thousand Tigridia grandiflora, T. grandiflora alba, and T. conchiflora, Lilium Parryi, L. pardalinum, L. Hansoni, L. Leichtlini, L. concolor, L. Washingtonianum, from America, and many other BULBS and ROOTS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 9, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday, January 16.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 16, at half-past 12 precisely, and he will be glad if Gentlemen desirous of Entering Plants for this Sale will please send Lists not later than THURSDAY NEXT.

WANTED, TO RENT, about an acre of GROUND; Small House, with or without Glass. Full particulars to K., 17, Park Road, Acton, W.

FOR DISPOSAL, a FLORIST, NURSERY, and JOBBING BUSINESS.—Price for Fixtures, Stock, and Good-will complete, £100. In present hands nine years. Nominal rent, and within 2 miles of Covent Garden.

CALLINGHAM, Princes Square, Kennington, S.E.

TO BE SOLD, by private treaty, an Old-established SEED and FLORIST'S BUSINESS, situated in a rapidly-growing town in the Midlands. Long Lease. Good Connection.—J. S., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Cirencester, Gloucestershire.

FOR SALE, by Private Treaty, the BUSINESS of a FLORIST, which has been carried on by the same Proprietor for the last twenty years in the above thriving Market Town, together with two Freehold Gardens, with Greenhouses, Forcing Pits, Potting Sheds, &c., thereon, in close proximity to the Market Place. Retiring from business sole cause of leaving. For price and particulars apply to

JOB SAUNDERS, Park Street.

Florida.

SMALL ESTATE for SALE. Apply, CURATOR, Botanic Garden, Glasgow.

TO BE LET on LEASE, about 2 Acres of productive NURSERY LAND, with Stabling, Outbuildings, and about 13,500 super. feet Glass. About five minutes from Waltham Cross Station, Great Eastern Railway. Apply to E. A. H., Queen Anne's Lodge, Waltham Cross, N.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense stock, to which they are constantly adding, and all are offered at the lowest possible prices. LISTS with Prices and particulars post-free on application to the Company.

THE VINEYARD AND NURSERIES, GARSTON, near LIVERPOOL.

TO BE SOLD IMMEDIATELY, near Manchester, owing to a gentleman leaving the neighbourhood, some large CAMELLIA TREES—Alba plena, Lady Hume, Fimbriata, Imbricata, &c., some in tubs, others in soil; also TREE FERNS, Cibotium princeps, do. Schiedei, &c., and small ones.—Address A. Y., Regent Street, Leamington.

AUSTRALIAN SEEDS. LUCERNE, GRASS SEEDS, PEAS of sorts, PALMS, EUCALYPTI, CYCADS, CASUARINA, &c., Seeds and Plants. We shall be pleased to quote Purchasers at any time.

Bank Drafts must in all cases accompany orders.

Offers of Sole Agencies for Seedsmen's Sundries, Utensils, &c., requested.

STEPHENSON AND JOHNSON, Seed Growers and Merchants, 9, King Street, W., Sydney, N.S.W.

Cucumber "Lockie's Perfection."

CHARLES TURNER, having purchased the Stock of this sterling new variety, is much pleased to introduce it, and can with the greatest confidence recommend it as the best Cucumber ever sent out. Price per packet, 1s. 6d. and 2s. 6d. Descriptive CATALOGUE upon application. The Royal Nurseries, Slough.

CHRYSANTHEMUM, MRS. A. HARDY, A grand lot of plants, extra strong, ready for 5-in. pots, 4s. each, 42s. per dozen; smaller, 2s. 6d. each, 27s. per dozen.

Seedling PALMS, SEAFORTHIA ELEGANS, 10s. per 100.

PHŒNIX RECLINATA, 10s. per 100.

PANDANUS UTILIS, 10s. per 100.

ADIANTUM CAPILES VENERIS LE GRAND, a splendid lot of this very lovely new Fern, extra strong plants, 2s. 6d. each, 24s. per dozen.

A. J. A. BRUCE, The Nurseries, Chorlton-cum Hardy, Manchester.

Broccoli.—A Good One not Easily Got.

HARTLAND'S "APRIL QUEEN."—Is a sterling Novelty from South of Ireland. Certainly one of the finest in cultivation; ready for use during the months of April and May. The heads are of immense size, and the leaves, which are most abundant and peculiar in colour, form such a thorough protection, that the outer appearance, before being strip, is that of a "high quality" Cabbage. It has been grown locally to great perfection—some heads weighing over 14 lb., from the very close protection—white as snow.

In sealed packets, 1s. 6d.

WM. BAYLOR HARTLAND, Old Established Seed Warehouse, 24, Patrick Street, Cork.

Wholesale, HURST AND SONS, London.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN and FLORISTS to His Majesty the King of the Netherlands, Haarlem, Holland.

Golden Medal and Grand Prize (Diplôme Commémoratif), Paris, 1889.

Novelties of the Season.

CROCOSMA AUREA IMPERIALIS, doubtless the finest plant of this class, great perfection, with large, fine formed, brilliant orange-coloured flowers. E. H. Krelage & Son received for it premier prize for new plant at Paris (7th Temporal Show), and First-Class Certificate at Committee Meeting, Royal Horticultural and Botanic Society of the Netherlands, at Amsterdam, September 10; good bulbs, each, 12s. 6d.

EREMURUS OLGÆ. Excellent plant, stem 3½ feet high, bearing an infinite number of fine white flowers. Certificated Royal Horticultural Society, 1888. E. H. K. & Son got a first prize for it as new plant in flower, Brussels, 1888; good plants, each, 10s.

GLADIOLUS, NEW LARGE SPOTTED HYBRIDS. Our collection got a mention at Paris at the 6th Temporal Show. Five varieties (see catalogue, 435), each, 5s.; the set, 20s.

IRIS KÆMPFERI (see catalogue, 435); five new varieties; each, 1s. 6d., 2s. 6d., 5s. to 10s.

KNIPHOFIA ALOIDES GRANDIFLORA GIGANTEA, a remarkable large and stout growing variety, with stems of more than 6 feet high, and flower heads of 18 inches long and 4 inches diameter, much recommended by the Bulb Committee at the Amsterdam Royal Horticultural and Botanical Society Meeting, September 10; each, 1s. 6d.; dozen, 15s.

FOR further particulars and for other novelties, see CATALOGUE 435; and for Bulbs and Plants in general, CATALOGUES 405, 410, 430, and 435.

SHARPE'S VICTOR POTATO (True).—The earliest prolific Potato extant. Extra selected from original stock. Price, 2s. per stone of 14 lb. Cash with order.

J. E. DIXON, 21 and 23, Lord Street, Gainsborough.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Seed saved from Prize Plants. In beautifully illustrated Packets, choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, Named Singles, from 12s. to 42s. per doz.; Unnamed Seedlings, 12s. to 21s. per doz.; Bedding, choicest, 6s. and 9s. per doz.; choicest Named Doubles from 42s. per doz.; Unnamed, very choice, 24s. and 30s. per doz.; choicest Mixed, 18s. per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.

JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

The New Raspberry.

LORD BEACONSFIELD. (A Seedling).

The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society. Canes 30s. per 100; 4s. per dozen. Trade supplied. Cash with order. Captain Strawberry Plants, 4s. per 100. Buy direct from the Grower.

A. FAULKNOR, Inkpen, Hungerford.

Trade Price Current, 1890.

PETER LAWSON AND SON (Limited), Wholesale Seed Growers and Merchants, Edinburgh, have Posted their ANNUAL CATALOGUE of VEGETABLE and FLOWER SEEDS to their Customers. If not delivered in any case, another copy will be posted on application.

The ANNUAL CATALOGUE of AGRICULTURAL SEEDS will be published later on; meanwhile, special offers will be made when requested.

W. TROUGHTON, NURSERYMAN, Preston, offers the following grand Exhibition Plants cheap:—3 Specimen ADIANTUM FARLEYENSE, 1 Specimen PRITCHARDIA VUYLSTEKEANA, 1 LATANIA BORBONICA.

ROSES—ROSES—ROSES. 30s. per 100, best named Dwarf H.P.'s. 70s. per 100, best named Standard and Half Std. H.P.'s and Teas. 75s. per 100, LABURNUMS, 7 to 8 feet stems. £5 per 100, Black Italian POPLARS, 7 to 10 feet stems, good. Cash with order.

C. H. GORRINGE, Roselands Nursery, Eastbourne.

The Best Present for a Gardener.

VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published. New Edition. Price 5s., post-free 5s. 6d.

A. F. BARRON, Royal Horticultural Society, Chiswick.

FOR SALE, a fine PHŒNIX DACTYLIFERA PALM, 9 feet high, 36 feet in circumference. Only sold on account of being too large for conservatory. What offers?—KAINES, Cold Overton, Oakham.

FERNS.—FERNS.—FERNS.—Cheap trade offer of twenty most saleable sorts, at 12s. per 100. ADIANTUM CUNEATUM, PTERIS MAJOR, &c., packed for cash.

SMITH, London Fern Nursery, 140, Loughboro' Road, Brixton.

SEAKALE for FORCING, superior, selected Crowns, 80s. per 1000; under 500, 9s. per 100. Cash to accompany all orders.

ALFRED ATWOOD, Grower, 14, Lavender Terrace, Battersea, S.W.

CARNATION, GLOIRE DE NANCY.—We are sending out our own strain, the grandest white, clove-scented flower in cultivation; flowers from 6 to 9 inches round; for cutting, border, or conservatory decorations, it has no equal; good strong rooted layers, ready to pot up or plant out, 30s. for 100, 15s. for 50, 8s. for 25. We have also a grand lot of the true OLD RED CLOVE layers (we never had better) at 20s. for 100, 10s. for 50, 6s. for 25; also a fine lot of the COUNTESS, bright terra cotta, and ROSY MORN, striped pink, at 20s. for 100. And a grand lot of double white PRIMULA, in 5-inch pots, in flower and bud, at 10s. per doz.—COLLINS AND SONS, Cumberland Park Nurseries, Willesden Junction, W.

THURSDAY NEXT, JANUARY 9.

IMPORTANT TO THE TRADE.

50,000 GRAND BULBS OF LILIUM AURATUM

(Mostly in Cases as received).

1000 LILIUM AURATUM MACRANTHUM, L. AURATUM RUBRO VITTATUM, L. AURATUM WITTEI, 1200 L. LONGIFLORUM, 1000 L. KRAMERI, L. SPECIOSUM ALBUM and RUBRUM, L. BATEMANNIÆ, L. HANSONI, L. LEICHTLINI, L. CONCOLOR, L. TIGRINUM FLORE PLENO, L. ELEGANS ATROPURPUREUM and SANGUINEUM, L. THUNBERGIANUM "Alba Wilson," L. CORIDION, L. MEDIOLOIDES, L. CORDIFOLIUM, L. JAPONICUM COLCHESTERI, L. AURATUM PICTUM, &c., just received direct from Japan.

Also several thousand TIGRIDIA GRANDIFLORA, T. GRANDIFLORA ALBA and T. CONCHIFLORA, LILIUM PARRYI, L. PARDALINUM, L. HUMBOLDTII, and L. WASHINGTONIANUM, from America, and many other BULBS and ROOTS, &c.

MR. J. C. STEVENS will **SELL** the above by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 9, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

J. E. DIXON'S "PRESIDENT CARNOT" BRUSSELS SPROUTS.

J. E. D. will be able to supply this extraordinary fine strain at 1s. per packet, for season 1890. The following testimonial (one of many similar) has been received from—

Mr. GEORGE SUMMERS, *Gardener to the* Earl of Scarbrough :—

"DEAR SIR,—I have grown your President Carnot Brussels Sprouts by the side of several other well known varieties, and have come to the conclusion that it is the hardiest and best variety grown."

London Wholesale Agents:—HURST AND SON, 152, Houndsditch, E.; COOPER, TABER AND CO. (Limited), 99, Southwark Street, Borough, S.E.

JOHN ETHERINGTON DIXON (second son of the late Edmund Philip Dixon, Seed Merchant, Hull), Seedsman, 21 and 23, Lord Street, Gainsborough.

LILIES and ORCHIDS. An immense stock of recently imported Plants, compels a sale of the Established Plants to make room. They have not yet flowered, but are all flowering plants, and must be sold at a great sacrifice. Very valuable varieties are certainly to be obtained, and great bargains; see public journals for high prices recently obtained. The special offer affords a paying investment to anyone with glass at command, which should not be overlooked. Such plants may never again be offered to the public and trade.

My first consignments of LILIUM AURATUM have arrived, prices 4*d*., 6*d*., 9*d*., 1s., and 1s. 6*d*. each; per 100, 30s., 35s., 45s., 55s., and 70s. Liberal allowance to the Trade.

Apply for CATALOGUE to

W. GORDON, The Nurseries, Amyand Park Road, Twickenham.

TO COMPETITORS, and all who require Seeds and Plants of the choicest and most reliable kinds, we offer to send our New CATALOGUE and Competitor's GUIDE (128 pages) gratis and Post free.

TEN CERTIFICATES OF MERIT were awarded our strains of Vegetables at the Great Vegetable Conference held by the Royal Horticultural Society in 1889.

NINE FIRST-CLASS CERTIFICATES and "Commendations of Strains" have been awarded by the Floral Committee of the Royal Horticultural Society during the last two years to our Florists' Flowers, most of them after trial at Chiswick.

DOBBIE AND CO., Seed Growers and Florists, Rothesay, Scotland.

"Now is the Time to Plant Trees."

ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.

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THE BEST EARLY POTATO IS SHARPE'S VICTOR

EARLIEST. May be dug in six to eight weeks from planting.

SHORTEST TOP. — The best for planting in Pots and Frames.

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MOST PROFITABLE. } have been made by Marketing SHARPE'S VICTOR.

FINEST IN FLAVOUR.—The best in every way.

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SEED FARMERS and MERCHANTS,

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SPECIAL CULTURE OF

FRUIT TREES AND ROSES.

A Large and Select Stock is now offered for Sale. The Illustrated and Descriptive Catalogue of Fruits post free.

The Descriptive Catalogue of Roses post-free.

THOMAS RIVERS & SON,

The Nurseries, Sawbridgeworth, Herts.

THE FOLLOWING TREES, having stout, straight stems, fine heads, and splendid roots, all having been transplanted within two years

ACACIA BESSONIANA, 12 to 14 feet.
" SEMPERFLORENS, 12 to 14 feet.
ACER DASYCARPUM, 12 to 16 feet.
" " WIERII LACINIATA, 10 to 14 feet.
" NEGUNDO VARIEGATA, Standards, 8 to 10 feet.
" REITENBACHII, 12 to 14 feet.
" SCHWEDLERII, 12 to 16 feet.
" WORLEYII, 12 to 14 feet.
ASH, Mountain, 12 to 14 feet.
BEECH, common, 10 to 12 feet.
" Purple, Pyramids and Standards, 10 to 16 feet.
BIRCH, Silver, 12 to 14 feet.
CHESTNUTS, Horse, 14 to 16 feet.
" " Double White, 10 to 16 feet.
" " Scarlet, 12 to 16 feet.
" Spanish, 12 feet.
ELMS, English, 10 to 12 feet.
" Guernsey, 12 feet.
LIMES, 12 to 16, and 20 feet.
" Silver-leaved, 10 to 14 feet.
LIQUIDAMBER, 6 to 10 feet.
MAPLE, Norway, 12 to 16 feet.
OAK, English, 10 to 14 feet.
" Scarlet, American, 12 to 14 feet.
PLANES, 12 to 16 feet.
POPLAR, Bolleana, 10 to 14 feet.
" canadensis nova (the true variety), 12 to 16 feet.
" Lombardy, 14 to 16 feet.
SYCAMORE, Common, 14 to 16 feet.
" Purple, 14 to 16 feet.
THORNS, Double, Scarlet, 8 to 10 feet.
" " White, 8 to 10 feet.
WALNUTS, Common, 10 to 12 feet.

WEEPING TREES.

BEECH, Weeping, Pyramids and Standards, 8 to 12 feet.
" " Purple, Pyramids and Standards, 7 to 12 feet.
BIRCH, Young's Weeping, Pyramids and Standards, 8 to 14 feet
ELMS, Weeping, Pyramids and Standards, 7 to 14 feet.
LARCH, Weeping, Pyramids, 6 to 10 feet.
OAK, Weeping, English, Standards, 10 to 12 feet.
POPLAR, Weeping, Pyramids and Standards, 10 to 12 feet.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

CHRYSANTHEMUMS, best sorts true to name, strong Cuttings now ready, from 1s. 6*d*. per dozen 10s. per 100. Many of the best prizes in the country are taken by my customers. For price of New Japanese Incurved, &c., see CATALOGUE, 2 stamps, of W. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

SPECIAL TRADE OFFER.—10,000 of the true old Crimson CLOVE, strong Plants, in large 60's, and 6*l*. for forcing, 16s. per 100; White Gloire de Nancy, 20s. per 100; Souvenir de Hans Makart, very fine White, 4s. per dozen. Package free, cash with order. GEO. POULTON Fountain Nursery, Angel Road, Upper Edmonton.

WEBBS' SPRING CATALOGUE FOR 1890,

Beautifully Illustrated with Coloured Plates, Engravings, and containing complete Cultural Instructions; also an original article on Flowers for Home Decoration, &c.

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WORDSLEY, STOURBRIDGE.

NEAL'S NEW RUNNER BEAN "NE PLUS ULTRA."

Per Packet of Fifty Beans, One Shilling, post-free.

The true stock of Seed harvested by Mr. Neal in 1889, can only be obtained *genuine* from H. DEVERILL, ROYAL SEED STORES, BANBURY: or from those Firms H. Deverill may supply, a List which will shortly appear.

Latest Proof of Excellence.

"Wycombe Abbey Gardens, December 13, 1889.

"MY DEAR SIR,—Taking all points into consideration, Neal's 'Ne Plus Ultra' Runner Bean is unquestionably the best kind in cultivation. Its perfect form and fine appearance renders it invaluable and indispensable as a variety for exhibition purposes. Yours very truly, GEO. THOS. MILES."

"Mr. HENRY DEVERILL, Banbury."

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SEED GROWER AND MERCHANT,
BANBURY.

LILIUM AURATUM.

In finest possible condition, hard as bricks! Order early.

FINE BULBS, measuring 8 inches round, 25 for 6s. 6d., 100 for 21s.
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" " 10 to 10½ inches round, 12 for 7s. 6d., 100 for 50s.

Better Bulbs impossible. Special Trade Prices.

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GLADIOLUS COLVILLEI ALBA "THE BRIDE," 6s. 6d. per 100.
" BRENCHLEYENSIS, scarlet, 3s. 6d. 100.
LILIUM RUBRUM CRUENTUM, very dark form, immense Japanese bulbs, 1s. each, 10s. dozen.
" ALBUM KRÆTZERI, pure white, 12s. doz.
" WASHINGTONIANUM (Californian Silver Lily), gigantic bulbs, 22s. per dozen.
" HUMBOLDTII, gigantic bulbs, 22s. per doz.
" PARDALINUM MICHAUXII, large clumps, 2s. 6d. and 3s. 6d. each.
Finest obtainable quality, at very low prices.

W. H. HUDSON, Lily Importer,
WEST GREEN ROAD, TOTTENHAM.
Address for Telegrams:—"AURATUMS," London.
Mention Gardeners' Chronicle.

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Seed Potatos, Garden Tools, & Sundries.

Best Qualities Only. Prices most Moderate.
Delivered Free by Rail or Parcel Post.

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Post-free on application to

BENJAMIN R. CANT,
COLCHESTER.



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH AND SON, Nurserymen and Seed Merchants, Highgate Nurseries, N.

SPECIAL OFFER TO CLEAR.

50,000 Native Scotch FIR, 12 to 18 inches, 8s. 6d. per 1000.
50,000 " " FIR, 15 to 18 inches, 10s. 6d. per 1000.
50,000 " " FIR, 18 to 24 inches, 12s. 6d. per 1000.

CLEAN WELL-GROWN STUFF.

WISEMAN, Nurseryman, Elgin, N.B.

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BULBS,
ROSES,
FRUIT TREES, &c.

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CHARD, SOMERSETSHIRE.



PRIZE COB FILBERT TREES.

MR. COOPER, F.R.H.S., of Calcot Gardens, Reading, Berks, is the largest Grower of Prize Cob Filbert Trees for Sale in the Kingdom. No garden should be without one of these most prolific Trees.

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LARGE AND GOOD PLANTS AT THE LOWEST PRICES.
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CHRYSANTHEMUMS.—We offer one of the largest and richest collections ever grown; embracing, as it does, all the renowned English, American, Continental, and Japanese Novelties. Cuttings post-free, our selection, 2s. per dozen; 15s. per 100. Extra choice and new sorts, 4s. and 6s. per dozen. Plants ready about February. Orders booked now.

A FEW SPECIALTIES.—You should send for this Small List gratis and post-free—as we feel sure it will interest you. In it will be found descriptions of several rare and desirable plants that are not to be found in any other list; also, such beautiful, little-known species as "THE FOAM FLOWER," "THE TREE ANEMONE," &c.; besides such Novelties as the Kelsey (Japan) Plum, &c.

CLIBRAN'S EUCHARIS MITE-KILLER.
All may now grow and flower the beautiful Eucharis if only cultivated with ordinary care, and according to directions. See Testimonials, gratis and post-free. Half-pints, 1s. 6d.; pints, 2s. 6d.; quarts, 4s. 6d.; half-gallon, 7s. 6d.; 1 gallon, 12s. 6d.

THE INSECTICIDE of INSECTICIDES.—"Lemon Oil" is steadily forcing its way to the very foremost position amongst all Insecticides. Nearly all the principal Gardeners and Nurserymen use it, as they find it to be the cheapest, most effective, and safest in the market. Pints, 1s. 6d.; quarts, 2s. 9d.; half-gallons, 5s.; gallons, 9s.; 4 gallon tins, 34s. May be procured from most Seedsmen and Nurserymen; or from

Clibrans', Nurserymen, Altrincham;
Also, 10 and 12, Market Street, Manchester.

GEO. JACKMAN & SON

beg to offer a large and well-grown stock of the following:—

FRUIT TREES.—Of the leading varieties suitable for Market and Private Gardens.
ROSES.—Choice and Exhibition Varieties, selected Standards and Dwarfs; also in pots for forcing.
RHODODENDRONS.—Of the best named sorts, well set with buds; also Hybrid, Seedling, and Ponticum, for shrubbery and covert planting.
CONIFERS.—A Large Collection for Lawns and Pleasure Grounds.
SHRUBS.—Ornamental and Flowering, adapted for Belts, Shrubberies, Screens, &c.
TREES.—Ornamental and Flowering, for Parks, Avenues, Streets, and Private Gardens.
FOREST TREES.—For Coverts, Screens, &c., all grown by thousands.
CLIMBERS.—In large variety for Walls, Trellises, Rockwork, &c., including their celebrated Clematis.

G. J. & Son have also to offer a
NEW CLEMATIS "MRS. BARON VEILLARD"—a handsome variety of the Jackmanii type. It is a vigorous grower, bearing a profusion of distinct light lilac rose flowers, of medium size, from July to October. It can be highly recommended for its good qualities, and should be added to every collection. Price on application.

LANDSCAPE GARDENING.—A leading feature. Plans made and Estimates given for Laying-out Estates, Public Parks, Cemeteries, Private Gardens, and Pleasure Grounds.

The New Descriptive and Priced CATALOGUE, free on application.

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WOKING, SURREY.

FOR PLEASURE AND PROFIT.

FRUIT. Nothing so profitable and easy to grow. 74 Acres in stock.
See CATALOGUE for simple Instructions and kinds of Trees to suit all soils.

ROSES. 20 Acres. Bushes 8s. per dozen, 60s. per 100.
☞ Packing and Carriage Free for Cash with Order.

ROSES IN POTS from 15s. per dozen.

ORNAMENTAL TREES, 91 Acres.

4 Acres of Glass.

CLEMATIS (80,000), 12s., 18s., and 24s. per doz.

SEEDS & BULBS. VEGETABLE, FLOWER, and FARM.

Descriptive LISTS free.

RICHARD SMITH & CO.,
WORCESTER.

SELECT GARDEN SEEDS.

IRELAND & THOMSON

BEG TO ANNOUNCE THAT THEIR

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VEGETABLE AND FLOWER SEEDS, FRENCH HYBRID GLADIOLI, AND OTHER GARDEN REQUISITES,

FOR 1890,

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ONION.
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TO THE

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FOR

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AT REDLANDS, GLASGOW.



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 4, 1890.

NOVELTIES OF THE PAST YEAR.

FOLLOWING the time-honoured practice of reviewing the triumphs and gains of horticulture during the preceding year, and taking note of the novelties in plants introduced from foreign sources, or raised by our hybridists at home, we now afford our readers once more a condensed account of the last year's work.

Undoubtedly the greatest object of interest which has passed under review is the Amorphophallus titanum, which flowered in the Royal Gardens, Kew, last June, and about which sufficient was said at the time. Among the

ORCHIDS

brought into notice during the past year, Messrs. James Veitch & Son have, as usual, introduced many fine things, their marvellous and extensive collections of hybrids furnishing some of the best plants of the season. Their Cymbidium eburneo-Lowianum × is a noble plant, with large wax-like fragrant flowers, with sepals and petals delicately tinged like old ivory. The Lælio-Cattleya aurora × and L.-C. Cassiope × are both fine plants, with forms of Lælia pumila as one of their parents, and whose influence aids greatly in securing plants of dwarf habit, with richly coloured flowers of great size. The beautiful Lælia Victoria ×, raised by Messrs. Veitch, has, during the past year, been awarded a Certificate in the case of a plant shown by Baron Schroder, as well as the chaste Dendrobium cuosmum leucopterum and D. micans, the latter a D. Wardianum and D. lituiflorum ×, and both of the most beautiful of recent hybrids have received honours from the Royal Horticultural Society. Lælio-Cattleya Pallas, for which Messrs. Veitch received a First-class Certificate on December 10, is a fine novelty, with very rich colouring in the labellum. But the plant which attracted more attention than any other during the year was the

same firm's L.-C. Digbyana—Mossiæ ×, that exquisitely formed flower with the colour of C. Mossiæ, and quaint fringed lip of Lælia (Brassavola) Digbyana, which was exhibited at the Royal Horticultural Society on May 14, and for which the Orchid Committee unanimously voted a Silver Medal.

Another much admired plant is the beautiful white Lælia autumnalis alba, flowered by Messrs. Veitch during last year, and which when exhibited divided attention with the lovely Lælia præstans alba, for which Mr. William Bull the same day received a First-class Certificate, and which is one of the finest and rarest introductions of the year. The handsome Cypripedium Tautzianum lepidum has flowered with Mr. Bull, its introducer, and at the same establishment several fine spotted Odontoglossums and new forms of Lælia elegans and L. purpurata—notably L. p. rubicunda have appeared.

Another worthy introduction of 1889, which has not yet flowered, but which was determined at Kew as distinct, is Grammatophyllum Measuresianum, imported by Messrs. F. Sander & Co.; the plants are stout growers, ornamental in habit, and when they bear the long dense spikes of richly-coloured yellow, crimson, and purple flowers, as indicated by the dried specimens, they will form fine objects. Also with Messrs. Sander during 1889 have flowered their new hybrid C. labiata Ballantinei ×, a good thing, which flowers when "labiatas" are scarce; their Dendrobium nobile Sanderianum; one of the largest and brightest-coloured forms of that favourite plant, D. transparens album, a very desirable variety. Their Odontoglossum Wendlandianum and O. Hunnewellianum are pretty introductions, the former very rare, and the latter plentiful, and exhibiting great variety, some of the forms being indifferent, while others are very neat and beautiful. Cattleya Brymeriana has also been certificated to the St. Albans firm, who have also late in the year flowered several quite new species, which had better, in justice to them, stand over until next season.

Messrs. Hugh Low & Co. scored in 1888 with the charming Vanda Amesiana and Phalænopsis gloriosa, last year the companion plants, Vanda Kimballiana and P. Schilleriana alba, certificated to Geo. Firth, Esq., were two worthy introductions accredited to them. V. Kimballiana is a gem requiring a cool temperature, growing freely, and producing profusely its rich flowers with their admirably contrasting amethyst labellums. The pretty specimens certificated to Messrs. Low and Sir Trevor Lawrence on August 13, took the fancy of all, and since that date the beauty and usefulness of the plant have been proved everywhere. The first of the Lowian hybrids, too, C. Claptonense ×, a cross between C. Harrisianum and C. villosum; and another distinct variety, C. de Witt Smith ×, between C. Spicerianum and C. Lowii, has to be recorded from Messrs. Hugh Low & Co.

The Cypripediums appearing from many establishments, the result of their hybridising operations, threaten to become confusing, unless some means be adopted for fixing the same names to the same crosses wherever they may have been obtained. One of the prettiest of the season is C. Niobe ×, which Messrs. Jas. Veitch & Son obtained between C. Spicerianum and C. Fairrieanum. All the forms previously raised with the last named for one of the parents are indescribably attractive, and C. Niobe × is no exception; C. Galatea majus ×, too, a cross between C. Harrisianum and C. insigne Chantini, which Mr. Ballantine recently flowered in Baron Schroder's collection, is a good thing. C. T. B. Haywood, from the same collection, is fine; and the C. nitidissimum of Mr. Norman Cookson, a cross between C. caudatum and C. conchiferum, is a fine addition to the free-growing Selenipedium section, at whose head the noble C. grande × of Messrs. Veitch yet stands. Mr. Cookson also obtained the stately C. Pitcherianum × and a pretty hybrid in Masdevallia Courtauldiana ×; and Messrs. Veitch two more in M. Ellisiana × and M. caudata-Estradæ, all of which have been duly described in these columns.

In the hybrid houses of Drewett O. Drewett, Esq., at Riding Mill-on-Tyne, C. Beatrice ×, a form obtained out of C. Lowii and C. Boxallii, has flowered, also other interesting varieties, the best of which is probably that resulting from the intercrossing of C. caudatum and C. Schlimii, though how it is to make way against C. Schroderæ, which is a step in advance of it, must be left for collectors to determine.

In the famous collection of Sir Trevor Lawrence, Bart., M.P., two long-nursed hybrid Cypripediums flowered in 1889, viz., C. picturatum ×, a flower somewhat resembling C. Hornianum ×, and of which the parentage is not recorded, but in its production C. Spiceranum evidently took part, and C. Morganæ, Burford variety, a slightly varying and good form of the noble C. Morganæ ×, raised by Mr. Seden at Messrs. Veitch & Son's establishment; Acineta, maculata, Catasetum barbatum proboscideum, Maxillaria fuscata, and other new or rare Orchids of especial botanical interest, have been exhibited by and certificated to Sir Trevor Lawrence during the year; and in the same class of plants the interesting collection of A. H. Smee, Esq., at Hackbridge, has contributed a number of quaint and showy things. It is pleasant to note the rising interest in Catasetums, several new forms of which have lately appeared in the collection of Messrs. B. S. Williams & Son, one new form of C. tabulare, named C. t. læve, from its departure from the type, curiously enough flowering in a batch, and all consistently alike. The new Catasetum galeritum pachyglossum, of Sir Trevor Lawrence, gives another instance of variability in this eccentric genus.

Among the species of Cypripedium, C. Rothschildianum and C. Elliottianum have both been well exhibited, the former by Mr. Hill, from Lord Rothschild's gardens, and the latter by Mr. Whellans, from the Duke of Marlborough's, from whence, also, some new forms of Lælia elegans are reported.

Other fine new Orchids which have appeared in 1889 are Sobralia xantholeuca alba, Veitch & Son; Cypripedium Minerva × (Measures), Odontoglossum grande, Tautz's var.; Miltonia vexillaria purpurea, and the pretty O. egregium (F. G. Tautz), Dendrobium nobile album (Seeger & Tropp), Eulophia bella (W. E. Gumbleton), Phaius philippinensis (Veitch), Odontoglossum Pescatorei Thomsonianum (Pollett); and among other grand exhibits from Baron Schroder's rich gardens, Lælia Dellensis, a natural hybrid, in appearance half-way between Lælia purpurata and L. Perrinii, and with a richly-coloured violet-purple lip, received a First-class Certificate; also Miltonia vexillaria Leopoldii, the highest of the superba type; and the already noted Cattleya Mendeli Rothschildiana.

Among Cape terrestrial Orchids which seem to be getting into favour, two new introductions should be noted, viz., Disa tripetaloides, n. sp., N. E. Brown, a most free-growing plant of the D. grandiflora type; and D. pulchra, a noble species as showy as a Gladiolus, but whose behaviour under cultivation has yet to be proved.

Among other new plants illustrated in the *Gardeners' Chronicle* in 1889, the following of the above-noted appear:—

Cypripedium Pitcherianum ×, Jan. 19, p. 73.
Lælia Digbyana-Mossiæ, May 25, p. 657.
Vanda Kimballiana, Sept. 21, p. 335.
Amorphophallus titanum, June 15, p. 745, 748; July 6, p. 12, 20, 21 (in various stages).

(To be continued.)

PLANT PORTRAITS.

Bertolonia Madame Alfred Bleu.—Ground colour olive-green, densely spotted with crimson, and with the prominent ribs milky-white. *Revue Horticole*, December 16.

Pear Sucrée de Montluçon.—Recommended for its fertility. It is of medium size, does well on the Quince, is juicy, and well flavoured. *Bulletin d'Arboriculture*, &c., December.

JAPANESE ECCENTRICITIES.

The display at the recent Paris Exhibition of specimens of Japanese patience and ingenuity excited great interest. The illustrations which we now give will serve to show the general character of the results obtained.

In the mountain scene (fig. 1), copied from a book brought home by Professor Moseley—the rocks measure about 18 inches in height, pierced with holes, to imitate caverns, and placed in water. Little ships sail on the water, and various plants such as Bamboos, Palms, and the like are planted at the water's edge. The rock represents a landscape with houses, and little villages with little human figures placed at the foot or at a certain height on it, and planted with groves or single large trees.

The imitation is carried so far that the various forms of the rocks, tufa, stalactites, limestone, &c. are all correctly represented. These "miniature rock-gardens for rooms" are so much in favour in Japan, that they may be found in the dwellings even of the poorest classes. M. Vallon and M. P. Maury have recently devoted interesting articles in the *Bulletin of the Botanical Society of France* to a discussion of the methods employed by the Japanese and Chinese in producing the stunted trees made use of for room decoration. In some instances a Pine tree is sawn across at a little distance above the soil. Adventitious shoots are produced in consequence, and of these one is preserved, the others being cut away. The new shoot is allowed to grow for a little while, and then nearly the whole of it is cut away and replaced by a lateral shoot bent at right angles; a new leader shoot is formed from this, and is treated in the same manner, and so on. The Japanese also cut across the main tap root, as a result of which many side roots are formed, only the tips of which are allowed to remain in the soil, so that what with the continued pruning and twisting of the branches and the suppression of the main roots, a stunted growth is assured, and maintained by continuous attention and prolonged starvation. The trees made use of are mainly Coniferous, but others, such as Trachelospermum jasminoides, Nandina domestica, Japanese Maples, &c., are employed, the latter plants being grafted. Under this treatment the trunk often assumes the form of a large irregular mound, which may be of a very considerable age—a century or more—though of such small dimensions (see fig. 2, p. 12). Naturally, from the amount of attention and time required to produce them, the price of these productions is high.

M. Maury adds some interesting particulars which he received from a Japanese botanist. The seeds are sown in very small pots, the seedlings are allowed to grow till the pots are full of roots, when they are

shifted into other pots scarcely larger than before. Thus treated the greater part of the main tap-root dies, the remaining portion emitting secondary roots, which are subjected to a similar starving process, with a result that they often project above the surface, and support the plant as on stilts. The branches as they grow are tied down and twisted in all possible directions, something after the approved pattern of a specimen plant at a European flower show! M. Maury states that actual pruning is not resorted to, the starving and bending of the new shoots as they are formed being

NEW OR NOTEWORTHY PLANTS.

AËRIDES AUGUSTIANUM, *Rolfe, n. sp.*

A SPECIES of this beautiful but difficult genus has been sent to Kew for determination, by M. Lucien Linden, Administrative Director, L'Horticulture Internationale, Parc Leopold, Brussels, which appears different from any species I can find described, and for which the above name is proposed. It is allied to A. Roebelenii, Rchb. f., but differs in certainly very elegant. The plant is about 9 inches high, and bears eight gracefully arching leaves, about 6 or 7 inches long, and 1¼ in diameter, dark green, and unequally bilobed. The arching raceme is about 9 inches long, and bears about thirty flowers of a light rosy shade, and from 1 to over 1¼ inches long. Sepals and petals roundish-oblong, obtuse. Lip three-lobed; side-lobes falcate-oblong, rounded, or nearly truncate above, margin entire; front lobe much longer, broadly oblong; margins crenulate, apex somewhat bilobed. Spur decidedly longer than front lobe of lip, measuring about



FIG. 1.—JAPANESE HOUSE-GARDEN. (SEE P. 8.)

ound sufficient for the purpose. Sometimes as a result of this incessant torture all the branches die, leaving only the stump, in the shape of a thick shapeless stock, on which buds are grafted, so that from the same stock numerous different varieties—say of Nandina domestica—may issue.

The principles upon which these strange growths are produced are thus easily understood, while patience and perseverance in their application produce the desired results.

As curiosities and illustrations of vegetable physiology they are interesting, but they cannot, to our notions, be cited as illustrations of good gardening.

its longer, stouter, nearly straight spur, also in the flowers being rose-coloured, not pallid greenish-white. It was discovered in the Philippine Islands by M. Auguste Linden, who had the misfortune to lose his left leg by an accident during his travels, and after whom it is named, by request. The materials at hand are a coloured drawing of the entire plant, and a living raceme, said to have been taken from a much smaller plant, which had been sent to Ghent, and the flowers somewhat damaged. The drawing shows larger flowers and brighter colours than the living raceme, but I am assured it is a faithful representation of the species, and it is

three-quarters of an inch, nearly straight, and somewhat stout. It is proposed to publish a figure of the plant in an early number of the *Lindenia*. I may add that there appears to be a rose-coloured plant in gardens called A. Roebelenii; whether it is identical with the present species, I cannot say; but it certainly does not agree with the one originally described by Reichenbach. *R. A. Rolfe, Kew.*

CYPRIPEDIUM NIOBE, *n. hyb.*

This is a new and very pretty hybrid, raised by Mr. Seden, of Messrs. J. Veitch & Sons' Nursery, Chelsea, between C. Spicerianum and C. Fairrieanum, the

*

latter being the pollen parent. It was exhibited at the meeting of the Royal Horticultural Society on December 11 last, when it was awarded a first-class certificate. The flower has been sent to Kew by Messrs. Veitch, who informs me that the leaves are like those of C. Fairrieanum, only a little broader, 3—5 inches long, ¾—1¼ inches broad, and of a uniform green colour. The dorsal sepal has the shape and colour of that of C. Spicerianum, but in addition to the broad central band, there are numerous narrow purple nerves, which seem to me clearly to show the influence of the pollen parent. The petals are linear, oblong, and quite straight, whitish-green in colour, with about nine purple nerves, of which the central one is broader than the others, and all pass into rows of dots as they approach the base. The upper margin is beautifully undulate, the lower one less so and both are nearly ciliate, so that the influence of the pollen parent is seen to predominate somewhat in these organs. The lip, too, approaches that of C. Fairrieanum rather than the other parent, it being small, whitish-green, and almost suffused in the front with light purple brown. Staminode sub-orbicular, a little indented in the front, margin whitish, the centre nerved with dark green, in front of which there is a suffusion of light purple. We have now three hybrids, whose pollen parent is C. Fairrieanum, viz., C. vexillarium, C. Arthurianum, and the present one, and each of them are very elegant little plants The seed from which C. Niobe was raised was sown in 1884. *R. A. Rolfe.*

FOREIGN CORRESPONDENCE.

HORTICULTURE IN BELGIUM IN 1889.

(FROM OUR SPECIAL BELGIAN CORRESPONDENT).

HORTICULTURE continues to make progress here; commercial transactions, the introduction of new plants, the raising of seedlings, the publication of reviews and special treatises, the number of exhibitions, are all manifestations of increasing activity.

Exhibitions have been numerous during the year now closing. Their characteristic has been specialisation; and on Roses, Orchids, and Chrysanthemums, the efforts of the principal societies have in a large degree been centred.

The Chrysanthemum, which was somewhat depreciated three or four years ago, is to-day the fashionable flower with us. The public is seized with a somewhat exaggerated liking for this pretty Oriental flower which has been a favourite of the English for so long. It does not require that the amateur—for the Chrysanthemum is before all, in Belgium, an amateurs' plant—should possess costly accessories, or phenomenal fortunes.

We have not here the numerous winter gardens which exist in England, nor the wealth of our neighbours across the channel. With one or two rare exceptions, our amateurs are men of moderate means and modest pretensions; thus it is easy to understand the enthusiasm with which the "golden flower" has been welcomed in our small country.

The blooms which English horticulturists sent us had a decisive influence on our Chrysanthemum growers, who are striving now which shall approach the closest to the English standard.

The Chrysanthemum is not exactly a plant from which the nurseryman will realise great profits, but it has the advantage of creating amateurs, who will, pass on from the love of the Chrysanthemum to that of other plants, and will little by little reconstruct that brilliant phalanx of horticultural amateurs, of which Belgium was formerly so proud.

Orchids do not appear likely to lose the position which they have enjoyed for so long a time. Our nurserymen at the Paris Exhibition brilliantly maintained their reputation with choice collections sent to nearly all the temporary shows.

Our publications have given much prominence to charming introductions from the tropics, both in the text and in the form of coloured plates and cuts. At the meetings at Ghent and at Brussels, the chief features were, among Orchids, some new introductions, many obtained by hybridisation.

Orchidists are very numerous, and nurserymen who have not, at least, a few specimens of Orchids are thinly scattered, and the *salons* where these fine flowers are not found are rare. A bouquet of natural flowers wherein Orchids are not included is no longer thought worthy of notice. Except for the great auction sales of Orchids which the English have established on the Continent, and especially in Belgium, there is no doubt that these flowers would never have crossed the threshold of the salon. These public sales, regarded at first with suspicion by our traders, have finally created an important branch of our commercial horticulture. They have had in our country a considerable influence on science, as we will hope to show some other time.

The increasing taste for flowers which has been manifested by the Belgian public has had its influence on the arts also. A couple of instances will prove this.

At the recent displays of Chrysanthemums at Antwerp, Ghent, and Brussels, especially in the first-named city, many artists showed works in which the Chrysanthemum was the chief object. Many of these pictures had a real artistic value. The tendency of our horticultural societies to attract the attention of artists strikes me as a happy one, as art may thus become the reporter of the progress of horticulture.

We have in Belgium many amateur photographers' societies, and among the members a tendency is growing, which I am happy to observe—it is the portrayal of the distinctive characters of particular flowers. At a recent photographic exhibition in Ghent, two exhibitors had excellent photographs of Cypripedium. Photography may be made of much service to horticulture by at once fixing the character of flowers which only endure a short time, and for that purpose it has the advantage over painting.

While speaking of pictures, I should like to mention that capital portraits of Chrysanthemums were executed for the Ghent show by an artist at Yokohama, Mr. Kumehara.

The Chrysanthemum fancy has also had its effect on the ceramic art. In place of the generally seen fantastic plants, we now see good representations of the Chrysanthemum.

FLORISTS' FLOWERS.

CHRYSANTHEMUM CULTURE AT THE ANTIPODES.

ONE of the latest Societies affiliated to the National Chrysanthemum Society is that of the Auckland Chrysanthemum, New Zealand. The culture of the favourite autumn flower appears to have taken considerable hold upon the florists there, and several of the medals of the National Chrysanthemum Society will be offered for competition at their next Exhibition at Auckland. It seems curious that their Chrysanthemum Show should take place in April, but that is an inevitable geographical difference.

The Auckland Society have just published, for the benefit of its members, a pamphlet giving directions for the culture of the Chrysanthemum, and hints on exhibiting it. It would appear that open air culture of this flower is much more common than with us in this country, and exhibition flowers are had from plants growing in the open. The soil in which they are grown is rich; it is highly manured and deeply stirred, so as better to retain moisture during the dry weather. The site selected for the bed is one sheltered from strong winds, but clear of the shade and roots of trees.

Culture in the Open Ground.—Cuttings are taken during October and the early part of November. Healthy root-suckers are also utilized for making plants, and bottom heat is not so generally employed in rooting them as with us, about the middle or end of November, just when our home grown plants are at the height of their bloom. The time for planting out appears to be a matter of great importance, and stress is laid upon it, as the inclination o growers is to plant out too soon. In planting, it appears usual to place three plants of any one variety in the form of a triangle 6 or 8 inches apart, leaving about 3 feet between each triangle. When the young plants have become established and are making growth, the main stem of each is pinched back in order to induce lateral growths, and of these, the three most vigorous are chosen, the others being cut away; and in course of time they, in their turn, are stopped, leaving three buds upon each.

In reference to this second stopping, there appears to be some difference of opinion among the Auckland growers. Some do not adopt this plan, but allow the lateral buds on the three shoots obtained by the first stopping to break naturally. No stopping is done after January. At the point of each shoot flower-buds will be developed, and of these the centre or top bud is allowed to remain, unless imperfect from any cause. When these are securely set, all the other flower-buds and side-shoots are removed, and all the powers of the plants concentrated upon their expansion. The number of blooms permitted to each plant should not exceed nine, or at most twelve, and of these no two blooms are allowed upon the same shoot. Any shoots not required to carry blooms are removed.

From the first the young plants do not receive any check from want of water. The surface is well mulched in order to keep it moist and cool. The surface is kept loose to prevent it becoming hard and baked, care being taken not to disturb the roots. During dry weather frequent syringings are given, doing this in the evening, and copious root waterings are applied. Little or no liquid manure is administered until the flower-buds are set. Soot-water is preferred, for it is found one of the safest to use, as it helps to preserve the foliage, and imparts a dark green colour to it. But soot-water is applied with caution, and after using it for a week or so, it is discontinued for a fortnight or three weeks, when it is again applied.

Soot is sprinkled over the surface-soil in wet weather, but somewhat sparingly, and on no account is liquid manure applied in dry weather until a good soaking of water has been given to the plants. This is applied a little at a time, weak and often, and it is found to answer better than giving strong doses at longer intervals. From the time the flower-buds are set, until they begin to show signs of colouring, liquid manure is employed; then it is discontinued. From that time the plants must on no account be allowed to suffer for want of water. Each plant is secured to a stake, and when they are planted in triangles, the stake is at the back or outside of the plant.

Culture of Plants in Pots.

It would appear that the main portion of the blooms exhibited are taken from the plants grown in the open, but prizes are offered at the April exhibition for specimens in pots. Cuttings rooted by November are employed for the purpose, and when well established in 4-inch pots and growing freely, they are stopped, or pinched back, the effect being to cause lateral or side-shoots to be put forth. Five or six of the strongest of these are selected—such as are evenly distributed all round the plants, so as to form a good, shapely specimen, all the rest being removed. As they increase in length they are pegged or tied down so as to form a good bottom or framework, and are stopped in their turn. They are shifted on into larger pots as required, care being taken that there is no check through being pot-bound, for lack of water, or any other attention. They are shifted into 6-inch pots, and finally into 9 or 10-inch to bloom. Stopping is done as required, the aim of the cultivator being to form a good bushy and symmetrical specimen. After the plants are stopped, water is sparingly applied until the side-shoots make a good start; but on no account is the specimen permitted to suffer for want of water. The plants are kept tied out as required, only such stopping as is absolutely necessary is performed, and it is not resorted to after January. When the bloom-buds

appear, they are thinned out, the number left on a good-sized plant being from thirty to fifty. The plants are kept in a cool, airy situation out-of-doors, sheltered from strong winds, and where they will not be too much exposed to the effects of hot sun. Some place their plants in an open frame minus the lights, and half plunge them in a suitable material. The Japanese varieties, owing to the difficulty experienced in training them, are regarded as the most unsuitable for forming specimens, but that experience is scarcely borne out in the Old Country, where some of the Japanese varieties are grown into admirable specimens.

Orchid Notes and Gleanings.

LÆLIA GOULDIANA, VAR.

One of the most charming novelties that has come under our cognizance is Mr. Statter's form of Lælia Gouldiana. It appears that the plants originally came from Siebrecht & Wadley, New Rochelle, New York, who, by the way, were also fortunate enough in flowering a nearly pure white Cattleya gigas. Messrs. Sander, St. Albans, secured a portion of the stock, and from that firm Mr. Statter, Stand Hall, near Manchester, has acquired the five or six established plants in his possession, all of which are either showing flower, or in flower. This brilliant form under observation eclipses that figured in the *Orchid Album*, and as its inflorescence expands during the festive season, when both Lælia and Cattleya flowers are so scarce, it commands more than usual interest. It apparently is one of those hybrids that have sprung up in a state of nature, showing a large proportion of the blood of Lælia autumnalis atrorubens with some little L. anceps, and in fact something more which may not yet be known to commence, and the following is our diagnosis of it.*

Mr. Johnson, the gardener who grows this class more than commonly well, has the plant in question in a square teak basket, and judging by the maturing pseudo bulbs, which are on the increase in point of bulk, he fully understands the mode of cultivation demanded to ensure success. *J. A.*

VANDA KIMBALLIANA.

A charming species, with terete leaves and panicles of flowers, each measuring about 2 inches across, the segments ovate, lanceolate acute, white tipped with rose, the side lobes of the lip yellow, with small purple spots, the front lobes rich carmine. *Lindenia*, t. 204.

ONCIDIUM CONCOLOR. *Lindenia*, t. 205.

CYPRIPEDIUM ORPHANUM×. *Rchb. f.*

A hybrid between C. barbatum, or an allied species, and C. Druryi. The editor protests against the appropriateness of the name as conveying a false impression. *Lindenia*, t. 206.

DENDROBIUM CRUMENATUM.

A south Chinese and Malayan species, with pseudobulbs dilated at the base, and with flowers disposed in terminal racemose cymes. Each flower measures about 1½ inch in longest diameter, and is white in colour, flushed with rose or yellow in certain cases. The flowering of the plant is noted as taking place simultaneously over a large area. *Lindenia*, t. 207.

GONGORA MACULATA.

A similar species, with drooping racemes of flowers, each about 2 inches in the long diameter, the segments deep yellow, spotted with reddish brown. *Lindenia*, t. 208.

ANGRÆCUM SESQUIPEDALE.

A healthy specimen of this white-flowered Orchid at Messrs. Seeger & Tropp's Nursery, East Dulwich, is now carrying ten blooms. The plant has a single stem at the foot, and bears three heads or growths of about equal size, and the flowers are large and have exceptionally long tails. On and about the rockery at this nursery were recently noticed varieties of Lælia præstans, Oncidium raniferum, Epidendrum pallidiflorum, Cœlogyne Gardneriana, Cypripedium orphanum×, C. Javanico-superbiens, C. bellatulum, C. callosum, and others, especially fine being a large specimen of Vanda Sanderiana.

* The pseudo bulbs are comecylindrical, about half the dimensions either as to length or circumference of those of Lælia autumna is, very smooth and shining when in the height of growth. Matured pseudo bulbs slightly channelled, showing some 6–8 of these channels as they get towards dessication. Leaves linear acuminate, very succulent and stiff, smooth-edged, and gathered inwards towards midrib. Flower scapes 12 to 18 inches long, two to seven flowered according to cultivat on and to seminal variety. Sepaline segment lanceolate acuminate; petaline segments, oblate-ovate, slightly pointed The whole being a soft, indescribible suffusion of purkish-purple, with their bases shading with white. Upper portion, of the labellum enveloping the column, soft shaded, with pinkish wings. The interior is singularly beautiful, and differing from those with which we have associated it parentage, in having three very singular and very prominent keeled appendages of undulating outline. In the interior of the enclosed labellum are lines of crimson, which show very much in the matter of transverse arrangement in the light-b surface, as the vertebræ of the skeleton of some of the mammals. The lower portion of the labellum extends itself rather widely, and is of even a ruddier tint than the concolored segments. Column linear, arching, oblong convex. In the concavity it is beautifully lined, and spotted w th pink on a whitey ground.

Roses.

THE BEST TIME TO PLANT ROSES.

The sooner after the semi-maturity of the wood the better for the Roses and all concerned. The old formula and hard-and-fast line of the sooner after the fall of the leaf must be dropped, in these modern days when not a few Roses hardly shed their leaves at all, may not do so till February or March. The fact is, the disturbing effects of Tea, Bourbon, Chinese, and other blood has been so great among our Roses, that growth is more or less perpetual among most of them, and the time of leaf-shedding extends over many months according to soils, sites, weather, and modes of culture.

As a rough guide, however, for amateurs and novices among Roses, it may be stated that the best time to plant all our hardiest Teas, hybrid perpetuals, and the yet hardier Moss, Provence, and climbing Roses is included within the six weeks from October 15 to November 30. The Rose leaves may be comparatively green, and the shootlets and branches far from a state of rest. But experience proves that there is something in that season, and more perhaps in the condition of the Roses at that particular time specially favourable to the restoration of suspended animation in the tops, and the prompt, almost spontaneous development of fresh roots. Now these two are really the prime factors in commanding success on the heels of planting, and hence the season that cuts down inaction alike in root and top to the narrowest limits must, of necessity, be the best; that a certain period of suspension of growth must follow transplantation, is a physical and vital necessity. But why the period should vary in length so greatly at different seasons of the year, and under different conditions of growth or maturity, has never been exhaustively nor satisfactorily explained. But the logic of facts is inexorable, and the foundation of our success in practice mostly consists in following their lead; whereas those who attempt to foist their fancies against the grain of natural facts are bound to fail. These causes at least work together during these six weeks to command success. There is a reserve of growing force in the plants, a reserve of summer or autumnal heat in the soil, and the conserving force of a moist atmosphere generally, would most correctly, as well as picturesquely, be designated a wet blanket. Some would find a fourth reason for success in the abnormal sensitiveness and activity of the roots at this particular season, and under their special vital conditions. But this may be included under the reserve of growing force, incident to this abnormally favourable season of planting.

It would almost seem as if this force were dormant unless waked up by root disturbance and transplantation. As the processes of growth and maturity approach nearer to completion, vital force becomes more sluggish, and the roots take more time to gain a grip of the soil in their new quarters. This season a collection of old-fashioned Roses, planted on October 15, were re-rooted in their new quarters by the first week in November, and are now (December 23) the forwardest, most plump-budded Roses in the entire garden.

The reserve of summer and autumnal warmth in the soil through October and November, also exerts a powerful influence in securing the disturbed and partly mutilated roots to a fresh start. Even a powerful reserve of growing force in the plants can hardly make much progress towards root growth, in a cold and semi-frozen medium; physical chills often prove more than a match for the energy of vital force. But when the two powers of abnormal warmth and vitality run in parallel lines or couples, a speedy and extraordinary development of root growth is the natural product or result of the two.

Especially is this the case when there is associated with an unusual manifestation of energy, an abnormal conservation of vital force. What practical men so forcibly designates a wet blanket, is a perfect antidote to the dissipation of the energy of vegetable life, and here, as in the domain of capital, a pound saved is a pound got. Possibly in both it is more and better than this, for the frictions and loss incident to the making another pound to make good the lost one is avoided.

Be this as it may, the moist earth and atmosphere, the rains, hoar frosts, fogs, the diluted light, the low temperature, all help to husband and accumulate, and not expend either vital sap or growing force. It is something very much to be thus enabled to preserve plants for days or weeks as they were without sensible loss, or tangible diminution of vital strength or capacity. It may also be logically inferred, that if there is no loss, there will be some real gain, and the gain will be in the direction of life. For in the state of suspended animation natural to plants immediately after transplantation, the tops enveloped in a wet blanket of moist air, can lose little or nothing. Their only outlet for force or energy is through the roots, and any effort put forth in these directions results in the formation of new roots. The moment these begin to move on towards the tops, the safety of the Rose or other plant is assured so far as any risks incident to transplantation is concerned, and all this is but the old axiom, perhaps a little more clearly, but far less tersely expressed, that plants sown before or in November we must succeed plants afterwards in May. *D. T. F.*

Trade Notice.

Mr. Robert Walker, formerly of the Pine-apple Nursery, Edgware Road; Minter, Nash & Nash, Strand, W.C.; Clarke & Sons, Covent Garden; and the Lawson Seed and Nursery Co., Southwark, has commenced business on his own account, as seedsman and florist, at Church End, Finchley, London, N.

The Bulb Garden.

IXIAS.

Anyone interested in gardening would welcome a handful of these beautiful flowers at any season of the year, notwithstanding which they are very rarely grown. In the matter of cultivation and cost, there is nothing to hinder anyone growing them, nor is there need for annual renewal of stock, as they naturally increase fast.

Ixias may be grown in pots to brighten the conservatory and greenhouse in late winter and spring and also in the open air on a south or south-west border, where they will furnish flowers in abundance. Although not so hardy as to be left in the ground from year to year unless under special treatment, they are sufficiently so that anyone interested may grow them if

if he has a frame to put over the bed, and sandy loam, about a fourth part of thoroughly decomposed manure, decayed leaf soil, and sharp sand in which to plant the bulbs. In pot culture, put half a dozen bulbs into a 48, and cover the bulbs with about one inch depth of soil, and successional batches of bulbs may be planted from October to the end of January. No attempt to force Ixias should be made, but a temperature of 40° or 45° should be regarded as the maximum; admit air freely whenever it is possible, and keep the plants near to the glass and in full light, or they will quickly become drawn. In the open air they may be planted in the months of December and January, and in warm localities even much earlier than the first month named.

By far the most satisfactory way to grow them is on a frame with Tritonias and Babianas, and the bulbs may be planted in October or November, and 4 or 5 inches deep, but later planted bulbs should not be buried more than 3 inches deep, always using plenty of sand round about the bulbs. For the open ground, a raised border of good rich soil is the best, planting them in December or January, 4 inches deep, and covering the bed with a similar depth of cocoa-nut fibre or leaf mould partly decayed, which may be removed in March. They are best when lifted annually in July or August, and dried thoroughly In a cut state, Ixia flowers will last a fortnight, and are invaluable to those gardeners who must furnish large quantities of flowers. *J.*

THE APIARY.

THE NAUGHTY HYBRID.

I WILL venture to say, that had it not been for the offensive end of a bee, there would have been more failures in our business than we can now complain of, which is not a small number in some places. Almost everybody would keep bees, "just a few for their own use," were it not for their poisonous little darts. This is an established and well-known law in Nature which applies forcibly to the "naughty hybrid."

Had it not been for the fact that hybrids, between the black and Ligurian bees, are far more irascible than either of the races from which they sprang, these bees would long ago have been the bees of present agriculture. Now it seems a little peculiar that a fairly good-natured black bee, and a still better behaved Ligurian should produce offspring totally different to either race, but such is well known to be a fact. I have said before, that there are instances of bees crossed as above that are better tempered than either of their progenitors, but these instances are few and far between, like angel's visits.

In this short article, I shall endeavour to point out the reason for these two different conditions of affairs, and how I exchanged one for the other. I began my crossings from not only the best honey gatherers of each race, but also the best behaved, viz., the leather-coloured Ligurians, and also the blacks which possessed similar qualities. It has ever been my opinion that black bees, as a rule, are better tempered than Ligurians. The latter sometimes appear to be quiet, but just as you think how angelic they are going to be, they turn out very demons.

As a rule, when black bees sting, it will be found that it is not the bees that are in the hive that is being manipulated that sting—except a bee is pinched, in which case it is sure to sting—but the stings are from other bees darting about near the operator. On the other hand, Ligurians attack the operator from within the hive being operated upon, and often sting long before smoke could possibly be applied. Where hybrids have done so much mischief, and caused so many enemies, indiscriminate mixing has been the cause, but it seems to be capable of proof that if thoroughly pure and quiet bees of each race are taken and allowed to mix, good working bees will be the result. If now and then it turns out that you get a bad tempered set remove the queen, and put in one of a gentler race, and they will, of course, soon be got rid of. *Bee.*

PLANTS AND THEIR CULTURE.

THE GREENHOUSE.—Greenhouses should, at this time of year, be divided into cool, and less cool, many plants suffering if given the minimum temperature, viz., 45° to 50° day, and 5° to 7° lower night temperature. Statices, Pimelea spectabilis, double-flowered Primulas, Pelargoniums for winter blooming, require a warmth of 10° higher than these figures to grow well; it therefore becomes necessary to divide the plants if space can be afforded them, so as to give those which need it, the maximum temperatures. In some cases a small pit may be utilised for the purpose, and thus enable the gardener to give the cool greenhouse plants the treatment suitable to them. Great care should be taken in watering Ericas, Epacris, and New Holland and Cape plants generally at this date, as these firmly potted subjects do not absorb much moisture during the foggy, sunless days. Rain-water should, where possible, be used, and it should be afforded in quantities sufficient to saturatethe whole ball of earth, and if it is found that any plant is very dry at the root, the pot should be immersed in water and thoroughly soaked; or, if one part of the ball be dry, a basin should be formed with mould round that part, and water poured into it several times. Mildew will also be troublesome, and will spread rapidly if not checked at once. Abundance of air should be given day and night in mild weather, and when fire-heat is necessary to exclude hard frost, a small amount of ventilation will do no harm at the top of the house. Watering should be got over early in the day, so as to allow drainings from the pots to dry up before night. Decayed foliage should never be allowed to remain in the house, and the pot sshould be often cleaned. Tetrathecas and Leschenaultias should be placed at the warmest part of the greenhouse, and where they will be untouched by cold-air draughts. Boronias and all other kinds of hard-wooded plants should be staked and tied out, but the fewest possible stakes should be employed. Chorozemas growing freely will require efficient watering, so as to get large blooms, and any training required by the plants should be done. Clay's fertiliser occasionally given, is good for Chorozemas. Bouvardias that bloomed early will now be past their best, and should be kept rather dry for a week or two, and then cut back, when they will furnish the cuttings for the next season. Good bushy stock in 7 and 8-inch pots may be obtained from these if propagation be done early. As soon as the stock of cuttings is secured, the old cut back plants may be thrown away, and last year's plants retained for planting out, as these are generally found large enough for most purposes. Succession plants which have been kept in a lower temperature will now furnish a supply of bloom if they are placed in a warmer house than that which they have occupied. Solanums may be similarly treated for an early supply of plants, cuttings being secured as early as possible, and the plants when rooted kept in small pots. Carnations must be kept free from aphis, and cuttings may be taken from old plants that are past their best; plants raised from these taking the place of the old stock.

Herbaceous Calceolarias should not be allowed to get pot-bound, and in shifting them more loam and less leaf-mould should always be employed; a few ½-inch bones or bone-dust should be added to the compost. If aphis be present on the plants, the latter should be dipped into weak tobacco-water a short time before shifting them. A few cuttings may now be



FIG. 2.—JAPANESE PINE TREE DWARFED BY ART. (SEE P. 8.)

taken if the stock of the show and fancy Pelargoniums is low, and cuttings of them made from side-shoots which strike readily in bottom-heat, and make good plants for early autumn bloom. Some of the earliest Fuchsias should be pruned and placed in a warm house to furnish a supply of cuttings. Any Fuchsias struck late in the autumn should be shifted into larger pots, and be stopped regularly all over occasionally. The stock of Chrysanthemums should be examined, and any deficiencies made good, so as to be able to discard all the old stools, and thus give room for other Plants. Eupatoriums coming into bloom will take plenty of water and weak liquid manure. Salvias, as they get pasttheir best, should be headed down, placing them in a convenient place till cuttings are secured. The cuttings will do better if the old plants are not given too much heat. It is advisable to have young plants each season, and to propagate twice at an interval of two months or thereabouts. *Geo. Wythes, Syon House, Brentford.*

Fruits Under Glass.

The Early Peach-house.—The trees being now in bloom, every advantage should be taken of fine days to set the blossom, and for the purpose use a large camel-hair pencil in distributing the pollen, and go over the trees twice daily when the sun shines—at about noon, and at two o'clock. By treating the blooms in this manner, I have not had to complain of the loss of a crop of fruit; the pollen clings to the fine hairs of the pencil, and yet leaves them upon the slightest touch of the bloom operated upon. The brush, it may be stated, must be dry and clean. If the flowers are very thickly placed, it will be advisable to thin out the badly placed ones, that is those on the under sides of the branches, and any which may press against the wires of the trellis, these being in a bad position for swelling and colouring properly. In fine and mild weather every opportunity should be taken of giving air to assist the setting, and strengthen the blooms; shutting up the house with sun-heat early in the afternoon; a temperature of 50° at night, 55° to 60° by day, and 70° with sun and air may be maintained, the paths and wall-surfaces being sprinkled on fine days.

The Second House should be syringed twice a day, and kept at 45° to 50° at night, according to the state of the temperature outside, giving air by day, and shutting up with sun-heat early in the afternoon.

Later Houses should be got in readiness by cleaning, and tying the trees, and top-dressing the borders without further delay.

Strawberries.—As each forcing-house is put in readiness for starting, batches of early varieties of Strawberries to come on in succession may be introduced—a position on a shelf near the glass, where the plants are fully exposed to sunlight, being best for them. The temperature at first should range from 45° to 50°, and as the flowers open, fertilisation as with Peaches should be practised, and the temperature at this stage should be raised a few degrees. Keep the plants well watered, and before the blooms open, give them a fumigation with tobacco, should green-fly be present.

Melons.—A small hotbed should be formed in the Melon-house and close to the glass, into this some small pots (60's) should be plunged, and two seeds sown in each pot—the weaker plant, when they germinate, to be pulled out. The young Melons will not require much water for some time, and when they do, pour it round the inside of the pot, and without wetting the stem. A good brisk heat will require to be kept up—say, 70° to 75° at night, and 10° higher by day. *W. Bennett, Rangemore, Burton-on-Trent.*

The Kitchen Garden.

Digging.—At the present time the chief work consists of digging, trenching, and preparing all vacant plots for the crops of the coming season. If the ground is light, this work should be pushed forward as well as when it is heavy, so that it may become firm and solid before the seeds have to be sown. Heavy and wet soils are sometimes cultivated to better advantage if the digging be done in February, and then they should be turned up roughly. Trenches for Peas may, whenever possible, be got in readiness. For the early crops of these vegetables, a distance of 6 feet from row to row is very suitable where the Peas are kept to themselves, and between them early Cauliflowers and Potatos are planted, and the taller kinds stand 1 foot wider apart, and Spinach, saladings, early Turnips, are planted and sown. The trenches should be 14 inches wide and the same in depth, manure being wheeled in and placed at the bottom of the trenches when the soil is hard with frost. By due attention now and later in the matter of getting in readiness the land for crops, so far as may be done, labour will be saved at seed time.

Globe Artichokes.—See to the proper protection of these plants against frost, the long litter or Fern being placed closely round the old stem and above their roots. The Asparagus beds should be heavily coated with rich dung, but the alleys need not to be, or, at any rate, only very shallow, deep digging costing numerous roots destroyed in the work. Spread the manure, and make the sides good, that is all that will be required at this season.

Cauliflowers and Lettuces.—Plants in frames should receive air abundantly in fine weather, keeping the lights off, excepting when there is likelihood of sharp frosts. By doing this a sturdy growth is encouraged, and the premature turning in—buttoning—of the former will be prevented. Collect tree leaves to mix with manure for hotbeds. The materials must be well mixed and allowed to heat, when the heap should be turned outside in, and after heating has endured for a week, the hotbeds may be made up for early Carrots, Potatos, Radishes, Lettuces, &c. Now is a good time to sow a little Parsley seed in a moderate heat, to be pricked off and subsequently planted out when the spring comes, in a sheltered part, or in a cold frame. *H. Markham, Mereworth Castle, Maidstone.*

Useful Memoranda.

BOTANIC GARDENS, Etc.,

IN THE UNITED KINGDOM.

Birmingham—Curator, W. B. Latham.
Cambridge—Prof. C. C. Babington; Curator, R. I. Lynch.
Chelsea (London)—Society of Apothecaries.
Cork—Director, Professor Hartog.
Dublin (Glasnevin)—Curator, F. Moore.
" (Trinity College)—Prof. E. P. Wright; Curator, F. W. Burbidge, M.A.
Edinburgh—Director, Prof. J. B. Balfour; Curator, R. Lindsay.
Glasgow—Prof. F. O. Bower; Curator, R. Ballen.
Indian Engineering College, Cooper's Hill, Staines—Professor of Forestry, Dr. Schlich; Professor of Botany, H. Marshall Ward.
Kew—Director, W. T. Thiselton Dyer, C.M.G.; Assistant Director, D. Morris; Curator, G. Nicholson; Assistant Curator, W. Watson; Keeper of Herbarium, Prof. Oliver; First Assistant, J.G. Baker; Assistants, N. E. Brown, R. A. Rolfe, Dr. Cooke, W. B. Hemsley, C. H. Wright, J. T. Jeffrey; *Museums*, J. R. Jackson, J. M. Hillier.
Liverpool—Curator, J. Richardson.
Manchester—Curator, Bruce Findlay.
Natural History Museum, London—Keeper of Botany, W. Carruthers; Assistants, J. Britten, G. Murray, E. G. Baker, A. Gepp, W. B. Rendle.
Normal School of Science, London—Professor of Botany, Dr. Scott; Agriculture, J. Wrightson.
Oxford—Prof. Dr. Vines; Curator, W. Baker.
Royal Botanic Society, Regent's Park, London.—Superintendent, W. Coomber; Secretary, W. Sowerby.
Royal Horticultural Society, Chiswick—Superintendent, A. F. Barron.
Sheffield—Curator, J. Ewing.

IN THE COLONIES.

BRITISH GUIANA.

Berbice—R. Hunt.
Georgetown—Superintendent, G. S. Jenman.

CANADA.

Montreal—Director, Prof. Penhallow.
Nova Scotia—Colonial Botanist, Dr. Lawson.
Ottawa—Dominion Botanist, Prof. MacCoun.

CAPE OF GOOD HOPE.

Cape Town.—Director, Prof. McOwan.
Graham's Town—Curator, E. Tidmarsh.
Graaf Reinet—J. C. Smith.
King William's Town.—T. G. Sim.
Port Elizabeth, Uitenhage—H. Fairey.

CEYLON.

Peradeniya—Director, H. Trimen. Curator, P. Clark.

FIJI.

Botanic Station—H. E. Sir J. B. Thurston, K.C.M.G.

HONG-KONG.

Superintendent, C. Ford.

INDIA.

Aliporе—Belvedere Botanic Garden.
Calcutta—Royal Botanic Garden; Superintendent, Dr. G. King, F.R.S. Curator, W. McHardy.
Agri-Horticultural Society of India—Secretary, J. Blechynden, Calcutta.
Bangalore—Government Garden; Superintendent, J. Cameron.
Bombay—Superintendent, G. Sarstenson.
Darjeeling—Lloyd Botanic Garden; W. H. Kennedy.
Ghorpuai—Superintendent, W. Shearer.
Mungpoo—Cinchona Plantation; J. Gammie.
Nagpur—Horticultural Garden.
Oodeypore—Superintendent, T. H. Storey.
Poona—Empress Botanic Garden; W. Shearer, E. M. Woodrow.
Rangoon—Agri-Horticultural Society.

NORTH-WEST INDIA.

Cawnpore—Experimental Station; Director, J. F. Duthie.
Lahore—Agri-Horticultural Society.
Lucknow—Superintendent, M. Ridley.
Saharunpore—Superintendent, J. Golam.

MADRAS.

Agri-Horticultural Society—Secretary, Edgar Thurston; Director of Botanical Department, Ootacamund, M. A. Lawson.

MAURITIUS.

Pampelmousses—Director, J. Horne.

NATAL.

Durban—Curator, J. Medley Wood.
Pietermaritzburg—Curator, G. Mitchell.

NEW SOUTH WALES.

Sydney—Director, Charles Moore.

NEW ZEALAND.

Auckland—W. Goldie.
Wellington—Director, Sir James Hector.

QUEENSLAND.

Brisbane Acclimatisation Society—Manager, Wm. Sohlter.
Botanic Garden—Colonial Botanist, F. M. Bailey. Curator, Philip MacMahon.
Rockhampton—J. S. Edgar.

SOUTH AUSTRALIA.

Adelaide—Director, Dr. R. Schomburgk.
Port Darwin—Curator, Mr. Holtze.

STRAITS SETTLEMENTS.

Malacca—Assistant Superintendent, R. Derry.
Penang—Assistant Superintendent, C. Curtis.
Perak Museum—— Wray.
Singapore—Director, H. N. Ridley. Gard., W. Fox.

TASMANIA.

Hobart Town—Superintendent, F. Abbott.

VICTORIA.

Geelong—Botanic Garden.
Melbourne—Government Botanist, Baron Sir Ferdinand F. von Mueller; Botanic Garden Director, W. R. Guilfoyle.

WEST AFRICA.

Lagos—Superintendent, J. McNair.
Niger Territory Botanic Garden—G. Woodruff.

WEST INDIES.

Antigua—Curator, Arthur J. Tillson.
Barbados—Botanical Station, J. R. Bovill.
Dominica—Curator, Chas. M. Murray.
Grenada—Curator, W. Elliott.
Jamaica—Director, W. Fawcett.
St. Kitts—Curator, C. Plumb.
St. Lucia—Curator, J. Gray.
Trinidad—Superintendent, J. Hart.

BOOKS.

A LIST OF ELEMENTARY AND REFERENCE BOOKS suitable for Garden Libraries, and useful for Young Gardeners and Amateurs to select from :—

GENERAL SUBJECTS.

Chemistry of the Farm. By R. Warrington. (London: Bradbury, Agnew, & Co., Bouverie Street.)
Cultivated Plants, their Propagation and Improvement. By F. W. Burbidge, M.A. (W. Blackwood & Sons.)
Floriculture, Domestic, Window Gardening and Floral Decorations. By F. W. Burbidge, M.A. (W. Blackwood & Sons.)
Gardeners' Assistant. By R. Thompson. (Blackie & Son.)
Gardening, Epitome of. Moore and Masters. (Adam Black & Co.)
Theory of Horticulture. See Cassell's Popular Gardening, articles on "Life-History of Plants."

BEES.

Beekeeping. By A. Rushbridge. (E. W. Allen.)
By W. B. Webster. (Upcott Gill, 170, Strand.)

BOTANICAL.

Lessons in Elementary Botany. By Oliver. (Macmillan.)
Botany for Beginners. By M. T. Masters, F.R.S. (Bradbury, Agnew & Co.)
British Flora, Handbook of. By G. Bentham, F.R.S. (L. Reeve & Co.)
Elementary Course of Botany, Henfrey. Edited by M. T. Masters, F.R.S., and A. W. Bennett. 4th ed. (Van Voorst.)
Plant-Life. By M. T. Masters, F.R.S. (Bradbury, Agnew, & Co.)
Students' Flora of the British Isles. By Sir J. D. Hooker. (Macmillan.)

COTTAGE AND AMATEUR-GARDENING.

Cottage Gardening. By E. Hobday. (Macmillan.)
Garden Calendar. By T. W. Saunders. (Adams & Co.)
Paxton's Cottager's Calendar, price 3*d*. (41, Wellington Street, Strand.)

DICTIONARIES, &c.

Alpine Flowers. By W. Robinson. (Murray.)
Cassell's Popular Gardening. 4 vols. (Cassell & Co.)
Cottage Gardener's Dictionary. (Bell & Sons.)
Dictionary of English Plant Names. By J. Britten and R. Holland. (Trübner & Co.)
Dictionary of Gardening. Edited by G. Nicholson. (Upcott Gill, 170, Strand.) 4 vols.
Encyclopædia of Plants. By Loudon. (Longmans.)
English Flower Garden. By W. Robinson. (Murray.)
Treasury of Botany. Edited by J. Lindley and T. Moore. 2 vols. (Longmans.)

DISEASES.

Diseases of Field and Garden Crops. By W. G. Smith. (London: Macmillan & Co.)
Diseases of Plants. By H. Marshall Ward. (Society for the Promotion of Christian Knowledge.)
Diseases of Timber. By H. M. Ward. (Macmillan.)

FORESTRY, TREES, &c.

Arboriculture. By J. Grigor. (Edinburgh: Edmonston & Douglas.)
Conifers, Manual of. (J. Veitch & Sons, Chelsea.)
Evergreens (Conifers), the Book of. By J. Hoopes. (Trübner & Co.)
Grafting and Budding. By C. Baltet. (London: *Garden* Office, 37, Southampton Street.)
Forestry, Practice of. By C. Y. Michie. (Blackwood & Sons.)
Hardy Trees, Shrubs, and Herbaceous Plants, Handbook of. By Decaisne, Naudin, and Hemsley. (Longmans, Green & Co.)
Larch, The. By C. Y. Michie. (Blackwood & Sons.)
Manual of Forestry. By Dr. Schlich. (Bradbury, Agnew, & Co., Bouverie Street.)
The Forester. By J. Brown. (Edinburgh and London: W. Blackwood & Sons.)
Tree Pruning. Des Cars. (Rider & Sons.)
Willow, Cultivation of. By Scaling. (Kent & Co.)

FRUIT.

British Apples, Apple Congress Report. (Royal Horticultural Society.)
Fruit Book, the Hardy. 2 vols. By D. T. Fish. (London: *Bazaar* Office, 170, Strand.)
Fruit Culture under Glass, Handybook of. By D. Thompson. (Edinburgh and London: W. Blackwood & Sons.)
Fruit Farming for Profit. (G. Bunyard, Maidstone.)
Fruit Garden, the Miniature. By T. Rivers. (Longmans.)
Fruit Manual. By Dr. R. Hogg. (171, Fleet Street.)
Fruit Trees, Culture of. By M. De Breuil. Lockwood & Co.)
Orchard House. By T. Rivers. (Longmans.)
Pear Congress Report. (Royal Horticultural Society.) (Macmillan.)
Pine-apple, Culture of the. By D. Thomson. (W. Blackwood & Sons.)
Profitable Fruit Growing. By J. Wright. (H. May, 171, Fleet Street, E.C.)
Strawberries. By W. Hinds. (*Gardening World* Office, 17, Catherine Street.)
Vines and Vine Culture. A. F. Barron, Sutton Court Road, Chiswick, W.

INSECTS.

Manual of Injurious Insects. By Miss E. A. Ormerod. (Swann, Sonnenschein & Co.)

LANDSCAPE GARDENING.

Carpet-Bedding at Hampton Court. By A. Graham. (Hampton Court.)
Gardens of Light and Shade. (Elliot Stock.)
How to Lay out a Garden. By E. Kemp. (Bradbury, Agnew, & Co.)

MANURES.

Artificial Manures. By M. G. Ville. Translated by W. Crookes. (Longmans, Green & Co.)
See articles on "Manures," in Cassell's Popular Gardening. By J. J. Willis.

PLANTS, FLOWERS, &c.

Begonia, The Tuberous. Edited by B. Wynne. (*Gardening World* Office, 17, Catherine Street, W.C.)
Bulbs and Bulb Culture. 2 vols. By D. T. Fish. (London: *Bazaar* Office, 170, Strand.)
Cactaceous Plants. By L. Castle. (171, Fleet Street.)
Cactus Culture by Amateurs. By W. Watson. (London: L. Upcott Gill.)
Carnations and Picotees. By E. S. Dodwell. (Groombridge.)
Chrysanthemum, The. By F. W. Burbidge. (*Garden* Office, 37, Southampton Street, Strand.)
Chrysanthemum, The. By E. Molyneux. (171, Fleet Street.)
Chrysanthemum, National Society's Catalogue. (E. W. Allen, Ave Maria Lane.)
Cinchona Planter's Manual. By T. C. Owen. (Colombo: Ferguson; London: J. Haddon & Co., Bouverie Street.)
Clematis as a Garden Flower, The. By Moore and Jackman. (Woking Nursery, Surrey: Jackman & Son.)
Ferns, Choice British, &c. By C. T. Druery, Upcott Gill.)
Ferns, Select. (B. S. Williams, Holloway.)
Florists' Flowers, Hardy, their Cultivation and Management. J. Douglas.
Flower Garden, The Handybook of. By D. Thomson. (W. Blackwood & Sons.)
Gladiolus Cultivation. By Rev. H. H. D'Ombrain. (Reeve & Co.) [(J. Murray.)
Greenhouse and Stove Plants. By T. Baines.
Greenhouse Management for Amateurs. By W. J. May. (*Bazaar* Office, 170, Strand, W.C.)
Hardy Herbaceous and Alpine Flowers, Handbook of. By W. Sutherland. (W. Blackwood & Sons.)
Ivy. By Shirley Hibberd. (E. W. Allen, Ave Maria Lane.) [Lynn.
Lily of the Valley Culture. By T. Jannock, King's
Lilies and their Culture. By Dr. Wallace. (New Plant and Bulb Co., Lion Walk, Colchester.)
Narcissus, the, its History and Culture. By Burbidge and Baker. (Reeve & Co.)
Orchid Conference Reports. (Royal Horticultural Society.) [way.)
Orchid Growers' Manual. (B. S. Williams, Hollo-
Orchidaceous Plants, Manual of. (J. Veitch & Sons, Chelsea.) [Windus.)
Orchids, Cool. By F. W. Burbidge. (Chatto & Orchids, their Structure, History, and Culture. By L. Castle. (171, Fleet Street.)
Pansy, The, How to Grow. By J. Simkins. (Simpkin, Marshall & Co.)
Primula Conference Report. (Royal Horticultural Society.)
Rosarian's Year Book, The. (Bemrose.)
Rose Garden, The. By W. Paul, Waltham Cross.
Roses, List of National Society's Catalogue. By Rev. H. H. D'Ombrain, Westwell Vicarage, Ashford, Kent.
Rose Conference Report. (Royal Horticultural Society.)
Roses for Amateurs. By Rev. H. H. D'Ombrain. (Gill, 170, Strand.)
Tobacco Culture. By E. J. Beale. (Carter & Co., Holborn.)
Violet Culture. By Heath. (Birkett, Kendal.)

VEGETABLES, &c.

Asparagus, Culture of. By W. Earley. (Bradbury, Agnew, & Co.)
Cucumbers and Melons. By W. J. May. (170, Strand, W.C.)
Farm Market-gardening. By C. Whitehead. (Effingham Wilson.)
Market Gardening. C. W. Shaw. (37, Southampton Street, W.C.)
Mushrooms for the Million. By J. Wright. (*Journal of Horticulture* Office, 171, Fleet Street, E.C.)
Potatos, How to Grow. By J. Pink. (Lockwood & Co.)
Tomato. By W. Iggulden. (171, Fleet Street.)
Vegetable Conference Report. (Royal Horticultural Society.)
Vegetable Culture. By Sutton & Sons. (Hamilton, Adams, & Co.)
Vegetable and Fruit-farming. By C. Whitehead. (12, Hanover Square, London.)
Vegetable Garden. By Vilmorin, Andrieux & Co. (Murray.)
Watercress, Culture of. By Shirley Hibberd. (4 and 5, Ave Maria Lane, E.C.)

MISCELLANEOUS.

Buildings, Horticultural. By F. A. Fawkes. (Swann Sonnenschein & Co.)
Date Palm in India. By Bonavia. (Thacker & Co., Calcutta.)
Church Decoration. *Bazaar* Office, 170, Strand.
Garden Receipts. By Quin. (Macmillan.)
Parks and Gardens of London. By N. Cole. (*Journal of Horticulture* Office, 171, Fleet Street.)
Planting and Agricultural Review, Tropical. By J. Ferguson. (J. Haddon & Co. Bouverie Street, E.C.)
Select Extra-Tropical Plants eligible for Industrial Culture. By Baron von Mueller (Melbourne: S. Brain.)
Sub-Tropical Cultivation. By R. C. Haldane. (Blackwood & Sons.)
Tropical Agriculture. By P. L. Simmonds. (Spon.)
Gardening in India. By G. M. Woodrow. (Trübner & Co.)
Coffee, Tea, Cinchona, Cocoa, &c., see Planting and Agricultural Review. Ceylon. (London: J. Haddon & Co., Bouverie Street.)
Tea, Cultivation of, &c. By Colonel Money. (Thacker & Co., Calcutta.)
Tea Planter's Manual. By T. C. Owen. Ceylon. (London: J. Haddon & Co., Bouverie Street.)
Indiarubber Cultivation, &c. Ceylon. (J. Haddon & Co., Bouverie Street.)
Tobacco, All About. (Ceylon, Ferguson; London, J. Haddon & Co, Bouverie Street.)

GARDENING PERIODICALS.

1787—Botanical Magazine. Monthly. Editor, Sir J. D. Hooker. (L. Reeve & Co.)
1841—Gardeners' Chronicle. Friday. Editor, Dr. Masters, F.R.S. Publisher, W. Richards, 41, Wellington Street, Covent Garden, London, W.C. Price 3d. Every Friday.
1842—Gardeners' Magazine, Friday. Editor, Shirley Hibberd, Esq. Publisher, W. H. L. Collingridge, 148, 149, Aldersgate Street, E.C.
1848—Journal of Horticulture. Thursday. Editor, Dr. Hogg, F.L.S. Publisher, E. H. May, 171, Fleet Street, London, E.C.
1871—The Garden. Friday. Editor, W. Robinson, F.L.S. Publisher, W. Robinson, 37, Southampton Street, W.C.
1886—Horticultural Times, 127, Strand, W.C.
1879—Gardening Illustrated. Editor and Publisher, W. Robinson, 37, Southampton Street, W.C.
1884—Amateur Gardening. Editor, T. W. Sanders. Publishers, W. H. & C. Collingridge, 148 and 149, Aldersgate Street, E.C.
Garden Work. Editor, J. Wright. Publisher, E. H. May, 171, Fleet Street, E.C.
1884—Gardening World. Editor and Publisher, B. Wynne, 17, Catherine Street, Covent Garden, W.C.

1887—Royal Gardens, Kew, Bulletin of Miscellaneous Information. Monthly. Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C.
The Northern Gardener. Fountain Street, Manchester. Weekly, 1*d*.
Reichenbachia, devoted to the Illustration of Orchids. Monthly. F. Sander, St. Albans.
Orchid Album. Monthly. B. S. Williams, Upper Holloway, London, N.
Rosarians' Year Book. Annually. Bemrose & Sons.
Garden Annual. Annually. *Garden* Office, 37, Southampton Street, Strand, W.C.
Garden Oracle. Annually. By Shirley Hibberd. London: *Gardeners' Magazine* Office, 4 and 5, Ave Maria Lane, E.C.
Horticultural Directory. Annually. *Journal of Horticulture* Office, 171, Fleet Street, E.C.
Tropical Agriculturist. Ceylon. Colombo, Ferguson.

PRINCIPAL FOREIGN and COLONIAL HORTICULTURAL PUBLICATIONS.

AMERICA.

The American Garden. Editor, E. H. Libby. New York.
American Florist. New York and Chicago.
Orchard and Garden. Published by J. T. Lovett, Little Silver, New Jersey.
Vick's Monthly. Publisher and Editor, J. Vick, Rochester, New York.
American Pomological Society's Reports.
American Agriculturist, Broadway, New York.
Massachusetts Horticultural Society's Reports. Boston, Mass.
Garden and Forest. Editor, Professor Sargent, Tribune Buildings, New York.

AUSTRIA.

Wiener Illustrierte Garten Zeitung. (Journal of the Imperial Horticultural Society, Vienna.)
Casopis ceskych zahradniku, Prague. Editor, J. T. Thomayer.

BAVARIA.

Illustrierte Monatshefte fur des Gesammt-Interessen des Gartenbaues. Editor, Max. Kolb, Munich.

BELGIUM.

Lindenia. MM. Linden and Rodigas, Brussels.
L'Illustration Horticole. MM. Linden and Rodigas, Brussels.
L'Horticulteur, Mons. Editor, J. Wanavre.
Revue de l'Horticulture Belge. Count de Kerchove and others, Ghent.
Bulletin d'Arboriculture. Editors, M. Pynaert and others, Ghent.

CANADA.

Canadian Horticulturist. Ottawa.

CEYLON.

Tropical Agriculturist. Colombo, Ferguson.

FRANCE.

Revue Horticole. Editors, MM. Carrière et André, Rue Jacob, 26, Paris.
Le Jardin. Editor, M. Godefroy. Publisher, A. Picard, Argenteuil.
L'Orchidophile. Editor, M. Godefroy-Lebeuf, Argenteuil.
Journal des Roses. Editor, M. Bernardin. Publisher, M. Goin, Paris.
Journal de l'Horticulture Pratique. Paris.
Lyon Horticole. Editor, M. Viviand-Morel. Lyon.
Journal de la Société Nationale d'Horticulture. Rue de Grenelle, 84, Paris.
Le Moniteur d'Horticulture. Editor, M. J. Chauré, Rue de Sèvres, 14, Paris. Bi-monthly.
Bulletin de la Société d'Acclimatation de France. Paris.

GERMANY.

Gartenflora. Berlin. Editor, Professor Wittmack. (Paul Parey, Berlin.)
Monatsschrift des Gartenbauvereins zu Darmstadt.
Rosen Zeitung. Frankfort-on-the-Maine.
Deutsche Gartnerzeitung.
Hamburger Gartnerzeitung. Editor, Dr. Goeze. (Hamburg.)
Lebl Illustr. Gartenzeitung.

BRITISH GUIANA.

Garden, Field, and Forest, Demerara.

HOLLAND.

Sempervirens, Gronewegen. Amsterdam.
Het Neederlandsche Tuinboublad. Editor, Dr. H. Van Hall. Arnhem.

ITALY.

Bulletino della Societa Toscana d'Horticultura. Florence.

JAPAN.

Journal of the Japanese Horticultural Society. S. Yoshida, Tokio.

POLAND.

Ogrodnik Polski. Warsaw.

PORTUGAL.

Jornal de Horticultura Practica. Oporto.

TABLE SHOWING THE NUMBER OF CART-LOADS OF MANURE IN HEAPS PER ACRE.

Dist. of Heaps	Heaps in a cartload. 2	Heaps in a cartload. 4	Heaps in a cart load. 6	Heaps in a cartload. 8	Heaps in a cartload. 10
Feet.	Loads.	Loads.	Loads.	Loads.	Loads.
6	605	302½	201⅞	151⅛	121
6½	545½	257⅞	172	129⅓	103
7	444½	222	148⅛	111	89
7½	387⅞	193⅔	129	97	77½
8	340	170	113⅓	85	68
8½	301⅓	150⅔	100½	75⅓	60⅓
9	269	134½	89⅔	67⅓	53⅞
9½	241½	120⅞	80½	60⅜	48⅓
10	218	109	72⅔	54½	43⅗
10½	197⅔	98⅞	66	49½	39⅗
11	180	90	60	45	36
11½	164½	82⅛	55	41⅛	33
12	151⅛	75⅝	50½	37⅞	30⅓
13½	119⅝	59⅞	40	30	24
15	97	48½	32⅓	24⅛	19⅓
16½	80	40	26⅔	20	16
18	67½	33⅞	22½	16⅞	13½
19½	57⅞	28⅞	19	14½	11⅗
21	49⅛	24½	16⅓	12¼	10
22½	43	21½	14⅓	10⅞	8⅗
24	38	19	12⅔	9½	7⅗

SPRAY FOR TREES, &c.—For general use make a mixture of 1 ounce of sulphate of copper (blue vitriol) to 40 gallons of water; if necessary the strength may be increased up to 1 lb. of the sulphate to 50 gallons of water.

TABLE SHOWING EQUIVALENT OF INCHES OF RAIN IN GALLONS AND WEIGHT PER ACRE.

Inches of rain.	Tons per acre.	Gallons per acre.
0·1	10	2262
0·2	20	4525
0·3	30	6787
0·4	40	9049
0·5	50	11,312
0·6	61	13,574
0·7	71	15,836
0·8	81	18,098
0·9	91	20,361
1	101	22,623

COVENT GARDEN MEASURES.

MANY of these are purely local, and used only by those who frequent Covent Garden Market. They vary also in size, some according to the kind of fruit or vegetable they contain, and some according to the time of year and size of the articles they contain. It is, therefore, almost impossible to convey an accurate impression of these measures; but the following will be useful to those who are interested in Covent Garden quotations:—

A sieve is understood to be about 15 inches in diameter and 8 inches deep, and to contain 7 imperial gallons; half-sieve, 3½ gallons; quarter-sieve, 1¾ gallon. A bushel basket is 17½ inches in diameter at top, 10 inches deep, and 10 inches in diameter at bottom. When heaped, it is supposed to contain an imperial bushel. Punnet: for Seakale, 8 inches in diameter at top, 7½ at bottom, and 2 inches deep; for Mushrooms, 7 inches in diameter and 1 inch deep; for salads, 5 inches in diameter and 1 inch deep.

A bunch of Radishes varies from one dozen to two dozen roots, according to the season.
A bundle of Asparagus contains from 100 to 150 heads.
A bundle of Rhubarb from 20 to 30 stems.
A bunch of Carrots, 12 and upwards.
A bunch of Turnips, 12 and upwards.
A bunch of Leeks, 6 and upwards.
Bunches of Greens and of herbs vary much, according to kind, size, and season.
Roll of Celery=6, 8, to 12 heads.
A tally=five dozen.
A score of Lettuce or Endive=22.

LINDLEY LIBRARY.

THIS Library is held in trust for the Royal Horticultural Society, in whose rooms, 117, Victoria Street, Westminster, it is deposited. Under certain conditions it is open, and books may be lent, not only to the Fellows of the Society, but also to the general public. The Trustees are the Secretary and Treasurer of the Royal Horticultural Society for the time being, and the following gentlemen:—Dr. Robert Hogg, Dr. Maxwell Masters, W. Carruthers, Esq.; G. Maw, Esq.; and H. J. Veitch, Esq. Donations of books, &c., are solicited, the income at the disposal of the trustees being very limited.

SIZES OF FLOWER-POTS—CHISWICK STANDARD. (INSIDE MEASURE.)

	Ins. diam. at top.	Ins. deep.		Ins. diam. at top.	Ins. deep.
Thimbles ...	2	2	Twenty-fours (24's) ...	8½	8
Thumbs ...	2½	2½			
Sixties (60's) ...	3	3½	Sixteens (16's) ...	9½	9
Fifty-fours (54's) ...	4	4	Twelves (12's) ...	11½	10
Forty-eights (48's) ...	4½	5	Eights (8's) ...	12	11
			Sixes (6's) ...	13	12
Thirty-two's (32's) ...	6	6	Fours (4's) ...	15	13
			Twos (2's) ...	18	14

CONVERSION TABLES.

LENGTH.

French.	Inches.	Feet.	Yards.
Millimètre = $\frac{1}{1000}$ mètre ...	0·039	.....	.....
Centimètre = $\frac{1}{100}$ mètre ...	0·39	.....	.....
Decimètre = $\frac{1}{10}$ mètre ...	3·93	0·32	.....
Mètre	39·37	3·28	1·09
Decimètre = 10 mètres...	393·70	32·80	10·93
Hectomètre = 100 mètres	3937·07	328·08	109·36
Kilomètre = 1000 mètres	39370·7	3280·8	1093·6
Myriamètre = 10,000 métr.	393707	32808	10936·3

WEIGHT.

	Grains.	Ounces.	Pounds.
Milligramme = $\frac{1}{1000}$ gram.	0·015	.....	.....
Centigramme = $\frac{1}{100}$ „	0·15	.....	.....
Decigramme = $\frac{1}{10}$ „	1·54	.....	.....
Gramme	15·43	.....	.....
Decagramme = 10 grms.	154·32	0·35	.....
Hectogramme = 100 „	1543·25	3·352	0·22
Kilogramme = 1000 „	15432·5	35·27	2·20
	Lbs.	Cwt.	Tons.
Quintal = 100 kilogrammes	220·4	1·96	.....
Millier = 1000 „ ...	2204·	19·68	0·98

FRENCH LAND MEASURE.

Mètre sq. = (centiare) ...	10·7 square feet.
Are = 100 sq. mètres ...	119·6 square yards.
„ „ „ ...	3·9 perches.
Hectare = 10,000 sq. mètres	2a. 1r. 30$\frac{1}{10}$ perches.
Arpent (of Paris)	3r. 15 perch. 43 yd.
„ (of water and forests)	1a. 1r. 1 perch 28 yd.
Perch of Paris	40·8 square yards.
„ of water and forests...	61·08 „ „

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

WEDNESDAY, JAN. 8 — National Chrysanthemum Society (two days).

SALES.

MONDAY, JAN. 6 — Dutch Bulbs, Tuberoses, and Lilies at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 8 — Roses, Fruit Trees, Shrubs, Border Plants &c., at Stevens' Rooms (weather permitting). Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, JAN. 9 — 50,000 Lilium auratum, and other Importations, from Japan, at Stevens' Rooms. Nursery Stock from Sample, at Protheroe & Morris' Rooms.

FRIDAY, JAN. 10 — Established and Imported Orchids, at Protheroe & Morris' Rooms.

SATURDAY, JAN. 11 — Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms (weather permitting).

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—36°.4.

A Gardeners' Problem.

WE have been favoured with an important communication from the Director of the Royal Gardens, Kew, on the conditions requisite for successful cultivation. Of this communication we give an instalment this week, and will give the remainder in our next issue.

In the *Kew Bulletin* for December is published a very important report on the tropical and sub-tropical plants actually cultivated in the open air in the South of Europe. It was drawn up at my request by Mr. WATSON, the Assistant Curator of the Royal Gardens, in order to preserve in a convenient form for future reference the actual results of his observations. I am persuaded that as regards the open air cultivation on the Mediterranean Littoral of plants ordinarily grown in this country under glass, it affords by far the most accurate information available.

I prefaced this report with an introductory note, and inasmuch as the opening paragraph was the subject of some editorial criticism in the last number of the *Gardeners' Chronicle*, I reproduce it here:—"Horticulture is essentially an [illegible]. Botanical science can afford but [illegible] information as to the cultural conditions which any plant will require or will tolerate; these for the most part can only be found out by trial or experience." These statements, I am told, are "too absolute." It may be so; but, as they represent a deliberate and by no means hasty conviction on my part, I trust I may be allowed to discuss the matter at some little length, and to state my reasons for thinking the contrary.

The gardener's problem I take to be this: Given a new and interesting plant, with nothing but a more or less accurate indication—very possibly less—of its native country, how are you to treat it? I reply, that you have little but the instinctive skill of the gardener to help you. He will, in the first place, guided by general experience, form some sort of provisional theory of the treatment required; he will begin with that, because he must begin somewhere. He will be very probably miles from the mark, but, as presumably, he knows his business, he will soon detect, by careful observation of the plant, that he is upon the wrong tack, and will modify his treatment accordingly. Gradually feeling his way, he will eventually, if he has some genius for the kind of work, hit upon a method which will reward him by success.

Well, this is an entirely empirical way of proceeding; but it is none the less strictly scientific, for all that. It seems, however, such an elementary statement of what one sees going on every day as to be scarcely worth writing down. Take, for example, the case of the Amorphophallus titanum, which we flowered last summer at Kew. This was grown on in rather shallow pots never much larger than the tuber; it was fed richly, and during the period of growth the pot was placed with its bottom in the warm water of the Victoria-tank. Beccari, the discoverer of the plant, remarked how completely this treatment was at variance with the natural conditions under which the plant grew, but concluded, notwithstanding, that it was the best that could have been adopted. But what, it will be asked, is the alternative to the empirical way? It may be summed up, we are told, as a study of geographical distribution, and of the varying conditions of growth, of anatomical structure, and of the relations of structure to function and to external conditions.

As to geographical distribution, I have already pointed out that this is precisely what in the most interesting cases one does not know. That a plant comes from Brazil, for example, really teaches one nothing. The country is so vast, and it includes so great a range of physical conditions that, for all practical purposes, such a piece of information leaves one utterly in the dark.

But there is another point of view. Granted that everything is known as to the physical conditions under which a plant grows in the Tropics, is the gardener who attempts to grow it really much better off? How can the *totality* of such conditions—and from what may be called the scientific point of view, we have no right to give anything less—be imitated 6 miles from Hyde Park Corner, or, for that matter, anywhere in England? The problem really is to grow the plant under an entirely new and artificial set of conditions, and to produce a result not inferior to that which it exhibits under those which are natural to it.

We are here face to face with a biological problem of the greatest interest, and of no small difficulty. But in my judgment, it is only to be solved by empirical means. That the conditions of existence to the plant are really changed essentially when the plant is under cultivation, is indicated by two pieces of evidence. First, the notorious fact that it is extremely difficult in most cases to match exactly a cultivated specimen of a plant with wild specimens of the same species in the herbarium. And secondly, that it is equally notorious that cultivated plants are prone to variation. We have only to look to the often-quoted instance of the flora of Egypt, to see that under uniform conditions, variation is in abeyance, while we know that it is speedily stimulated by change of conditions.

I have in my mind the experience principally of cultivation under glass, but I believe that the principle equally applies to herbaceous plants grown in the open air. Let me quote a passage from Professor MICHAEL FOSTER's recently published lecture "On Irises." He says:—"There are, it is true, more things in the plant and in the soil than are dreamt of in the latest philosophy of our newest botany, and in some happy gardens these Irises, will, I know, not only grow, but flourish and smile with content under conditions which must be wholly different from those obtaining in their native home, but which for some reasons, as yet hidden to us, are suited to the plants."

This recalls to mind a principle, long ago pointed out by Dean Herbert:—"Plants," he says, "in many cases are peculiar to those soils which are not best for them, but where they can exist. Why do plants," he further asks, "which are found only in particular situations, improve under cultivation, and (as I believe to be the case) more so than those which are generally dispersed? and consequently, Is the soil or subsoil on which alone certain plants are found in a wild state, necessary to them, or, at least, always best for them. I think the answer must be 'No,' to the latter question; and to the former question, 'Because their most dangerous rivals, which, in a wild state, would overpower them, in richer soil are removed.'"

The fact is, plants in Nature do not grow where they like, but where they can. I well remember that one of the first lessons in horticulture I received was from the remarks by the elder JOHN SMITH, no mean practitioner, under tab. 4502 of the *Botanical Magazine*. I quote them now:—

"We are always most desirous to pay attention to information as regards the native habitats of plants; but we have found that when too closely adhered to, successful cultivation does not always follow. In our experience, we have never found any plant thrive by retaining it in its native soil, or in soil too closely resembling it."

Here is a more recent testimony in the same direction. It is an extract from a letter written by Mr. BACKHOUSE, of York, to Sir JOSEPH HOOKER in 1883:—

"Many Trichomanes grow wild in much stronger soil than we can cultivate them in. The great depth of soil, free wind, and huge soakings (periodical) produce a total effect which we cannot imitate. I found many of the Trichomanes crispum group which had evidently grown in clay, or an almost clay soil, and I tried to imitate it exactly; but the Ferns never rooted in such material, and soon languished."

Or, to take one of a hundred cases from practical experience: Trichinium Manglesii enjoys (?) in Nature the most arid sun-burnt situations. At Kew it is grown successfully in strong, well-manured soil, and is never dried off.

Years ago, in ignorance of Dean HERBERT's paper, I made a brief communication to the British Association, in which I pointed out the curious fact that many plants grow equally well on the sea-shore and on high mountains, and I worked out a similar

explanation to that of Dean Herbert. On the shore at Galway, I have seen Gentiana verna and Dryas octopetala growing with a luxuriance I have never seen surpassed on the Alps. It would be hard to say what there is in common between the two positions.

The fact is, not to put too fine a point upon it, Nature is at best a very poor gardener. The conditions under which plants exist in Nature afford very little real information for cultural purposes. They represent in a vast number of cases the minimum that the plant will tolerate, not the optimum at which it will display itself to the greatest advantage. Nothing surprised M. Glaziou, in his recent visit to Kew, when he minutely inspected our collections of South American plants, more than their luxuriant development. He saw many species, he affirmed, as he had never seen them in their native homes. The same testimony is borne by other travellers. I believe we have Mr. Burbidge's authority for the statement that Phalænopsis is never seen in the Bornean woods as it is seen in cultivation in England. And I am persuaded that this would be found equally true of the bulk of the fine specimens of Orchids exhibited for example at the Temple Show. These are the products of skilful cultivation; and, in my opinion, cultivation and Nature deal with problems which have scarcely anything in common."

(To be continued.)

Vanda cœrulea.—The Orchid collection of Thomas Statter, Esq., Stand Hall, Whitefield, is famous for the many choice plants which it contains, and recently there were about twenty specimens of the beautiful Vanda cœrulea in flower, the number of flowers on each peduncle varying from eight to sixteen. Grouped with Adiantum cuneatum the plants presented a display of much beauty (see fig. 3). Mr. R. Johnson, the gardener, said in allusion to the plants, we have two dozen plants growing in a mixture of sphagnum moss and small lumps of charcoal. They are suspended from the roof of a house with a low span, in baskets varying in size from 5 to 10 inches. The house is kept during the growing season of the Vandas as damp as it is possible to keep it, and with a free current of air passing through it. Every morning each plant is taken down, sprinkled over with a sponge full of water, and replaced, and we find that sufficient water finds its way down the stem when hung up, to keep the sphagnum moss in a growing state, and this is all the water that the plants receive. The plants have from one to three spikes of blossoms, and from ten to seventeen upon a spike. Our engraving was taken from a photograph by Mr. R. Banks, Manchester.

New Year Honours.—We notice that the Queen has been pleased to approve the appointment of Sir John Lubbock, Bart., M.P., to be a member of her Majesty's Most Honourable Privy Council.

The Queen has also been pleased to approve that a Baronetcy of the United Kingdom should be conferred upon—J. T. D. Llewelyn, Esq., of Penllergare, and to confer the following distinctions:—



Fig. 3.—A group of vanda cœrulea and adiantum in the garden of thomas statter, esq., whitefield, manchester.

To be Companions of the Most Eminent Order of the Indian Empire:—Berthold Ribbentrop, Esq., Inspector of Forests. Brigade-Surgeon George King, M.B., Bengal Medical Service, Superintendent of the Royal Botanical Gardens, Calcutta. To be Ordinary Member of the Most Distinguished Order of St. Michael and St. George, of the Second Class, or Knights Commanders of the said Most distinguished Order: Cornelius Alfred Moloney, Esq., C.M.G., Governor and Commander-in-Chief of the Colony of Lagos.

To be Ordinary Member of the Third Class, or Companions of the Most Distinguished Order of St. Michael and St. George:—Oswald John Frederick Crawfurd, Esq., her Majesty's Consul at Oporto.

NEW GUINEA PLANTS.—Through the favour of Baron VON MUELLER, we have received advance sheets containing the descriptions of the plants collected in the highlands of New Guinea by Sir WILLIAM MACGREGOR. The vegetation of the alpine heights in the Tropics is naturally of extreme interest to botanists, and hardly less so to horticulturists, who may fairly look for at least some novelties, more particularly at the lower elevations. Higher up, the conditions of alpine vegetation, even in the Tropics, are so similar to those met with in temperate alpine or in arctic regions, that there is a very considerable degree of uniformity of type in the vegetation: thus on the mountains of New Guinea, Baron Sir FERDINAND V. MUELLER tells us, may be found the Dandelion, Taraxacum officinale, Aira cæspitosa, Festuca ovina, Lycopodium clavatum, L. Selago, Hymenophyllum Tunbridgense, Aspidium aculeatum, all plants common on our Scottish or Welsh hills and elsewhere in Britain. Several new Rhododendrons are described, in connection with which the Baron reminds travellers unable to collect specimens or seeds for exportation, that they might collect the pollen and send it home to be used for hybridising purposes. We should prefer to pack it in soft dry paper rather than in oil-silk, which would favour the development of mould. New Epacrids, some suitable for cultivation, are described, and a new Gentian of interesting character. The Conifers include Phyllocladus hypophylla and Libocedrus Papuana. The latter is a particularly interesting discovery, the distribution of the genus in California, Chili, New Zealand, Central China, and now in New Guinea, being very remarkable.

THE GARDENERS' ORPHAN FUND.—The last meeting of the committee for the year 1889, took place at the "Caledonian" Hotel, Adelphi, on December 27. George Deal, Esq., in the chair. The minutes of the last meeting were read by the Hon. Secretary, Mr. A. F. Barron. The following sums of money were announced: From Mr. G. M. Cummins, The Grange Gardens, Wallington, the sum of £1 19*s.*; and from Mr. Chapman, gr. to H. W. Robinson, Esq., Romford, 13*s.* from boxes at displays of Chrysanthemums open to the public. From Mr. R. Scott, Bradfield Gardens, Yorkshire, box in gardens and at Chrysanthemum show, £4 0*s.* 2*d.*; from Croydon Chrysanthemum Society donation, £1 1*s.*; from Isle of Thanet Chrysanthemum Society, per Mr. Miller, Local Secretary, 13*s.* 2*d.*; from Mitcham Chrysanthemum Society, per Mr. C. Gibson, Morden Park Gardens, 9*s.*; from Sevenoaks Gardeners' Mutual Improvement Society, per Mr. Soaring, £1; from Mr. H. Deverill, Seed Stores, Banbury, box in office, £3; from Young Gardeners', The Grove, Stanmore, fees to botany class, conducted gratuitously by Mr. J. Odell, £3; from Ancient Society of York Florists, floral service in one of the churches, and flower stall at the Chrysanthemum Show, per Mr. J. Lazenby, £10; and from Ealing Gardeners' Mutual Improvement Society, proceeds of a concert in aid of the Fund, £20 2*s.*, with the request that Messrs. E. Chadwick, G. Cannon, E. Fountain, and A. Wright, be placed upon the list as Life Subscribers of £5 each, which was granted. A hearty vote of thanks was passed to all the foregoing. A letter was read from Mr. Gleeson, Clumber Park Gardens, stating that the net result of the recent concert at Worksop, including some private subscription, was £56, and it was the intention of the promoters to make the sum up to £60, and place upon the Fund for the space of six years a child from the district. A letter was read from Mr. Jas. Brown, The Gardens, Great Doods, Reigate, stating that the committee of the Reigate and District Chrysanthemum Society had voted the sum of £100—£50 to the Gardeners' Orphan Fund, and a similar sum to the Gardeners' Royal Benevolent Institution. A hearty vote of thanks was passed to the committee. Mr. Barron reported that the lessees of the Covent Garden Theatre had announced a ticket benefit in aid of the Fund, tickets to be obtained from Mr. A. F. Barron, that will admit to any morning or evening performance between February 3 and 14, excepting Saturday. A cheque was drawn for the children's quarterly allowance, amounting to £61 15*s.* The proceedings closed with a vote of thanks to the chairman.

A HALL FOR HORTICULTURE.—Under this title "A Voice from Swanley," in characteristic tones, advocates the erection or acquisition of some building which the Royal Horticultural Society could call its own. Like our friend, we too hope to see the day when we shall have "a hall worthy of our great nation," and one which shall be available not only for the meetings of the Royal Horticultural Society, but of all the Special Societies, of the Library, of the Horticultural Club, of the charitable societies connected with horticulture. This has been a dream for many a long year, but when we see an enterprising firm of seedsmen and nurserymen sending the proposal broadcast with their Catalogue, we begin to hope the dream may be fulfilled. In the meantime, nurserymen and others would do well to advocate the claims of the Society with their clients, and endeavour to bring in a large accession of new Fellows. At the guinea rate, an enormous number of residents in suburban villas ought to come in.

A CONFERENCE OF CHRYSANTHEMUM GROWERS will be held at the Royal Aquarium, Westminster, on Wednesday next, in conjunction with the Midwinter exhibition of the National Chrysanthemum Society. The Conference will be held in the course of the afternoon, and the subjects for discussion include, "Are Chrysanthemums Wanted at Midwinter?" by Mr. J. KIPLING, of Knebworth.

THE LINNEAN SOCIETY met on December 19, Mr. J. G. BAKER, F.R.S., Vice-President, being in the chair. Messrs. S. A. MOORE and J. J. WALKER, R.N., were admitted, and Messrs. C. CURTIS and P. GROOM were elected Fellows of the Society. Professor P. M. DUNCAN made some supplementary remarks on a specimen of Hyalonema Sieboldii which he had exhibited at a previous meeting. Mr. W. HATCHETT JACKSON exhibited and gave an account of an electric centipede (Geophilus electricus), detailing the circumstances under which he had found it at Oxford, and the result of experiments which he had made with the view of determining the nature and properties of a luminous fluid secreted by it. This, he found, could be separated from the insect, and could be communicated by it to every portion of its integument. Mr. J. E. HARTING pointed out that the observations made by Mr. W. HATCHETT JACKSON on this centipede had been long ago anticipated by Dr. MACARTNEY in an elaborate paper on "Luminous Insects," published in the *Philosophical Transactions* for 1810, vol. c., p. 277). A paper was then read by Mr. T. JOHNSON on "Dictyopteris," in which he gave an elaborate account of the life history of this brown Seaweed, with remarks on the systematic position of the Dictyotaceæ. In the absence of the author, Mr. W. P. SLADEN detailed the more important portions of a paper, by the Rev. JOHN GULICK, "On Intensive Segregation and Divergent Evolution in Land Mollusca," a paper which might be regarded as a continuation and amplification of the views which the same author had expressed in a former paper published in the Society's *Journal* last year (vol. xx., Zool., pp. 189 to 274).

ENGLISH VEGETABLES AND FLOWERS IN INDIA AND CEYLON.—The above is the title of a small book by Mr. D. MCDONALD, dealing with the vegetables and flowers of the white residents in India, and which seems to comprise nearly everything of value in the way of vegetables for the table, and plants to decorate the flower garden. Many of the latter are silent reminders of home, and would seem to be ill at home in tropical India, but as the area of the country is as immense as its climatic conditions are very varied, there are places doubtless to be found where the most unlikely plants will thrive with a due amount of care on the part of the gardener.

"THE ENTOMOLOGISTS' MONTHLY MAGAZINE."—A second series of this very serviceable publication begins with the January number. Its contents are varied and substantial, the typography clear, and no higher guarantee for the excellence of the editing can be wished than is afforded by the names of the six gentlemen by whom these duties are performed, viz., Messrs. BARRETT, DOUGLAS, FOWLER, MCLACHLAN, SAUNDERS, and H. T. STAINTON. The preface to the last volume contains some details signed by Messrs. STAINTON and MCLACHLAN, which will be read with interest.

"More than a quarter of a century has passed since (early in the spring of 1864) it was decided to establish the *Entomologists' Monthly Magazine*.

"The basis upon which it was established may be found in the preface to vol. i., in the first instance that it would be conducted without hope or desire of pecuniary gain on the part of its proprietors; and secondly, that it would be both popular and scientific. The latter idea has, we venture to think, been fully realised; as to the former, we can only say that no balance is in hand, and that when the financial results of more than twenty-five years' working can be adjusted, it is believed there will be no deficit.

"The two editors who took part at the inauguration of the Magazine in 1864, and who still remain on the staff, have no reason to regret the result of their endeavours to further, through its pages, the cause of entomology during the period that has since elapsed. Those of the editors who have joined at subsequent periods share this feeling.

"The fact of a Magazine devoted to entomology, conducted absolutely on non-commercial principles, existing for more than twenty-five years, is probably unique in the annals of Natural History journalism. The editors ask the present supporters to continue their aid, and to induce others to supplement it on the occasion of what will be practically a new departure, by their endeavours to further the sale of a journal which has been, and will continue to be, 'a labour of love.'

"H. T. STAINTON, } Two original Editors, on behalf
"R. MCLACHLAN, } of their Colleagues."

"1, *Paternoster Row, London, E.C., November*, 1889."

THE LATE CLYDE DISASTER.—At the final meeting of the Committee, held at offices of Messrs. Protheroe & Morris on December 20, Mr. H. J. Veitch presiding, Mr. Horsman, the Hon. Secretary, announced that the total receipts amounted to £453 3*s.*, and it was unanimously resolved, 1st, that the subscription list be declared closed; 2nd, that the sum of £452 be equally divided between Mrs. Halland and Mrs. Fraser; 3rd, that the arrangements for investing the respective amounts be left in the hands of Mr. H. J. Veitch and Mr. Protheroe; and 4th, that as soon as the investment has been made a report be sent to all subscribers. Mr. Horsman was accorded a hearty vote of thanks for his services as Secretary, as were also the Editors of the various gardening papers, for their co-operation in giving publicity to the Committee's proceedings.

THE CARDIFF GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—This body, Mr. F. BISHOP, Hon. Sec., informs us, will start its second session on January 7, when Mr. A. PETTIGREW, the President, will open the session with a paper on botany.

GURJUN OIL IN SKIN DISEASES.—Wood oil, Gurjun oil, or Gurjun balsam, which is obtained from several species in Dipterocarpus in India and the Indian Islands, is, it seems, being introduced into this country as the base of a new remedy for cutaneous affections. Its introduction appears to be based on the fact that Father DAMIEN used the oil in his leper cases, and had great faith in its efficacy. The balsam is principally obtained from the coast of Burma and the Straits of Malacca, by making

deep incisions in the trunks of the trees with an axe, from which the balsam flows. The principal species furnishing it are Dipterocarpus alatus and D. turbinatus.

B. ROEZL.—The principal horticultural periodicals of Europe have applauded the idea of forming an international committee for the purpose of erecting a public monument to the indefatigable explorer BENEDICT ROEZL. The services rendered by this gardener-traveller to horticulture are widely appreciated; ROEZL's chief merit was to have crossed without any support whatever, beyond that of his own sturdy resolve, some of the wildest tracts of America, and after sufferings beyond measure, to have brought to Europe treasures of previously unknown plants. This proposed monument is to be in Prague, not far from the place where he lies buried. Those who knew ROEZL, or who cultivate plants of his introduction, are requested to lend their support to the undertaking. Donors of not less than five Austrian florins will, we are informed, be presented with a portrait of ROEZL. We shall be happy to forward any contributions that may be sent to us for the purpose, to the Secretary of the Committee at Prague. The International Committee consist of representatives in England, Belgium, France, Germany, Austria, Russia and Switzerland.

BOUSSINGAULT.—It is proposed to erect, at the Conservatoire des Arts et Métiers, Paris, a statue to the great agricultural chemist, one of the first to test practically in the field the value for cultural purposes of the experiments made in the laboratory, and thus to apply the resources of science to the routine of practice.

EUCALYPTUS CITRIODORA OIL.—The distillation of Eucalyptus oils appears to be increasing in Queensland. It is stated in the *Chemist and Druggist* that a chemist in that Colony has recently erected plant for the distillation of the oil of Eucalyptus citriodora, the citron-scented Eucalypt, which grows extensively in the Port Curtis district. The still takes a charge of about 200 lb., and half a ton of leaves may be treated in one day, the product of oil amounting to a gallon.

A NEW WINTER CARNATION.—Our race of winter-flowering Carnations is made richer by a valuable sport from the well-known Souvenir de la Malmaison, which has been secured by M. LINDEN of the Société Anonyme, Brussels, and named Madame Arthur Warocqué. We have the pink-coloured form of this variety already, and this new one is of a bright shade of scarlet. The plant grows but 12 inches high, is a sturdy grower, and is so profuse a flowerer, that bud-thinning would have to be practiced with it.

PRESENTATION.—On Thursday evening, December 19, at the Parish Schools of Sunningdale, Berks, a marble timepiece was presented to Mr. W. S. CAMPBELL, on his leaving Sunningdale, by the Rev. J. CREE, the Vicar, on behalf of a large circle of friends. Mr. CAMPBELL has filled the situation of gardener and bailiff at Coworth Park for several years, and his friends express the wish that he will again soon secure a suitable post.

THE MOST SUITABLE ORCHIDS FOR THE FLORIST.—In the United States of America, where the art of the bouquet-maker and floral decorator has taken great and rapid strides in recent years and bids fair to attain to still greater proportions, only forty-three species and hybrids of Orchids are found suitable for cutting purposes. According to their value in regard to usefulness, these are divided thus:—Cattleya, seven; Cypripedium, seven; Dendrobium, four; Lælia, five; Odontoglossum, five; Oncidium, seven; Phalænopsis, three; Calanthe, three; and Cœlogyne, two. The Cattleyas are regarded as the most graceful and beautiful, and bring the greatest profits, and the seven best are C. Trianæ, C. Percivalliana, C. Lawrenceana, C. Bowringiana, C. Gaskelliana, C. Mossiæ, and C. Mendeli. Cypripediums are not excelled in lasting powers by Cattleyas, and it is to be regretted that numerous useful species and hybrids are still scarce and expensive, and on that account cannot be employed in bouquet work. Excellent are C. Spicerianum, C. insigne, C. Harrisianum, C. Lawrenceanum, C. villosum, C. Boxalli, and C. argus. Dendrobiums have particular worth, seeing that their blooms can be obtained by skilful management at periods when other Orchid flowers are scarce. At the end of the year there are D. Wardianum, D. nobile, D. Dearei, and D. Jamesianum. Amongst Lælias are the following, Lælia purpurata, L. Perrini, L. anceps, L. autumnalis, and L. albida. Less extensive experience with Odontoglossums as to their commercial value has been collected; and the choice has fallen on O. crispum, O. Pescatorei, O. citrosmum, O. grande, and O. Rossi majus; a selection which nearly agrees with what we find in this country, where the cooler summer weather is more favourable to the cultivation of Odontoglossums than that of any part of the United States, except the mountain regions. The Oncidium family gives numerous species which flower freely and for long periods, and according to American observation the best have proved to be O. varicosum, O. tigrinum, O. Jonesianum, O. sarcodes, O. Forbesi, O. Marshallianum, O. Cavendishianum. The Phalænopsis are cultivated with more difficulty than the abovementioned species, and the choice of the florists confines itself to P. amabilis, P. Schilleriana and P. Stuartiana. Calanthes grow with less attention at the hands of the cultivator, and their welcome blossoms appear during the months of December and three following months. The best species are C. Veitchi, C. vestita, and C. v. oculata gigantea. For sale and bouquet purposes the opinion is, that Cœlogyne cristata and C. ocellata are the best. The essential elements in American Orchid culture are separate culture for each species, and the consequential greater simplicity of the work.

LIST OF FAMOUS ORTICULTURISTS. — The following extract is from the *Journal of Botany* for October and November:—

"MCNAB, WILLIAM (1780—1848): b. Dailly, Ayrshire, 1780; d. Edinburgh, 1st Dec., 1848. Gardener at Kew from about 1800. Superintendent, Edinburgh Bot. Gard., 1810—1848; A.L.S. 1825. Pritz., 200; R.S.C., iv., 170; Gard. Chron., 1848, 812; Cott. Gard., i., 165; Proc. Linn. Soc., ii., 52; Bot. Gazette, i., 53. Portr. at Kew. *Macnabia*, Benth. (1832) = *Nabea*, Lehm. (1831).

"MACRAE, JAMES (fl. 1823—1830). Gardener. At Bot. Garden, St. Vincent's, 1823. Collected for Hort. Soc., 1824—1826, in Sandwich, Galapagos, and other islands, Chili, and Brazil. Superintendent, Ceylon Bot. Garden, 1827—1830. Lasègue, 455; Trans. Hort. Soc., vi., p. 3. *Macraea*, Lindl. = *Viviana*. *Macraea*, Hook. f. = *Lapophata*. *Macraea*, Wight = *Phyllanthus*.

"MAIN, JAMES (c. 1775—1846): b. Edinburgh?, circ. 1775; d. Chelsea, 1846. A.L.S., 1829. Of Edinburgh. Collected in China, 1792—94. Afterwards employed by Hibbert. Edited Paxton's Horticultural Register,' 1835—36. 'Vegetable Physiology,' 1833. 'Popular Bot.,' 1835. Account of Chinese Voyage in Paxton, Hort. Reg., 1836, 62, &c. Pritz., 201; Jacks., 577; R.S.C., iv., 192; Proc. Lin. Soc., i., 303.

"MALCOLM, WILLIAM (fl. 1778—1805): F.L.S., 1805. Nurseryman. Of Kensington. 'Catalogue of Plants,' 1778. *Malcomia*, &c.

"MANGLES, JAMES (fl. 18): Captain R.N. 'Floral Calendar,' 1839. Sent Swan River plants to Lindley. Pritz. 202; Jacks. 213. *Manglesia*, Endl."

"MANGLES, JAMES HENRY (1832—1884): b. 1832; d. Haslemere, Surrey, 24th April, 1884. on of preceding. F.L.S., 1874. Grew Rhododendrons. Proc. Linn. Soc. 1883—86, 106.

"MANGLES, ROBERT (fl. 1839). Brother of James Mangles. Of Sunninghill. Introduced many W. Australian plants. Sent Swan River plants to Lindley. *Manglesia*, Endl.

"MARTYN, JOHN (1699—1768): b. London, 1699; d. Chelsea, 1768. F.L.S., 1727. Professor of Bot., Cambridge, 1733—1761. Friend of Dr. Sherard, 1719. Translated Tournefort's 'History of pl. . . . about Paris,' 1720. Founded Bot. Soc., Lond., 1721—26. Lectured in London, 1729. 'Methodus pl. circa Cantabrigiam, 1727.' 'Historia pl. rarior,' 1728—1732. Herbarium bequeathed to Cambridge Univ. Pult. II., 207; Rees; Pritz., 206; Jacks., 578; Memoir by Thomas Martyn, 1770; Gorham; Vol. of Correspondence in Bot. Dept., Brit. Mus. *Martynia*."

THE ST. LOUIS BOTANIC GARDEN.—This establishment is provided for under the will of Mr. HENRY SHAW. The whole of his estate, with the exception of a few small legacies, is now left to a board of trustees for the benefit of this garden. It has been appraised at nearly 3,000,000 dols., and produces a net income of about 50,000 dols.; but as a large part of Mr. SHAW's property is invested in unimproved real estate within the city limits of St. Louis, the income of his estate may be expected to increase enormously with the growth of that city; and Professor WILLIAM TRELEASE, the newly appointed director, will, in all probability, says *Garden and Forest*, soon find himself at the head of a better endowed establishment than any other of its kind which has ever existed. Professor TRELEASE, with the income now at his command, or which will be available for his purpose in a short time, will be able to lay the foundation of an establishment of such scope that it will soon make St. Louis the botanical centre of the New World, and draw to it students from every quarter of the globe. His early efforts, very properly, will be devoted to elucidating the botany of North America; and he is fortunate in possessing, as a nucleus of the St. Louis herbarium the collections of ENGELMANN which, in certain groups of plants, are of inestimable value. Of special interest to young men who desire to become gardeners is the plan of offering, in connection with the Shaw Garden, six scholarships for garden pupils, for the benefit of young men between fourteen and twenty years of age, who are to be taken for six years, and who will be expected to work in the different departments of the garden, receiving, besides, theoretical instruction in botany, horticulture, economic entomology, and as much land surveying and bookkeeping as is necessary for a gardener having the charge of a large estate. It is proposed by means of these scholarships to make gardeners, and not botanists, and a taste for the manual work of the garden will be insisted on in the young men who hold them. They will receive pay for their work, and be given, free of cost, plain and comfortable lodgings near the garden, as well as free tuition in the School of Botany of Washington University, and such other instruction as may be necessary.

NOTICES OF BOOKS.

THE GARDEN'S STORY; OR, THE PLEASURES AND TRIALS OF AN AMATEUR GARDENER. By George Ellwanger. (Appleton & Co., Caxton House, Paternoster Square.)

Since the publication in our columns of the late Mr. Bright's "Year in a Lancashire Garden," we have had a succession of similar works—we cannot say a surfeit of them, for the subject is ever new, and admits of varied treatment, according to circumstances. Mr. Ellwanger writes from Rochester, New York, where the surroundings are vastly different from those in Lancashire, Buckinghamshire, or Midlothian.

Mr. Ellwanger's chief design is to foster and encourage the culture of hardy plants, and his elegant little volume is appropriately inscribed to the Rev. C. Wolley Dod, "Master of Gardening." It is evident that the fullest allowance must be made for differences of taste, for after reading with approbation the judicious remarks on the pruning of shrubs, we lighted on this passage, which will, we think, not meet with general assent here. Probably the author

has been unfortunate in his selection of varieties "of the scores of Weigelas or Diervillas under cultivation." I know of few to be recommended for the choice collection of hardy shrubs. For the most part, the flowers are of a displeasing colour, while the shrub takes up a large space, which, with the "rose-coloured kinds, might be occupied to far better advantage." To this we may oppose our own experience, by saying that we have seen no more lovely flowering shrub than a particular Weigela in our own garden, with slender, somewhat arching branches, covered in most years with a profusion of the most exquisite rose-coloured flowers. Here is another point in which the author's experience is strikingly different from that which obtains on this side of the Atlantic. "Helianthus tuberosus, the Jerusalem Artichoke, shows a fine mass of yellow, far above one's head. . . In its habit, and the size and brilliancy of its blossoms, it surpasses H. giganteus. It comes late into blossom, and defies the frost." If the author did not expressly make mention of the tubers we should have suspected some mistake. In this country the flowers are rarely produced, and then only after specially hot summers, while it is among the earliest plants to feel the effects of frost. If the Jerusalem Artichoke flowers so freely in the States, will Mr. Ellwanger or some other enthusiast set about raising seedlings with the hope of improving the flavour of this esculent?

The whole tone of the book is delightful; it is full of practical hints, intermixed with so many artistic and poetical suggestions and reminiscences that it will form an excellent book to take up in a leisure moment to dispel the effects of the cares and worries of a busy life. We are sure that all lovers of their gardens will give assent to the following propositions:—

"I. Whatever is worth growing at all is worth growing well.

"II. Study soil and exposure, and cultivate no more space than can be maintained in perfect order.

"III. Plant thickly; it is easier and more profitable to raise flowers than weeds.

"IV. Avoid stiffness and exact balancing: garden vases and garden flowers need not necessarily be used in pairs.

"V. A flower is essentially feminine, and demands attention as the price of its smiles.

"VI. Let there be harmony and beauty of colour. Magenta in any form is a discord that should never jar.

"VII. In studying colour effects, do not overlook white as a foil; white is the lens of the garden's eye.

"VIII. Think twice, and then still think, before placing a tree, shrub, or plant in position. Think thrice before removing a specimen tree.

"IX. Grow an abundance of flowers for cutting; the bees and butterflies are not entitled to all the spoils.

"X. Keep on good terms with your neighbour; you may wish a large garden favour of him some day.

"XI. Love a flower in advance, and plant something every year.

"XII. Show me a well-ordered garden, and I will show you a genial home."

LAEKEN.

THE destruction, by fire, of the palace of the King of the Belgians at Laeken, near Brussels, will excite the sympathy and regret of the numerous British Horticulturists who have experience of His Majesty's courtesy. King Leopold and his Queen are great plant lovers, the collections in the great conservatory at Laeken, of which we give illustrations (figs. 4 and 5), being under the charge of Mr. Knight, formerly the head gardener at Floors Castle.

MAY'S NORTHAM PRIZE BRUSSELS SPROUT is one of the best varieties of which I know. It sprouts firm, compact, but not over large, and, moreover, it is one which is very tender, well flavoured, and of good colour when boiled. *H. Markham.*

MARNOCK'S MAXIMS.

IT would be instructive if some of the numerous admirers of the famous landscape gardener who has recently passed away would give us some account of the principles on which his achievements were based. His position for many years was a very distinguished one, and if it is correct that there is little sound knowledge of the principles of landscape gardening diffused among practical gardeners, it is all the more desirable that the records of a life-work of such duration should be published. Truly it must have been a natural gift that he so consummately cultivated, and a love of the beautiful, which became intensified by practice during an unusually long life.

In my youthful days, I had good reason to admire his sterling character while visiting the exhibitions held in the Royal Botanic Society's Gardens, Regent's Park, London, where he was at the time the Director; but it is not more than fourteen years ago since I came in close contact with him, and enjoyed exceptional opportunities of learning from his lips and pen what were some of his distinctive views with regard to parks and gardens landscape.

When I was invited to undertake the work of forming the new park and gardens at Impney, in Worcestershire, where an extensive pleasure garden in the French style had been commenced, but was to be removed to give place to a park and grounds in the English or natural style on a more extensive scale, I learned that Mr. Marnock had been there some time previously, and proposed a scheme which was, subsequently, only partly carried out, some of the best portions being cancelled. Mr. Marnock visited the scene of operations twice, and during a period of seven years I had much valued correspondence with him (now in my possession) which indicates the lines on which his very pleasing and attractive methods were based. But on ground like that at Impney, which had been mutilated by other hands with totally different ideas, it was not a simple matter to form a truly "English" park, and retain the best of the former work and add it to the new. Some of the operations which were popular with some people did not meet with encouragement from Mr. Marnock, and were to his refined tastes a great infliction. Reference to some of these which I have heard the great gardener denounce may be interesting and not uninstructive: "Formal lakes with long, meaningless curves, and studded with islands in the centre, were very offensive;" "rockwork of a mean, paltry character was intolerable, and anything artificial and insignificant in character was entirely ignored." Amongst other things which were not approved of by him were walks with many unnecessary windings, and whose crooks and bends were seen from the dwelling, his maxim being that no walk should be brought into view where it could be obscured.

"The dotting of trees and shrubs on lawns like sentinels, as a clever writer lately remarked, or placing anything on a lawn at all which in any way interrupted the view or defaced the space, was not allowed;" "the planting of trees in a meaningless way, especially when views were spoiled or obscured," was treated with disfavour. "The formation of terraces or other artificial work, where no building or anything else required such aid;" "cutting up open space for beds or borders, where a clean well-formed lawn would have enhanced the beauty of the demesne;" "abrupt slopes;" "planting in hollows;" "planting young trees besides old giants of the forest, or among them;" "covering up roots;" "covering up with soil gnarled surface-roots of old trees;" "forming beds for flowers or shrubs among or near old trees;" "buildings, such as walls for gardens, stables, &c., in view of dwelling-houses;" "narrow strips of trees, especially if they shut out the adjacent country;" "plantations with 'jagged' outlines, when they could be formed into substantial masses;" "trees planted at equal distances, showing the boundary of the park or domain;" "formal avenues, where they could be easily dispensed with;" "roads to the dwelling-house, taking long out-of-the-way turns, when they could be concealed and the distance shortened," are some of the items which Mr. Marnock was strongly opposed to when the formation of parks or grounds were entrusted to him. Whatever appeared to be pleasing on paper, was accepted with caution until the levels and surroundings of the space to be manipulated on had careful inspection. Drainage and sanitary arrangements had primary consideration. He was a great admirer of cedars of Lebanon, and would say, when placing them in conspicuous positions, "They would monopolise the whole position a hundred years hence." When performing the duties associated with his profession, he made a long day's work. Once, when at Towyen in Wales, we started to mark trees and plan spaces for planting an old neglected park. The day's work was begun at daylight, and finished only as darkness set in. Rain was not a barrier to active work; and his memory seemed in full vigour when approaching 80 years of age. *M. Temple.*

TOMATOS.

THE following summary is published in the *Bulletin* of the Horticultural Experiment Station of the Cornell University, Ithaca, U.S.A.:—

1. Frequent transplanting of the young plant, and good tillage, are necessary to best results in Tomato culture.

2. Plants started under glass about ten weeks before transplanting into field gave fruits from a week to ten days earlier than those started two or three weeks later, while there was a much greater difference when the plants were started six weeks later. Productiveness was greatly increased by the early planting.

3. Liberal and even heavy manuring, during the present season, gave great increase in yield over no fertilising, although the common notion is quite to the contrary. Heavy manuring does not appear, therefore, to produce Vine at the expense of fruit.

4. The tests indicate that poor soil may tend to render fruits more angular.

5. Varieties of Tomatos run out, and ten years may perhaps be considered the average life of a variety.

6. The particular points at present in demand in Tomatos are these: regularity in shape, solidity, large size, productiveness of plant.

7. The ideal Tomato would probably conform closely to the following scale of points:—Vigour of plant, 5; earliness, 10; colour of fruit, 5; solidity of fruit, 20; shape of fruit, 20; size, 10; flavour, 5; cooking qualities, 5; productiveness, 20.

8. Solidity of fruit cannot be accurately measured either by weight or keeping qualities.

9. Cooking qualities appear to be largely individual rather than varietal characteristics.

10. The following varieties appear, from the season's work, to be among the best market Tomatos:—Ignotum, Beauty, Mikado, Perfection, Favourite, Potato Leaf.

11. The following recent introductions appear to possess merits for market:—Bay State, Atlantic, Brandywine, Jubilee, Matchless, and perhaps Lorillard, Prelude and Salzer.

12. The following recent introductions are particularly valuable for amateur cultivation:—Dwarf Champion, Lorillard, Peach, Prelude.

TREES AND SHRUBS.

BERBERIS AQUIFOLIUM.

THIS plant varies considerably in the form and colour of its leaves, some being long, others short, and more or less prickly, and at this season of the year all the various forms are interesting, on account of the different tints of colour they exhibit, many being of a brilliant red colour, some of a bronzy red, and others of a deep dark green; but they are very showy in the shrubberies and other parts of the garden, the density of growth, which is natural to the plant, fits it for planting under high

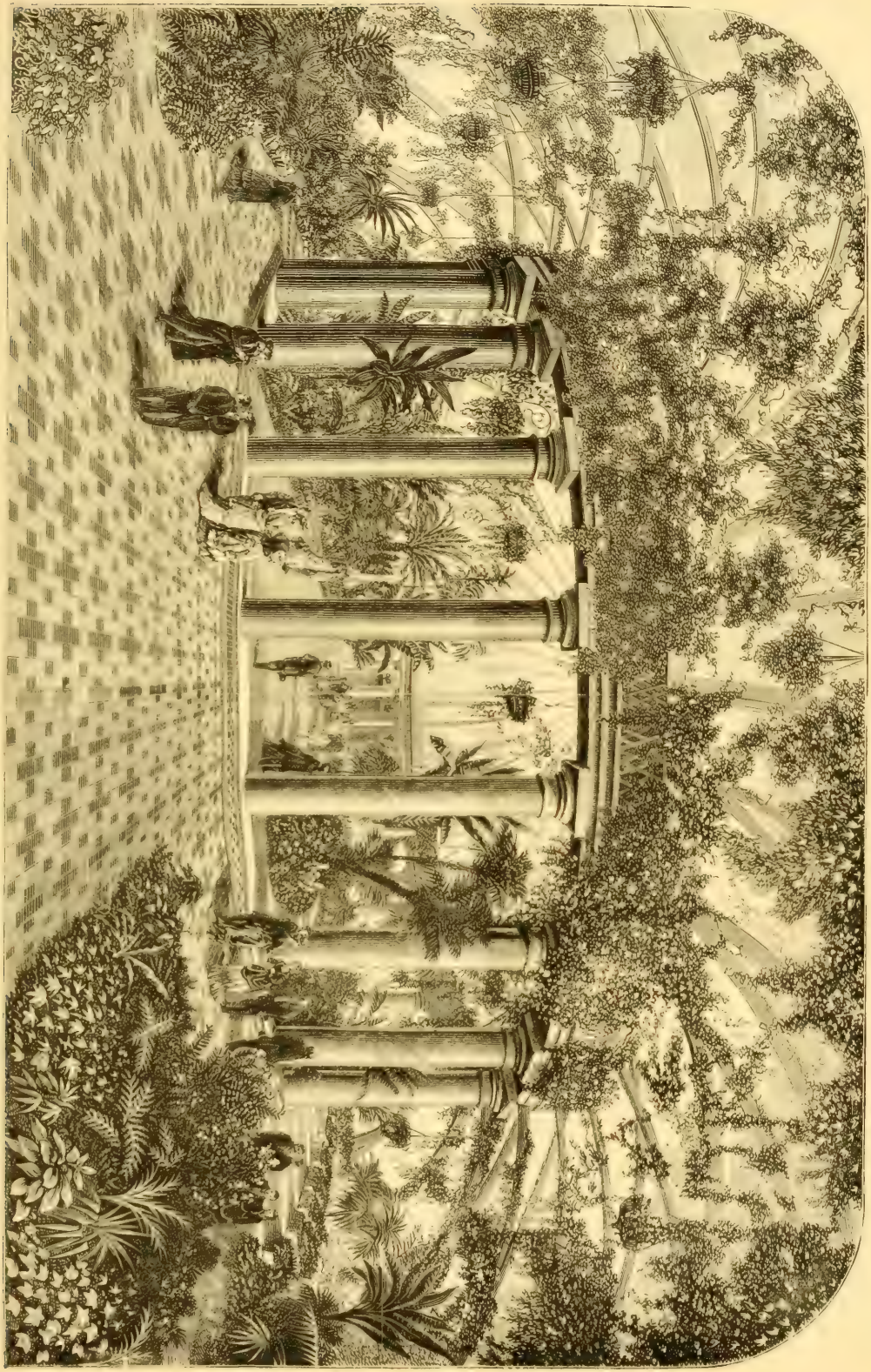


FIG. 4.—INTERIOR OF THE CONSERVATORY AT LAEKEN, NEAR BRUSSELS. (SEE P. 20.)

and shady trees, and in such places it makes a capital covering to the soil, where little else would thrive, except it be the common Laurel, Butcher's Broom and Pontic Rhododendron, but which do not flourish as does Berberis aquifolium. The plant bears close pruning annually, if dwarf growth is desired, and in our strong retentive soil it grows amazingly with large robust foliage, and produces its yellow panicles of flowers abundantly, if the pruning is not too hard. One way of causing a good effect is to plant this Berberis in clumps thickly together, and if a relief to the dull green of the leaves half the year is wished for, a few golden or silver leaved Hollies may be planted between or near these for the sake of contrast above. Manure added to the soil when planting is an advantage, the growth being all the more stronger for it. Although it is replanted with ease, it cannot bear long exposure of its roots to the air, especially if bare of soil, as is often the case when lifting them, the plants shrivelling in the leaf the following summer, and a whole year is required to restore them to health. A thin mulching of manure should follow the planting, and which will be of much value, especially if the following summer should prove a warm one. By pulling the plants to pieces, every bit with roots attached will grow, and in this manner a larger stock may be quickly obtained. *S.*

PRUNING LAURELS.

The present is a good time to set about the pruning and renovation of bushes of Laurel, which may have become untidy from loss of branches at the bottom, and where a thick covering of young growth is desired. Much better is it to cut very bare plants down to within one foot of the soil, than to lop off the tops by degrees, in the hopes of inducing the lower buds to push into growth. By a thorough pruning at once down to the point indicated, although a blank will be made at first, the time lost will be more than made up by the increased vigour of the shoots, which will break thickly from the old stems. *S.*

COLONIAL NOTES.

GOVERNMENT CINCHONA PLANTATIONS AND CINCHONA FACTORY IN BENGAL FOR THE YEAR 1888–9.

ACCORDING to the annual report for the year 1888—9, the total number of Cinchona trees of all sorts on the plantations was 4,810,231, two-thirds of which are pure quinine yielders. The crop of the year, which was the largest ever harvested, amounted to 373,100 lb. of dry bark, of which 207,460 lb. were red, 128,770 lb. Ledgeriana, and 36,870 lb. of other sorts. The whole of this crop was, with the exception of a small quantity supplied on indent or sold to Government institutions, made over to the febrifuge factory for disposal.

The outturn from the factory, which is regulated by the demand, was 8575 lb., of which 2191 lb. were of sulphate of quinine, and 6384 lb. of Cinchona febrifuge. The total outturn for the previous year amounted to 7250 lb. The issues during the year fell from 8089 lb. in 1887—88 to 7489 lb. in the current year.

The decline in the issues is due to the extraordinary cheapness of quinine in the market caused by the development of Cinchona cultivation in Ceylon. It is anticipated that, as Cinchona gives place to Tea in the Ceylon plantations, the price of Cinchona products will again rise.

ROYAL BOTANIC GARDEN, CALCUTTA.

According to the annual report, during the year under report the Palm-house has been completed, and the continuation of the riverside road from Shalimar Point to the Garden commenced.

Some valuable additions have been made to the Herbarium, among which may be mentioned the collections from the Shan Hills, presented by General H. Collett, C.B., from the Naga Hills by Mr. Peal, and from the eastern frontier districts by Mr. C. B. Clarke. Contributions were also received from the Kew and Perak Museums, the Straits Settlements, and Saharanpore, and specimens were sent to most of the leading botanic museums in Europe.

Dr. King has completed, during the year under report, the second part of his important work *Annals of the Royal Botanic Garden*, which deals with the genus Ficus, and is now engaged on the preparation of a new part on the Indo-Malayan species of Oaks and Chestnuts. These treatises, as they are completed, have been circulated to all the chief museums and botanical gardens in Europe and elsewhere, and are highly appreciated for their scientific value and accuracy.

HOME CORRESPONDENCE.

NARCISSUS BULBS IN CHINA. — *Apropos* of your illustration and remarks anent Mr. Jenkins' bulb of Narcissus planted topsy-turvy, kindly allow me to quote from Fortune's *Tea Countries of China*, vol. i., p. 127, his observations and remarks on Narcissus culture in that "flowery land." "The common Jonquil," says Fortune, "too, comes in for a very extensive share of patronage; and in the streets of Canton one meets with thousands of bulbs growing in small pans, amongst water and a few white stones. In this case the Chinese exhibit their peculiar propensity for dwarf and monstrous growth by planting the bulbs upside down, and making the plants and flowers assume curious twisted forms which appear to be so agreeable to the eyes of a Chinaman." Although Fortune distinctly says the common Jonquil in the above description, yet I believe, he really referred to that form of N. Tazetta so commonly cultivated by the Chinese and Japanese under the name of Sacred Lily, Joss Lily, or Water Fairy Flower, albeit that N. Jonquilla really is figured in Japanese floras as a native of Japan. The bulbs of this Narcissus have this season been imported direct by Messrs. Carter and Barr, so that water culture is likely to be a fact with us again as it is still in the East, and as it used to be in Europe fifty years or more ago. Nature is very amiable and accommodating, and of course bulbs—like many, if not most seeds—possess the power of righting matters for themselves if we blunder by sowing them wrong way-up. In the case of some bulbs like Lilium Brownii, &c., I believe it is an advantage to plant the bulbs sideways, and the same is especially true in the open air culture of L. auratum and L. speciosum. *F. W. Burbidge.*

THE ROYAL HORTICULTURAL SOCIETY'S FLORAL COMMITTEE.—I entirely coincide with what Mr. C. Noble has said on p. 732, vol. vi. The appointment of an Orchid Committee consisting of members from the Floral Committee has not only robbed the latter of something like one half of those who make a point of attending the meetings, but it has sadly weakened the personnel by taking away from its deliberations a few persons of varied and extensive knowledge, whose presence is frequently indispensable when certain plants come before us. When fellows of the society look through the recently published proceedings of the committee, they, remembering that the Floral Committee is rather large in point of numbers, must be surprised to find that only six or seven persons voted for a first class certificate or an award of merit, under the date of June 25, 1889. Fellows may read that in the case of one particular flower, three voted for an award of merit and two against. For some reason or the other, the numbers who voted for or against the award of the Fruit Committee are not given in the proceedings; that doubtful advantage appears to apply only to the awards of the Floral Committee. If this practice is to be continued, I think it would be much better to give the names who vote for and against, and not merely the numbers. I am almost one of the oldest members of the Floral Committee in point of time, having joined that body twenty-two years ago, but I have not sat so continuously as some others. At that time the Fruit and Floral Committees were permanent bodies; and at the end of each year a number of the members who had attended least often were struck off, though this practice was manifestly unfair to some members who lived at a distance from London. The committees nominated others to fill their places, and the Council, with very rare exceptions, affirmed the nominations of the committees. The time came when the practice began of disbanding the committees at the end of the year and of re-appointing them. From that time until the present day the members of the committees have been deprived of the privileges they formerly enjoyed, until they have become the mere nominees of the Council, and have to submit to a tax in order to sit upon one of the committees, and do the work of the Society without reward! The permanent character of the committees; the right to nominate to vacancies; the special ticket as a member of one of the committees; admission to special exhibitions like that of the Temple; the power of making awards without ostentatiously referring them to the council for confirmation; the usual luncheon on meeting days;—all these privileges have been withdrawn, until there is practically no independence left to the members of the committees. I am one who warmly protested against the appointment of an Orchid Committee by the Council, without in any way taking the Floral Committee into their confidence, as it would only have been courteous to have done. We see the special societies flourishing because their management is in more active sympathy with their supporters than is the Council of the Royal Horticultural Society with theirs. Nothing can go more smoothly than the proceedings of the Floral Committee of the National Chrysanthemum Society; it is appointed by the General Committee of that Society in open meeting, one-third of the body retiring annually, but being eligible for re-election. No harm can come from a little honest and outspoken criticism, and in writing what I have done, I think I am also expressing the opinions and feelings of a not inconsiderable number of members of the Floral Committee. *R. Dean, Ealing, W.*

"JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—Every one who has any knowledge of the subject must, I think, endorse your remarks as to the value of the *Journal of the Royal Horticultural Society*. It appears to me that the reconstruction of the Royal Horticultural Society occurred at rather a happy moment, just when, amongst other things, the great questions of fruit culture, gardeners' education, improvement societies, gardeners' libraries, &c., were coming to the front, thus opening out a vast and legitimate field for future energetic work and usefulness. The revivified society already shows signs of settling down manfully to its work, and we may hope that it will long maintain its proper position as the great acting authority and head of the horticultural world. No doubt the renewal of the issue of the *Journal* is a step in the right direction. But while congratulating ourselves on the more punctual appearance of the *Journal*, ought we not to consider the means of rendering it a regular and permanent institution, conducted on a sound financial basis—a source of profit rather than of loss to the Society. If, as you say, the privileges accorded to each of the newly instituted class of guinea Fellows amounts to a money value of about 47*s.*, it is pretty clear that the Society is giving more than it can permanently afford to do, and I take it that the cost of the production of the *Journal* is one of the items which helps to swell the expenditure. No one will, in my opinion, blame the Council for making an effort to popularise the Society. It is necessary and commendable, and everyone knows that it can only be accomplished by a free expenditure of capital; so that should we find this year a balance on the wrong side of the annual financial statement, I take it nobody will be surprised or chagrined, but will endeavour to assist and support the Council in the line of policy upon which they have now entered. Seeing that the *Journal* may fairly be designated as the vehicle of communication, not only between the Society and its Fellows, but also between it and the entire horticultural world, I submit that it should be put upon such a footing as to make it pay. The thing is how to do this. Now, it will not be denied that one of the weak points in connection with the present—and still more of the past issues—is the irregularity and uncertainty of publication. One hears it whispered on all sides that one never knew when to expect the next number, and consequently confidence was weakened, interest flagged, and indifference as to whether it was received or not was the result. With a view then to popularising the *Journal*, I would suggest: Firstly, that every effort should be made to maintain the present high standard of the papers and essays; secondly, that a properly qualified editor be appointed who

should be responsible for its regular appearance as a horticultural quarterly; thirdly, that in addition to being distributed to Fellows free, as at present, it should be procurable on the bookstalls and in booksellers shops as other periodicals are; fourthly, that extracts from it should be issued in a cheap form, in numbers or essays, at say 3*d*., for the benefit of the hundred and one horticultural societies, gardeners' improvement societies, and gardeners' libraries (should the scheme take root) established throughout the kingdom. Published in the manner I have indicated, the *Journal* would probably command a large circulation, and become a valuable property. Much information would be widely disseminated, the influence and prestige of the Royal Horticultural Society would be increased, and a real benefit be conferred upon the masses as well as the classes. In any case, I hold regular publication at stated intervals to be absolutely essential to success. There is plenty of room for a publication of this sort, and as it would contain only the papers, essays, and proceedings of the Royal Horticultural Society, it would not interfere in any way with the work of the horticultural press. Of course, all this would take time and trouble—perhaps more than the Council and Scientific Committees could undertake; but this is only a question of proper organisation. *G. Deal.*

—— I wish to endorse the latter part of the letter signed "A. D." in the *Gardeners' Chronicle* for December 21, wherein it is suggested that the Society's *Journal* be made a monthly magazine. I believe if this suggestion were carried out it would be a great boon to the horticultural world; it would keep us well abreast of the times, would prove an admirable vehicle both for giving and obtaining advice, and would be, moreover, a medium through which the Fellows of the Society could conveniently approach the Council. *Charles Noble.*

THE JOSS (= DIOS) FLOWER: CHINESE "SACRED LILY," OR WATER FAIRY FLOWER.—Now that this peculiar variety of Narcissus Tazetta (N. Tazetta "gloriosa," Hort.) has been introduced by several of our leading bulb merchants, a few words as to its practical culture may be advisable. Having grown a fine specimen last season, which you kindly illustrated in these pages, what I know of its requirements may be useful to those who never saw the bulb before. My bulbs last season were totally immersed in water, and held firmly in position by small stones in an ordinary white bowl. They occupied a sunny window by day, and a table near the sitting-room fire at night, and my wife gave them fresh tepid water (65° Fahr.) every morning. There was no greenhouse or hothouse aid whatever in the matter, the heat and light of an ordinary sitting-room being amply sufficient for its culture. Their stems and leaves grew half an inch every twelve hours, and flowered at forty-two days from their first immersion, being then 21 inches in height. One bulb bore five spikes, and each spike bore from four to six white flowers with golden cups, the same being deliciously fragrant, and the plant formed a most delightful ornament, and it was much admired by our visitors, who had seen nothing like it before. This year the bulbs came earlier, and seem even more vigorous and promising than those of last season, and I will report progress later on when they flower. *F. W. B.*

STEPHANOTIS FRUIT.—An example of this fruit in the Museum here was produced this autumn by a plant in the gardens at Carron Lodge, the residence of the Hon. Mrs. Cheape, near St. Andrews. The same plant once bore fruit previously. No conscious aid was given in impregnation. *J. Wilson, D.Sc., University, St. Andrews, N.B.*

THE ELECTRIC LIGHT (*A Correction*).—In your issue of the 21st inst., you state, under the above heading, that the carbon of the Swan lamp "consists of the cortical fibres of the Bamboo." Is this not an error? I think the name "Edison" ought to be substituted for that of "Swan," seeing that the filaments of the lamps of the former are similar to what you describe. The wire-like thread or filament of the Swan lamp consists of "carbonised cotton thread," or, at least, such was the case a year or so ago. *J. H. N. C.*

THE WINTER MOTH.—The trap mentioned in your last number (p. 755) would be practically useless, because it would attract only male moths, the females being incapable of flight. Do what you will with insects, husbands will be found, if necessary; it is the would-be wives and mothers that require to be trapped. I say, if necessary, because certain insects, and especially moths of which the female cannot fly, manage by a physiological process (known as "parthenogenesis," or "agamogenesis") to go on comfortably for many generations without finding a husband at all. All attempts at stamping out the winter moth should be directed to trapping the newly-emerged (and nearly wingless) females. I am not aware that the condition known as parthenogenesis has been proved to exist in the winter moth. In any case, it may be taken for granted that the capture of myriads of males would not have the slightest appreciable effect on the fertility of the untrapped females. *R. McLachlan, Lewisham, December*, 1889.

CAREX VARIEGATA.—Where small elegant foliage is desired, this is a capital plant to grow. The leaves recurve, and its appearance is light and graceful. The leaves are green with a clear white central stripe running the lengthwise of the leaf. The propagation of this Carex is effected by division, each piece detached, if it have roots, will quickly begin to grow if placed in a moist place in the stove, and neat looking plants are soon obtained in 60's. A soil not over rich suits it, and if a large proportion of sand be mixed in it, the variegation is well preserved. *S.*

LAPAGERIA HOUSE AT TRENTHAM.—The Lapagerias at this noted place have been unusually beautiful this year. The flowers of all the varieties are each lovely, but perhaps the loveliest of all is the Trentham white variety, whose flowers are very large, of the purest white, and produced in the greatest profusion under fair conditions of culture. Many gardeners and others will remember the original plant in the old Odontoglossum-house, and which still remains in its old quarters. The house under notice is the one more generally known as the Azalea-house; its roof is now entirely covered by four plants taken from the old one. An idea may be formed of the magnificent sight presented in September and October last, when, at the time of my visit (September 30), there were about 3000 fully expanded flowers hanging in graceful festoons from the roof, and hundreds of unopened buds to follow. The house is a lean-to, 64 feet long by 14 feet wide; the area thus covered is over 900 square feet, the roof being longer than the horizontal width of the house. Many who saw it—travellers who see most of the "good things" in the country—say they never saw anything to equal it before. *E. Gibson, Ingestre Gardens, December* 16.

PLANT NAMES.—Many years ago I was a master at St. Columba's College, near Dublin. The pupils always wore Shamrock on St. Patrick's Day, and it was always the Black Medick. On last St. Patrick's Day, several Irish M.P.'s sent me sprigs of Shamrock. Once more they were in every case pieces of Black Medick. The authority for connecting with Mr. George London the transference of the name London Pride from the speckled Sweet William to the Kerry Saxifrage is given in Dr. Prior's book. *W. T.*

PRESERVATION OF CUT FLOWERS.—I think many of your readers would be glad to have a short article on this subject, giving the best method of preserving cut flowers until wanted. It frequently happens both to private gardeners and the florist that numbers of valuable blooms are wasted for want of this knowledge. For instance, after a few sunny days, a batch of Eucharis or forced Roses will open their blooms all at once; and if after using as many of them as are required at the time, the rest are allowed to remain on the plants, they quickly wither and die off; but if it were possible to gather and preserve them, it would be a great gain. I see in your notice of Mr. May's nursery, you mention that the flowers are kept in cupboards, against a wall in a shed with a north aspect. I know a case in which choice flowers are kept for a week or more in good condition in an old chest of drawers, stood out of doors. Should the flowers be placed in vessels of water and stood in air-tight drawers, or simply laid on damp moss, or what other material? Any hints on the best method of constructing a building specially for the purpose will be esteemed by—*A Novice.*

GOLDEN PLOVERS.—I have just been looking over Mr. Johns' delightfully gossipy and charmingly illustrated book on *British Birds and their Haunts*, that I might find some information respecting the Golden Plover. Only the other day, December 21, hearing a shrill short whistle far aloft, I looked up and saw a flock of these plovers making their customary voyage southwards. The whistle is so short and "shrieky," that once heard it cannot readily be forgotten. Apart from the passing note, however, the broad V-shaped form which the flight of the birds assumed, sufficed to indicate what birds they were. Mr. Johns devotes a couple of pages of descriptive matter to the Golden or Whistling Plover, which we see only in the winter, and even then usually only when the weather assumes a severe aspect. Old weather observers shake their heads and hold that the appearance of these birds signifies hard weather early. Mr. Johns mention that these birds feed largely on earth worms, and in the moist cultivated lowlands which they frequent, it is their practice to tramp the soil as if for the purpose of alarming the earth worms and causing them to come to the surface, when they are caught, and eaten. When severe weather arrives, the birds, finding that it is not possible to capture worms, make their way southwards or to the muddy seashore, where the mud worms in any case are always plentiful. Mr. Johns says, "From their making their appearance in the rainy season, these birds have in France obtained the name of *pluiviers*, whence our name plovers, which however, is supposed to be given them for their indicating by their movements coming changes in the weather, in which respect, indeed, their skill is marvellous." Here we have at once the reason for the interest rural weather observers take in the movements of the plovers, for there is this belief widely prevalent that the coming southward in flocks signifies speedy hard weather. *A. D.*

THE SACRED LILY OF CHINA, NARCISSUS TAZETTA.—I noticed on p. 755, vol. vi., of the *Gardeners' Chronicle* some remarks on the rapidity of growth of this bulb, and it may be interesting to some persons to know how I fared with some bulbs which I obtained from a nursery on November 25. They were placed at once—some into gravel and water, and some into mould similar to that which is used for Hyacinths—and, to my surprise, they were in bloom on Christmas Day, two blooms being fully open on the morning of that day, and to-day (December 30) nearly all the bulbs were in bloom, and averaged six or seven spikes, with five flowers or flower-buds to a spike. The flowers are sweetly scented, and they have been grown in the stove, fully exposed to the light from first to last. *W. L.*

THE EARLINESS OF PRIMROSES.—Whilst engaged in planting about 3 miles from Penarth, and near the coast, I came across a Primrose in full bloom on December 27—a very rare occurrence here so early, or rather, so late in the season. *F. Bishop.*

HEAVY CLAY LAND.—I noticed an answer in a recent number of the *Gardeners' Chronicle* to an inquiry respecting the cultivation of land of this nature. Having had sixteen years experience with a oil of the description named, I should like to explain the treatment which I employed to bring it into a condition to produce excellent crops of vegetables. In the first instance the ground was thoroughly drained with 3-inch tile drains, over which a layer of rubble stone was placed. These drains were 7 yards apart and 4½ feet deep, and emptied into a 6-inch tile main drain, which conveyed the water to a neighbouring stream. In draining tenacious clay-land, it is advisable to cover the tiles with rubble or some similar material, to prevent the soil from clogging the joints. [In grass land, turf is used. Ed.]. I remember when a boy, seeing in Sussex, in the draining of arable fields, small fagots of ling employed for this purpose, but for obvious reasons it would not be discreet to use this or anything of a woody nature in gardens. [Why?] The value of draining clay soils cannot be over estimated, and its advantages are so apparent, that no explanation is here needed. In trenching, potting refuse or garden rubbish, lime rubble, ashes, or the like material, should be worked into the soil, and we have never missed an opportunity of getting possession of these materials for employment in this manner, and to the manifest improvement to the garden. When practicable, I endeavour to trench the soil in autumn before it has become saturated with the rains, and my mode is that known as bastard-trenching, the bottom spit being turned over and broken but not brought to the top, and the surface is left level. All that is then necessary when sowing seeds upon such a plot is to level it with a rake, clear it of stones, draw the drills, and sow. The surface having become pulverised during winter, readily

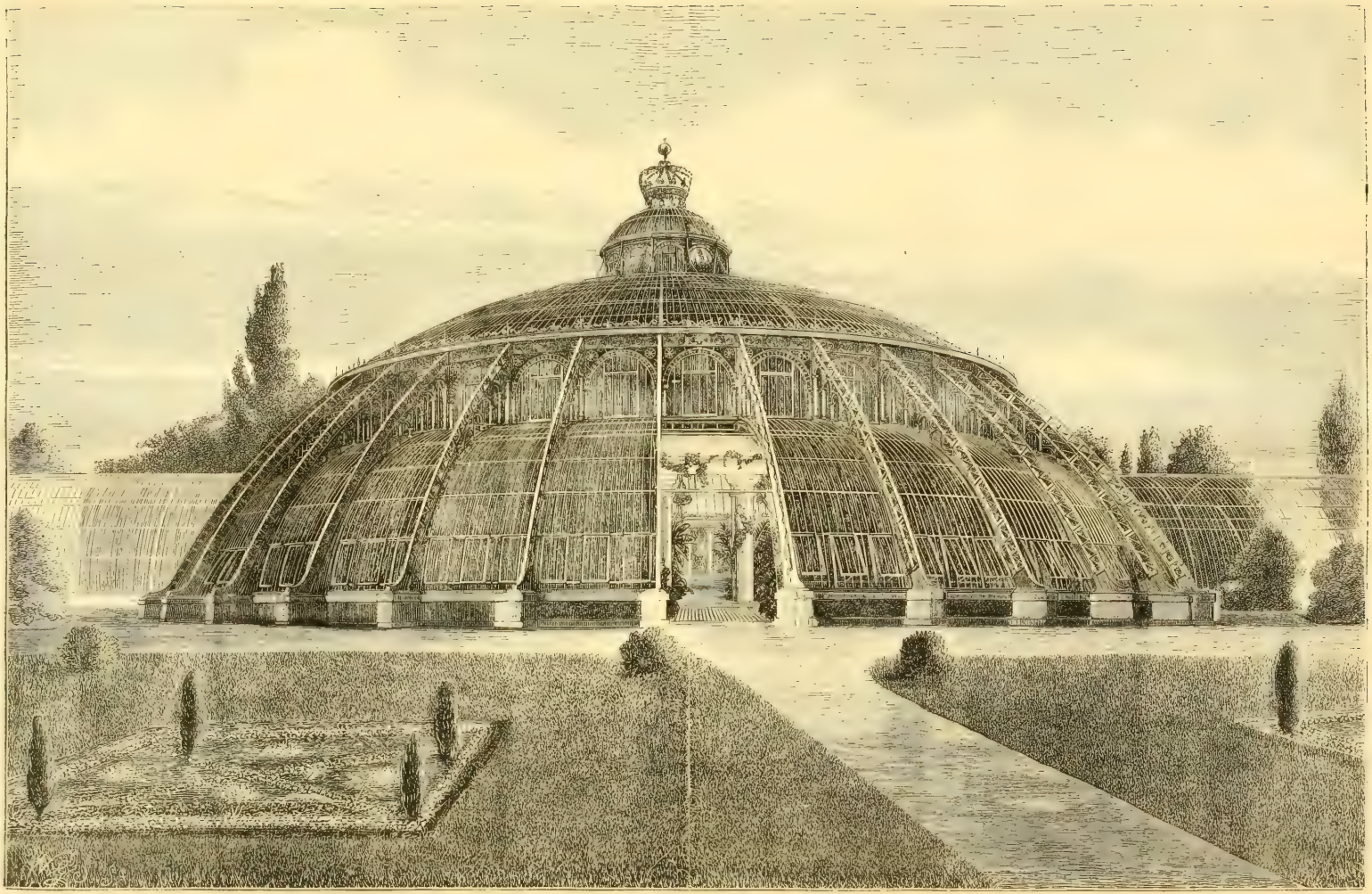


Fig. 5.—THE CONSERVATORY AT LAEKEN. (SEE P. 20.)

The Gardeners' Chronicle, January 4, 1890.

yields to raking, and is an excellent bed for seeds. It is a mistake, I think, to attempt to dig over any piece of ground in spring which has been trenched in the autumn, as by doing so the pulverized surface is buried, and the soil which takes its place, and which has not been exposed to the elements for a considerable time, is not satisfactory for seed-sowing. It is also a mistake to make clay soils very fine, as when thus treated heavy rain forms a crust, which prevents many seedlings from pushing through it, and the result is often a poor crop. I used to cover all small seeds with prepared soil, a practice which answered admirably, but the land has now improved to such an extent as to make this practice unnecessary. The mode of cultivation known as ridging cannot be recommended for clay soils, and has the disadvantage of the furrows becoming saturated with moisture, which does not readily dry up until late in the spring, and makes a not very good seed-bed. I invariably dress the land that has been trenched with gas-lime, and when it is frozen sufficiently hard to carry a wheelbarrow, a wheelbarrowful is given to each rod of ground, which is not only a useful fertiliser, but is destructive to slugs, the Onion maggot, wireworm, and other enemies to the kitchen gardener. In using ordinary lime, I prefer doing so in the spring or summer months, when it is the more beneficial to the land. With regard to manuring, large quantities of stable litter are trenched in, much of it being fresh from the stables. Plots of ground treated in this manner are cropped with Peas, Scarlet Runners, and dwarf Beans, the soil becoming consolidated before the seeds are sown; and the crops are usually excellent. For Cauliflower, Celery, and similar crops, the manure is, of course, used in a more decayed state. Onions, Carrots, Parsnips, Beet, &c., succeed late Peas and Beans, the ground being again trenched for them without, however, the addition of any manure. It is impossible for tillers of heavy clay soils to follow closely in the usual groove respecting the rotation of crops—for instance, I could not with any degree of success, let Onions succeed Celery, as the ground would not be properly prepared in time for sowing the seeds. *Thos. Coomber.*

NUTRITION *v.* SEX.—In reference to Dr. Bonavia's note in your issue Dec. 21, I should like to say that it has long been observed that the sex of plants raised from the seeds of dicœious plants varies according as the soil is rich or poor, or as the seeds are sown thickly or thinly. Thickly sown, or starved, the proportion of male plants preponderates. Thinly sown, or well-fed, females predominate; and that this is also true of animals seems pretty well proven. But when once the sex is differentiated or decided, then an alternative course of feeding or semi-starvation seems necessary to induce the highest fertility, the females proving most fertile when under rather than over-fed; and the males *vice versâ*. This point is alluded to by Virgil in his Georgics, and is of paramount importance both in the garden as well as on the farm. It has long been known that dicœious plants now and then alter their functions, those formerly males producing female flowers, or *vice versâ*; and there now seems to be but little doubt but that altered conditions of nutriment lie at the bottom of such changes, and even the ever-changing degree of fertility exhibited by our hermaphrodite dicœious trees is, no doubt, governed by climate—*i.e.*, by heat, light, and moisture—which regulate the supply of nutriment assimilated by such trees and plants. The intelligent gardener will, of course, always be on the alert to seize and utilise facts of this kind, but a well-directed series of experiments in a public garden would do much to put practice on a surer footing in the direction above indicated. *F. W. Burbidge.*

ARRANGING BORDERS OF HERBACEOUS PLANTS.—There is a considerable diversity of opinion on what is thought to be the most effective manner of carrying out this feature in a garden, each individual advocating his pet system as being the best. And where the individual only is concerned, then whatever may be the shortcomings of that plan, according to the views of others, so long as the individuals in question are satisfied that they derive the greatest amount of pleasure by following it, obviously in such cases it would be folly to interfere, as flowers are planted and gardens kept in order that they may be enjoyed by those who pay for them. However, the manner of planting and arrangement is generally entrusted to some other person, with, in all probability, no more instructions than that it is desirable to make those borders as interesting and effective as possible. Now, the way in which this can be done best is a matter not so easily answered, as it must always, in a great measure, be influenced by the character of the place. Arrangements which might be suitable for one of almost unlimited extent might be altogether out of place under more restricted conditions. But in either case, whether large or small, it ought to be the object of the planter to dispose his plants in such a manner as to give the borders a well dressed appearance for as long a period as possible; and fortunately there is now such a wealth of fine material, that by judicious selection, there ought to be no great difficulty in maintaining a good display for at least two-thirds of the year. What I mean by a good display is, that the borders should present a floriferous appearance from end to end. Of course this style would not be compatible with the pet scheme of those who champion the planting of only one or two clumps of any particular subject, which style I would strongly advise intending planters to avoid, unless under special circumstances, which I shall notice presently. It always occurs to me whenever I read or hear of any one advocating this style that they seem to forget that, owing to the widely different periods at which such plants flower, there would necessarily be comparatively little bloom on the borders at any one time, even if the clumps were extra large; indeed, this would make matters rather worse than better, as there would be correspondingly large blanks as the various subjects went over, and this in the case of early flowering subjects would, I maintain, be a serious defect during the best part of the season, without, so far as I can see, any corresponding advantage. Only imagine any moderately long border, say a couple of hundred yards, with only one clump of Snowdrops, Daffodils, Delphinium, Peony, Pyrethrum, Phlox, Tulip, &c. I think there would be no gainsaying the fact that the effect would be miserably poor. Another fallacy in the argument of those one clump advocates is, they aver that a repetition of the same kind of plant becomes monotonous; if continued, as in bedding-out plants, I readily admit, this is so. But they overlook the fact that in the majority of herbaceous plants the flowering period is comparatively short, rarely more than a few weeks, and whether there be one or twenty clumps, they will come and succeed one another with the same regular monotony, if they choose to designate it such. But this ever-changing character is, I hold, one of the charms of a herbaceous border; indeed, if well planted, it ought to form a gradual sort of transformation picture right through the season. To accomplish this is no very difficult task, only sufficient numbers of one kind of plant must be used to give the necessary dominance for the time being—not necessarily all of one variety; on the contrary, as many varieties of the kind used should be included as can be comfortably accommodated, or sufficient to give the border for the time being, when in flower, a distinctive character, always of course taking care to make the clumps sufficiently large to be effective. I may mention a few of the subjects useful for this purpose, all of which are to be had in plenty:—All the early flowering bulbs, Pæonies, Delphiniums, Pyrethrums, Anemones, most of the hardy Primulaceæ, Phloxes, Pentstemons, Hollyhocks, Rudbeckias, Gaillardias, Asters, Aquilegias, Dianthus, Antirrhinums, Helianthus, Hellebores, and some of the Campanulas, and many others equally suitable, which could be selected according to the fancy of the planter. Perhaps by this time it may be thought that there would not be much variety in such a border. But the arrangement suggested need not materially interfere with the number of species and varieties which the border would otherwise contain, as by judiciously planting the early and late flowering subjects next to each other, the former will generally either be cut in or gone down by the time the latter requires the space. Moreover in the case of bulbous or other plants which go down early, annuals should be sown in time to take their place. Indeed, some of the showiest herbaceous borders which we have seen were a mixture of annuals and perennials, these together give a luxuriance and wealth of flower not obtainable by the line of perennials alone. Annuals also fill up the gaps of early-flowered things, thus preventing objectionable blanks sometimes seen in herbaceous borders; besides, the use of annuals admits of greater space being left between the permanent occupants, which gives greater facilities for cleaning—it may be manuring or forking between—when they are cleared off in the autumn. The one group of one variety system is all very well and appropriate when a large space can be devoted to these plants, and a background of shrubs, where recesses can be formed for them in such a position, any individual species can be seen to advantage, as the shrubs will prevent the effect of those which are past, marring others which are coming on; but to adopt this plan on an isolated border, it has a very ragged and patchy look about it. Of course, introduce as many single clumps of individual species and varieties as the border will hold, as that gives interest to the border, but always plant sufficient numbers of salient things to keep up a continual change in the general appearance of the border. Where wide borders can be had—say from 15 to 20 feet—then a splendid effect may be made by thinly planting it with a selection of the best foliage and flowering shrubs and dwarf Conifers. This style is particularly applicable for public parks or large gardens, and also where comparatively naked borders would be objectionable in winter. In all cases, whatever the method adopted, it is absolutely essential to success that the planter should have a thorough knowledge of the plants he is dealing with. *F. R.*

COOL FRAMES FOR VEGETABLES.—To those who, like myself, have to keep up a constant and regular supply of vegetables in variety, and who have a late cold soil to contend with, a number of cool pits are of great service, particularly during the spring months, when the disadvantages of late soils are most felt. We are fortunate in possessing a large number of these pits, and in which early vegetables are produced in the following manner. Having command of large quantities of leaves, a portion of the pits were so constructed that a bed of five feet deep could be placed in them, and these keep a steady bottom heat for nearly twelve months, being subsequently useful for replenishing beds for Pine-apples. As soon as the leaves, which are of Oak, are procurable, they are collected and firmly trodden into the pits, so that all the warmth they engender is utilized. For Potatos, we put one foot of rich light soil on the leaves, and when it is warmed through, which is about the end of December—the sets previously sprouted—are planted 4 inches deep and 1 foot apart. The after treatment consists in carefully ventilating the plants to keep them robust, and attending to the watering, a matter that requires a good deal of discretion, especially in the early stages of growth, when the vapour from the leaves will often keep the soil sufficiently moist, and too much water at that time affects both quality and weight of crop injuriously. To protect from frost, mats and litter are employed, care being taken that the points of the stems do not get frozen. The variety we grow is Veitch's Ashleaf Kidney. Carrots as an early vegetable are always liked, and are made use of by the cook even when very small. We formerly grew French Forcing for the earliest drawing, but have since substituted Early Nantes as being better. The beds for Carrots are prepared in the same way as the Potato beds. The soil is, however, worked to a finer tilth, and when wood-ashes are at command, some small quantity of these is added to it. The seeds are sown broadcast in the beginning of January, and lightly covered with soil, and the plants are thinned when large enough to handle to about 2 inches apart, and when drawing commences they are taken from the bed in a regular manner, in order to afford the remaining roots light and air. Turnips are treated in like manner, but the seed is sown at the end of January, and again at a later date, and they are thinned to about 6 inches apart. Early Milan is the best variety for pit culture, as it comes into use quickly, and keeps for a long time in useable condition. Radishes, for want of space, are sown thinly amongst the Potatos, and are all drawn as soon as they are fit for use, so that as little injury as possible is done to the Potato crop. Cauliflowers.—The pits for these are shallow compared with those for the other crops, bottom-heat being unnecessary; nevertheless, a depth of about 1 foot of tree leaves is put into the pit to ensure good drainage, and upon this is laid a layer of short manure 3 inches deep, and covered with rich soil to the depth of 12 inches. The seed is sown at the end of August in a warm situation outside, and the plants when they have made four leaves are potted into large 60's, and afterwards planted out in January, at 15 inches between the plants. Air is admitted freely when the weather is fine; and when it is seen that the plants have made good roots, we assist them with liquid manure. Slugs are sometimes troublesome when the plants are young, but we rid ourselves of these

depredators by hand-picking. It is remarkable how well Cauliflowers do when treated in this manner, and the large number that may be grown in a small space, and the quality is perfect. The varieties we grow are Veitch's Early Forcing and Early London, the latter succeeding the former. Early Forcing is much the handsomer head, and a perfect model in its way. *Thomas Coomber.*

THE ORCHID HOUSES.

PREPARATORY to the commencement of the general repotting of all the Orchids requiring it, and which should be attended to in the first three months of the year, examination of all the necessary stores should be made to see that sufficient peat, sphagnum moss, clean crocks, pots, &c., are on hand, and if not, they should be immediately got in. Half-pots or deep pans are the best for most epiphytal Orchids, and especially those of low stature. An excellent quality of these, both for suspending by hangers, and for plants intended to be grown on the stages, are manufactured at the Wood Green Potteries, Waltham Cross. Teak-wood baskets are excellent for Orchids, and as many as can be grown conveniently in them, or in suspended pans, should be so grown.

The temperatures for January should be:—warmest house, 65° to 70° by day, 60° at night; intermediate-house, 60° to 65° by day, 55° at night, cool-house, 50° to 55° by day, 45° at night. *James O'Br*

NAMING VEGETABLES.

THE Department of Agriculture at Washington has issued a report of the committee on the nomenclature of vegetables appointed at a meeting of the Experiment Station horticulturists, at Columbus, Ohio, in June last. The report and the rules which they offer are here presented:—

REPORT OF COMMITTEE.

The committee believe that all interests will be subserved, and that dignity will be secured by simplicity and good taste in the nomenclature of kitchen garden vegetables. . . . .

Reform in this department of horticultural nomenclature should be prosecuted as vigorously and successfully as it has been in the nomenclature of fruits at the hands of the American Pomological Society. The committee are confident that brevity, accuracy and good taste in the naming of vegetables are perfectly compatible with the purposes of trade, and therefore solicit co-operation in this work not only from all writers upon horticultural topics but from all dealers in garden seeds and supplies.

A name is bestowed upon any plant solely for the purpose of designating it; it is not the province of a name to describe the plant. All description is properly a part of the text. This description should present a characterisation of the variety, rather than a mere list of adjectives intended to catch the eye. . . . .

L. H. BAILEY, E. S. GOFF, W. J. GREEN.

RULES.

1. The name of a variety should consist of a single word, or, at most, of two words. A phrase, descriptive or otherwise, is never allowable; as, Pride of Italy, King of Mammoths, Earliest of All.

2. The name should not be superlative or bombastic. In particular, all such epithets as New, Large, Giant, Fine, Selected, Improved, and the like should be omitted. If the grower or dealer has a superior stock of a variety, the fact should be stated in the description immediately after the name, rather than as a part of the name itself, as "Trophy, selected stock."

3. If a grower or dealer has procured a new select strain of a well-known variety, it shall be legitimate for him to use his own name in connection with the established name of the variety; as Smith's Winningstadt, Jones' Cardinal.

4. When personal names are given to varieties, titles should be omitted, as Major, General, Queen.

5. The term hybrid * should not be used, except in those rare instances in which the variety is known to be of hybrid origin.

6. The originator has the prior right to name the variety; but the oldest name which conforms to these rules should be adopted.

7. This committee reserve the right, in their own publications, to revise objectionable names in conformity with these rules.

THE WEATHER.

[BY the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE. Above (+) or below (—) the Mean for the week ending Dec. 24.	TEMPERATURE. ACCUMULATED. Above 42° for the Week.	TEMPERATURE. ACCUMULATED. Below 42° for the Week.	TEMPERATURE. ACCUMULATED. Above 42° difference from Mean since Jan. 1, 1889.	TEMPERATURE. ACCUMULATED. Below 42° difference from Mean since Jan. 1, 1889.	RAINFALL. More (+) or less (—) than Mean for Week.	RAINFALL. No. of Rainy Days since Jan. 1, 1889.	RAINFALL. Total fall since Jan. 1, 1889.	BRIGHT SUN. Percentage of possible Duration for the Week.	BRIGHT SUN. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		Ins.		
1	1 +	7	30	+ 219	— 52	3 +	241	41.8	5	22
2	3 +	10	31	+ 20	— 50	1 +	195	25.9	10	28
3	4 +	21	12	+ 2	— 68	3 —	189	24.0	15	26
4	5 +	29	12	— 14	+ 62	1 —	186	25.8	16	30
5	5 +	29	12	11	+ 7	2 +	173	26.7	9	28
6	5 +	31	4	+ 40	— 25	3 +	173	25.8	12	30
7	3 +	22	11	+ 70	— 114	6 +	206	42.4	17	30
8	3 +	21	8	+ 13	— 65	9 +	195	32.3	7	28
9	4 +	30	2	— 91	+ 87	8 +	195	36.0	6	34
10	3 +	22	7	+ 80	— 137	9 +	229	38.4	16	26
11	4 +	33	3	+ 20	— 74	10 +	206	37.1	16	32
12	3 +	46	0	+ 135	— 24	3 +	208	30.4	2	9

DISTRICTS.	TEMPERATURE. Above (+) or below (—) the Mean for the week ending December 30.	TEMPERATURE. ACCUMULATED. Above 42° for the Week.	TEMPERATURE. ACCUMULATED. Below 42° for the Week.	TEMPERATURE. ACCUMULATED. Above 42° difference from Mean since Jan. 1, 1889.	TEMPERATURE. ACCUMULATED. Below 42° difference from Mean since Jan. 1, 1889.	RAINFALL. More (+) or less (—) than Mean for Week.	RAINFALL. No. of Rainy Days since Jan. 1, 1889.	RAINFALL. Total fall since Jan. 1, 1889.	BRIGHT SUN. Percentage of possible Duration for the week.	BRIGHT SUN. Percentage of possible Duration since Jan. 1, 1889.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	3 +	12	26	+ 323	— 58	4 —	245	42.4	3	22
2	2 +	5	35	+ 17	— 56	5 —	197	26.1	2	28
3	0 av.	0	29	— 6	+ 73	3 —	182	24.1	5	26
4	4 —	0	51	— 20	+ 80	4 —	189	26.0	18	30
5	3 —	0	43	— 20	+ 15	5 —	175	26.8	14	28
6	3 —	0	36	+ 26	+ 35	6 —	175	25.9	13	30
7	2 +	8	24	+ 66	— 114	8 —	211	42.9	5	29
8	2 —	1	30	+ 33	— 63	6 —	197	32.5	5	28
9	2 —	6	27	— 110	+ 100	10 —	197	36.1	27	34
10	2 +	21	7	+ 86	— 153	3 —	232	38.9	9	25
11	3 +	26	2	+ 25	— 91	1 —	210	38.0	17	31
12	1 —	23	4	+ 130	— 24	8 —	210	30.5	30	40

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

* A hybrid is the product of true species. There are few, if any, instances of true hybrids among common garden vegetables. The union of varieties gives rise to a cross.

THE PAST WEEK.

The following summary record of the weather for the week ending December 30, is furnished from the Meteorological Office:—

"The *weather* has been changeable and unsettled in the extreme west and north-western parts of the kingdom, with rain at rather frequent intervals. Elsewhere the conditions have been quiet, and the rainfall very slight. In most districts, however, much mist, fog, and gloom have prevailed.

"The *temperature* has continued 2° or 3° above the mean in Ireland and Scotland, and has just equalled the normal in 'England, N.E.,' but in all the other English districts it has been below, the deficit having ranged from 2° to 4°. The highest of the maxima, which were recorded in most places on the 24th, varied from 50° in 'England, N.E.,' to 56° in 'Ireland, S.' The lowest of the minima were generally registered on the 29th, when they ranged from 15° in the 'Midland Counties,' and 17° in 'England, E.,' to between 20° and 25° in most other districts. In Ireland and the 'Channel Islands' the minima varied from 30° to 33°.

"The *rainfall* has been less than the mean in all districts. Over the greater part of England the fall has been very slight.

"*Bright sunshine* has continued very deficient. The percentage of the possible amount of duration over the kingdom generally ranged from 2 to 18, but in 'England, S.W.,' 27 per cent. was recorded, and in the 'Channel Islands' 30 per cent.

MARKETS.

COVENT GARDEN, January 2.

MARKET very quiet after the holidays. The supply of Grapes is becoming shorter, with prices tending upwards. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Evergreens, in var., per dozen ...	... 6 0–24 0
Aspidistria, doz.	...18 0 42 0	Ferns, in var., per dozen ...	... 4 0–18 0
— specimen plants, each ...	... 7 6–10 6	Ficus elastica, each ..	1 6– 7 0
Azaleas, various, each	2 6– 3 6	Foliage plants, various, each ...	... 2 0–10 0
Begonias, dozen ...	4 0–12 0	Hyacinths, p. doz ...	9 0–12 0
Christmas trees, doz.	4 0 24 0	Lily of the Valley, p. doz. pots ...	...1 0–3 0 0
— — extra size, each	... 5 0–21 0	Margueites, doz. ...	6 0–12 0
Chrysanth., dozen ...	6 0–15 0	Palms in var., each	2 6–21 0
Cyclamen, dozen ...	15 0–24 0	Pelargoniums, scarlet, per dozen ...	6 0– 8 0
Cyperus, per dozen .	4 0–12 0	Roman Hyacinths, per dozen pots ...	9 0–12 0
Dracæna terminalis, per den ...	...30 0–60 0	Solanums, per dozen	6 0–12 0
— viridis, per doz.	12 0–24 0	Tulips, doz. pots ...	8 0–10 0
Epiphyllum, per doz.	12 0–18 0		
Euonymus, in var., per dozen ...	... 6 0–18 0		
Ericas, various, doz.	8 0 24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun. ...	2 0– 4 0	Narciss., paper-white,	
Azaleas, doz. sprays	0 9– 1 6	French, doz. bun.	4 0– 8 0
Bouvardias, per bun.	0 8– 1 0	— Eng., doz. sprays	1 0– 1 6
Callaethiopica, 12 bl.	4 0– 8 0	Pelargoniums, 12 spr.	1 0– 2 0
Camellias, white, doz.	2 0– 4 0	— scarlet, 12 spr...	0 9– 1 6
— various, per doz.	1 0– 2 0	Primulas, double, 12 sprays ...	... 1 0– 1 6
Carnations, 12 blms.	1 0– 2 0	Roman Hyacinths,	
Chrysanth., 12 bun.	4 0–12 0	Eng., doz. sprays...	0 9– 1 6
Chrysanth., 12 blms.	0 6– 3 0	Roses, Tea, per doz.	1 0– 3 0
Cyclamens, 12 blms.	0 4– 0 9	— coloured, doze.	2 0– 4 0
Eucharis, per dozen	3 0– 5 0	— French, dozen ...	1 0– 2 0
Gardenias, 12 blooms	9 0–18 0	— red, per dozen ...	2 0– 3 0
Heliotropes, 12 spr.	0 6– 1 0	— Safrano, dozen...	1 6– 2 6
Lilac, white, Fr., bun.	6 0– 8 0	Spirea, doz. sprays...	1 0– 1 6
Lilium, var., 12 bl...	2 0– 6 0	Stephanotis, 12 spr.	9 0–12 0
Lily of the Valley, doz. sprays ...	0 9– 1 6	Tuberoses, 12 bms....	1 6– 2 0
Maiden Hair Fern, 12 bun. ...	... 4 0– 9 0	Tulips, doz. blooms...	1 0– 2 0
Mignonette, per bun.	2 0– 4 0	Violets, 12 bun. ...	1 0– 2 0
— French, per bun.	1 6– 2 0	— Parma, bunch ...	4 6– 7 0
Margueites, 12 bun.	3 0– 6 0		

ORCHID-BLOOM in variety.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.		s. d.
Beans, French, lb. ...	0 9– ...	Mushrooms, punnet	1 6– ...
Beet, red, per dozen	1 0– 2 0	Onions, per bunch ...	0 5– ...
Carrots, per bunch...	0 6– ...	Parsley, per bunch...	0 6– ...
Cauliflowers, each ...	0 3– ...	Rhubarb, per bundle	0 6– ...
Celery, per bundle ...	1 6– 2 0	Seakale, punnet ...	2 6– ...
Cucumbers, each ...	1 0– 1 6	Shallots, per lb. ...	0 6– ...
Endive, per dozen ...	1 6– ...	Spinach, per bushel...	5 0– ...
Herbs, per bunch ...	0 4– ...	Sprue, per bundle ...	1 6– ...
Leeks, per bunch ...	0 3– ...	Brussel Sprouts, pr lb.	0 3– ...
Lettuces, per dozen...	1 6– ...	Tomatos, per lb. ...	1 0– ...
Mustard and Cress, punnet ...	... 0 4– ...	Turnips, per bunch, new ...	... 0 5– ...

POTATOS:—Market firm. For best samples, 90s. to 100s.; medium, 60s. to 70s.; and ordinary to inferior, 40s. to 50s. per ton,

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6–	7 0	Lemons, per case	12 0–	25 0
— Nova Scotia, brl.	12 0–	25 0	Pine-apples, Eng., lb.	1 0–	1 6
Cobs, per 100 lb.	140 0–	...	— St. Michael, each	2 0–	6 0
Grapes, per lb.	1 0–	3 0			

SEEDS.

LONDON: *Jan.* 1.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that the seed market to-day was dull and featureless. In the absence of business, slightly lower values are mentioned for red Clover seed; the majority of English samples now offering show poor quality. Trefoil, Alsike, and white Clover exhibit no material alteration. There is rather more inquiry for winter Tares. Blue Peas remain firm. Rape seed tends in sellers' favour. Bird seeds are now at a phenomenally low figure. Feeding Linseed is neglected.

CORN.

Averages.—Official statement of the prices of British corn, imperial measure (quarters) for the week ended December 28, 1889:—Wheat, 29*s.* 10*d.*; Barley, 30*s.* 6*d.*; Oats, 18*s.* 2*d.* For the corresponding period in 1888:—Wheat, 30*s.* 7*d.*; Barley, 20*s.* 10*d.*; Oats, 16*s.* 3*d.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *Jan.* 1.—Moderate supplies, with a rather slow demand, at following prices: English Apples, 3*s.* to 6*s.* per bushel; American Apples, 15*s.* to 20*s.* per barrel; forced Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bundles; Cabbages, 1*s.* to 1*s.* 6*d.* per tally; Savoys, 2*s.* to 3*s.* do.; Cauliflowers, 1*s.* 6*d.* to 2*s.* 6*d.* per dozen; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Parsnips, 4*d.* to 8*d.* per score; Spinach, 1*s.* 6*d.* to 2*s.* per bushel; Brussels Sprouts, 1*s.* 6*d.* to 2*s.* per half-sieve; Turnip-tops, 1*s.* to 2*s.* per sack; Sprouting Brocoli, 1*s.* to 1*s.* 6*d.* per sieve; Greens, 2*s.* to 3*s.* per dozen bunches: Turnips, 2*s.* to 2*s.* 6*d.* do.: Parsley, 1*s.* 6*d.* to 2*s.* do.; Horseradish, 1*s.* to 1*s.* 6*d.* per bundle; Celery, 4*s.* to 12*s.* per dozen bundles; Leeks, 1*s.* to 1*s.* 6*d.* per dozen; Endive, 1*s.* to 2*s.* do.; Carrots, 1*s.* 6*d.* to [2*s.* per dozen bunches; Mustard and Cress, 1*s.* to 2*s.* per dozen baskets; English Onions, 7*s.* to 8*s.* per cwt.; Belgian Onions, 5*s.* to 6*s.* per bag of 110 lb.; Dutch Onions, 5*s.* 6*d.* to 6*s.* 6*d.* do.; Spanish Onions, 6*s.* to 7*s.* per case; Beetroots, 3*d.* to 4*d.* per dozen; Carrots, 18*s.* to 28*s.* per ton.

POTATOS.

BOROUGH AND SPITALFIELDS: *Dec.* 31. Supplies are large, with increasing stocks, but the proportion of best qualities is not heavy, and these uphold their value, with a moderate trade. Inferior sorts, from absence of demand, are nominally unchanged. Quotations:—Regents, 80*s.* to 85*s.*; Hebrons, 40*s.* to 105*s.*; Magnums, 45*s.* to 90*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *Jan.* 1. Quotations: Magnums, 45*s.* to 60*s.*; Regents, 50*s.* to 65*s.*; Imperators, 50*s.* to 60*s.*; Hebrons, 50*s.* to 60*s.*; Early Rose, 40*s.* to 50*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Prime Clover, 80*s.* to 100*s.*; inferior, 45*s.* to 75*s.*; prime meadowhay, 60*s.* to 92*s.*; inferior, 36*s.* to 60*s.*; and straw, 24*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

AFRICAN GRASS: *Caroline C.* The grass plumes seen in the Manchester florists' shops are those of Gynerium saccharoides from Brazil.

ANDRŒCEUM: *W. M.* An attempt has been made to fertilise the flower in some way or another, the ovary has swollen up, and the flower segments have become withered accordingly, just as happens when fertilisation occurs.

BORDEAUX MIXTURE: *X.* Take 6 lb. of sulphate of copper in powder, and dissolve them in 4 gallons of hot water. Mix 4 lb. of lime with 4 gallons of cold water. Add the two mixtures together, and add water, so as to make in all 20 gallons. Do not forget the poisonous nature of the solution, and exercise due care.

CATTLEYA CHOCOENSIS BUDS DAMPING: *G. Stollery (Chicago).* This plant has a habit of behaving in the way described by you. The evil may sometimes be remedied by opening the point of the sheath. Too great a quantity of water at the root while the flower buds are pushing up, or too much atmospheric moisture in the house may cause such results.

CORRECTIONS.—In Mr. Wythe's Calendar, Plants and their Culture, p. 751, read Impatiens Sultani, and J. Hawkeri. The latter does not bear seed, and must be propagated by cuttings.—See May's Nurseries, Teddington, *Gardeners' Chronicle*, p. 721: for Adiantum Capillus-veneris read Adiantum cuneatum.

FUNGUS: *J. C.* The fungus sent is the mature state of the dry rot. A short practical article on the subject you mention would be acceptable. Many thanks for suggesting it.

GRAFTING PLUMS AND APRICOTS: *A. P.* It is practised in nurseries, when it is desired to raise stock without delay, but it is fast giving way, as a general practice, to budding, which entails fewer losses, and makes a neater union. Apricots break early, and should be worked on the freer-growing Brompton or Mussel Plum stock before the Apples and Pears are touched. The last year's shoots for grafts are better when taken in mid-winter, and laid-in in soil in a cold place till wanted. Plums would follow the Apricots a little later; and grafting should be done just when the sap is beginning to move. Budding is usually done with nearly matured buds in August and September, but with care, and the use of a little grafting wax, it should succeed in the spring.

JASMINUM OFFICINALE GRANDIFLORUM: *W. H. T.* We have not previously heard of this plant fruiting out-of-doors, but we have occasionally seen fruits of the common variety.

LONDON PERICLE: *X.* This is an arsenite of copper, and is used in the proportion of 1 lb. to 300 gallons of water. Try a small portion first, as the solution is very poisonous to vegetable as well as to animal life. After using it, wash the plants well with clear water.

MUSCAT OF ALEXANDRIA AND BLACK HAMBURGH VINES: *A. O. W.* These are sometimes grown together in the same house, but never very satisfactorily, unless there be one end of the vinery which is much warmer than the other, as will occur when the boiler is partly placed under the floor, or there is a collection of hotwater-pipes at that point, and about this part of the vinery Muscat Vines will bring very fair bunches. If your Buckland Sweetwater is in such a position, it may be replaced by a Muscat with a fair prospect of your being enabled to cut ripe fruit in August, if the house is started early in February. The treatment should be intermediate between that required for a Black Hamburgh and a Muscat of Alexandria, and even then the former will be dead ripe sometime before the latter begins to colour, and must be eaten, or cut and preserved in the Grape-room.

NAMES OF PLANTS: *E. G., Bordeaux.* Epidendrum ciliare.

YOUNG GARDENER'S STATUS: *A Reader.* An improver is usually a journeyman who goes from place to place with the idea of acquiring a fuller knowledge of his business. Are there young journeymen who have not that laudable ambition? If there are, we should say that it were better to class them as garden labourers. The term *improver* is a misnomer, and should be dropped. Apprentice, student, or learner—one whose aim is to master the rudiments of gardening—would be better.

CATALOGUES RECEIVED.

J. GALVIN, Mount Talbot Nurseries, Roscommon—Forest Trees, Shrubs, Roses, &c.

CHARLES SHARPE & Co., Sleaford, Lincolnshire—Garden and Farm Seeds.

J. R. PEARSON & SONS, 2, Exchange Row, Nottingham—Seeds.

R. B. LAIRD & SONS—17, South Frederick Street, Edinburgh—Forest Trees, Conifers, &c.

ROBERT SYDENHAM, Tenby Street, Birmingham—Vegetable and Flower Seeds.

THOMAS METHVEN & SONS, 15, Princes Street, Edinburgh—Garden Seeds, &c.

FREDERICK ROEMER, Quedlenburg, Germany—Flower and Vegetable Seeds, &c.

JOHN LAING & SONS, Forest Hill, London, S.E.—Seeds, Novelties, &c.

H. & F. SHARPE, Wisbech, Cambs.—Seeds (Wholesale List).

DICKSON & ROBINSON, 12, Old Millgate, Manchester—Seeds.

COOPER, TABER & Co., LIMITED, 90, Southwark Street, London, S.E.—Seeds (Wholesale List).

CHR. LORENZ, Erfurt, Germany—Seeds.

DOBBIE & Co., Rothesay, Scotland—General Catalogue.

STUART & MEIN, Kelso, N. B.—Vegetable and Flower Seeds.

WEBB & SONS, Wordsley, Stourbridge—Spring Catalogue, Seeds, &c.

DICKSON, BROWN & TAIT, 43 and 45, Corporation Street, Manchester—Vegetable and Flower Seeds, &c.

JAMES DICKSON & SONS, 32, Hanover Street, Edinburgh, N.B.—Vegetable and Flower Seeds.

PETER LAWSON & SON, Limited, George IV. Bridge, Edinburgh, N.B.—Seeds (Trade List).

HARRISON & SONS, Leicester—Seeds.

J. C. WHEELER & SON, Gloucester—Select Sed List.

DIED.—THOS. FREEMAN, for nineteen years gardener at Honington Hall, Warwickshire, and twenty-two years gardener to Lady Cotton Shepherd, Crakemarsh Hall, near Uttoxeter, died at Uttoxeter, Staffordshire, December 26, 1889, aged seventy-one. Mr. Freeman was well-known as a practical, all-round gardener, and was very highly respected by all who knew him. He leaves a widow, aged seventy-five, to mourn his loss, also a grown-up family.

ENQUIRIES.

"*He that never asks never shall learn much.*"—BACON.

TUBEROSES.—Will any of our correspondents kindly tell *A. P.* if Tuberoses, Polianthes tuberosa, will bloom satisfactorily a second time?

CHANGES PRODUCED IN LYCHNIS VESPERTINA BY A PARASITIC FUNGUS.—Messrs. MAGNIN and GIARD describe the remarkable changes produced in the flower of the common wild white Campion by the attacks of a parasitic fungus, Ustilago antherarum. Lychnis vespertina is dioecious, and the male and female plants are essentially different forms, differing not only in the presence or absence of the male and female organs respectively, but also in the size of the flower (those of the male plants being smaller), the venation of the calyx, &c. Hermaphrodite individuals sometimes occur, but are simply female plants in which stamens are produced by the presence of Ustilago antherarum. This fungus can develop its spores only within the anthers of a flowering plant. In such plants of Lychnis vespertina its only visible outward effect is a slight deformation of the anthers and shortening of the filament. In the female plant it brings about (1) the production of stamens; (2) atrophy of the style and of the upper part of the ovary; (3) a greater or less elongation of the internode between calyx and corolla, this being also characteristic of the male plant. It also frequently causes tetramery or pentamery of the flowers, lobing of the margin of the petals, and a change in the venation of the sepals. This observation corresponds to those made by Miss BECKER, Mr. PLOWRIGHT, and others.

COMMUNICATIONS RECEIVED.—A. W.—A. R. W.—J. T. Prague.—F. S.—W. H. T.—S. D.—P. McO., Cape Town.—Baron v. M., Melbourne.—A. G., Liege.—Professor Lawson, Halifax, Nova Scotia.—C. Ross.—R. B. Lowe.—A. Miller.—G. Goldsmith.—Harrison & Sons.—W. R.—J. C. W. & Sons.—M. R.—J. van Volxem.—R. A. R.—A. D.—C. Rodelen.—F. R.—S. R. D. P. E. N. Edwards, Stamford.—A. L.—R. D.—W. H.—J. O'B.—F. S.—G. P. L.—W. T.—Dicksons.—G. M.—W. H. S.—J. H.—J. Weeks & Co.—Ben. Reid & Co.—T. S. W.—G. Y. (next week).

SAVE HALF THE COST.

GARSIDE'S SILVER SAND

BEDFORDSHIRE COARSE AND FINE

Is admitted by the leading Nurserymen to be the Best Quality obtainable in the Trade.

Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus *save half the ordinary cost.* NO TRAVELLERS OR AGENTS.

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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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SAFE—ECONOMICAL—EFFECTUAL.

15, PRINCES STREET, EDINBURGH, *July* 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95°, I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 120°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray. I remain, dear sirs, yours truly. (Signed) A. MACKENZIE," of Messrs. Methven & Sons.

Victoria and Paradise Nurseries, Upper Holloway, London, *January* 7, 1888. "GENTLEMEN—I have given your Insecticide, 'Picrena,' a good trial in competition with many others. I am pleased to say that I have found it to be more effectual in destroying Mealy Bug and other insects than anything we have ever used. It ought to command a good sale. (Signed) B. S. WILLIAMS."

Sold by Chemists, Nurserymen, and Florists,

in Bottles at 1s. 6d., 2s. 6d., and 3s. 6d.; in Tins (1 and 2 gallons), 10s. 6d. and 20s. each; in quantities of 5 gallons and upwards, 9s. per gallon.

Prepared only by

DUNCAN, FLOCKHART & CO., Chemists to the Queen, Edinburgh.

May be had from B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London; and from WILLIAM EDWARDS AND SON, 157, Queen Victoria Street, London.

TOBACCO PAPER, best quality, 8*d.* per lb.; 14 lb., 9s.; 4o. FIBRE, much stronger and better, 9*d.* per lb.; 14 lb., 10s.; 28 lb. carriage paid to any station. Large reduction to the trade.

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FIR TREE OIL

FLORISTS AND NURSERYMEN SHOULD NOT BE WITHOUT IT.

Dog and Bird Fanciers should all use it.

Housewives should use it as a Disinfectant, Bleacher, and Cleanser when washing Under Linen.

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A Treatise on FIR TREE OIL as an INSECTICIDE, its application to Plants and Animals, sent Post free on receipt of application, addressed to

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WHOLESALE from all the London Seed Merchants, and Patent Medicine Houses.

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ESTABLISHED HALF A CENTURY.

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OF FRESH AND SELF-GROWN SEEDS.

English Edition is now ready, and may be had Post-free on application. Id. Post-card.



My Business is the *Oldest and Largest of Erfurt*, and supplies private Gardeners and Amateurs only; its *extensiveness* and *perpetual growth*, apart from testimonials, speaks for its *reliableness*.

More than 80,000 *parcels are sent yearly to all parts of the World.*

I offer my Seeds at *much lower* prices than any English or Continental Seed House of good repute, and guarantee besides *self grown, genuine*, and *fresh* Seeds *only*, grown under my personal supervision. It is an established fact, that *the greater part of all seeds sold* in England or America *is grown in Germany*, especially *in* and *near Erfurt*, the Garden Town of Germany.

Everybody should buy, therefore, *direct from the Grower in Erfurt.* Save money, and get the most reliable value!

The fashion of most Seed Houses is to advertise by presenting a Catalogue, printed and covered in the most expensive and luxurious style, ornamented with gold and silver.

Who pays for this? The buying public! *Compare these Catalogues' prices*, please, with mine, and you will see the difference yourself!

My Catalogue is not so profusely ornamented, but it contains a most complete and well-ordered List of the best Vegetables and prettiest Flowers, including all the *Latest Novelties* of the Season, so arranged that everybody, with the greatest facility, can make their own selection, simply stating the number corresponding with the Catalogue. Purchasers of Seeds in large or small quantities cannot fail to see the advantages I offer.

I am bringing you with my Catalogue, I place my Store at your very door, and enable customers thousands of miles away to obtain their supplies as safely and cheaply as if they called in person at my establishment.

Ordered Seeds will arrive in Great Britain within a few days, and are offered and sent *Package and Postage Free. Direct Correspondence. No Agents.*

Your most obedient servant,

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CRUSHED BONES in all sizes, for **VINE BORDERS, LAWNS, POTTING, GRASS LANDS, &c.**

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Mr. G. WYTHES, *Nyon House, writes*:—

"Bentley's Insecticide is a great saving in comparison to others. We use it largely, and it never fails to thoroughly eradicate all insect pests."

For particulars apply to **JOSEPH BENTLEY,** Chemical Works, Barrow-on-Humber, **HULL.**

FINEST HAMPSHIRE PEAT!

From Splendid New Cutting,

all of the LONDON AND **CARDEN SUNDRIES** finest quality RINGWOOD.

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Quality, THE BEST in the Market. (All sacks included.)

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 4*d* each; 10 sacks, 12s. 6*d*.; 15 sacks, 17s. 6*d*., 20 sacks, 20s.; 25 sacks, 24s.; 30 sacks, 27s.; 40 sacks, 35s.; 50 sacks, 40s.; Truck-load, loose, free on rail, 30s. Limited quantities of G., special quality, granulated in sacks only, 2s. 6*d*. each

GENUINE ORCHID PEAT, 8s. 6*d*. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6*d*. BLACK FIBROUS PEAT, 4s. 6*d*. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6*d*. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth or Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.

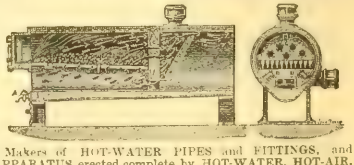
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14×12	20×15
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18×12	22×16
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For GREENHOUSE or GARDEN.

Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
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And in 6d. and 1s. packets.

To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST AND SON, 152, Houndsditch, London

GISHURST COMPOUND, used by leading Gardeners since 1889 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

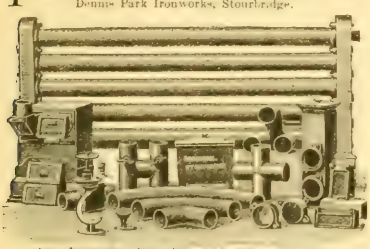
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For prices, apply,
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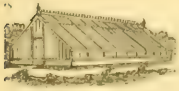
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Conservatories fitted up with Trellis, Flower-stands, Baskets, &c.
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The words "Frigi Domo" are registered as a Trade Mark, and in two recent actions of Benjamin Edgington, Limited, Plaintiffs, *v.* John Edgington & Co., Defendants, and Benjamin Edgington, Limited, Plaintiffs, *v.* Osman & Co., Defendants, judgments have been obtained against the Defendants for a Perpetual Injunction, restraining them from using the words "Frigi Domo" as a Trade Mark for any material intended to be used for Horticultural or similar purposes not manufactured by or for the Plaintiffs or selected by them, and the Defendants, John Edgington & Co., and Osman & Co., were ordered to pay Damages and Costs.

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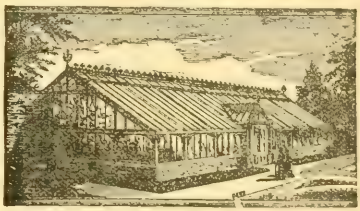


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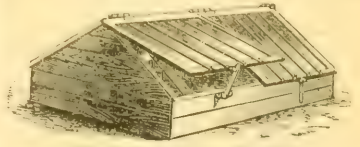
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PORTABLE PLANT FRAMES.

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6 feet long, 3 feet wide	Packing Cases FREE.	2	0	0
6 feet ,, 4 feet ,,		2	10	0
12 feet ,, 4 feet ,,		4	7	6
6 feet ,, 5 feet ,,		3	10	0
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Larger sizes at proportionate prices.

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RAFTS, BOATS, AND CYLINDERS,
AND ALL GARDEN SUNDRIES.
SEND FOR A
PRICE LIST
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4	Lines ..	£0	3	0	15	Lines ..	£0	8	6
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7	,, ..	0	4	6	18	,, ..	0	10	0
8	,, ..	0	5	0	19	,, ..	0	10	6
9	,, ..	0	5	6	20	,, ..	0	11	0
10	,, ..	0	6	0	21	,, ..	0	11	6
11	,, ..	0	6	6	22	,, ..	0	12	0
12	,, ..	0	7	0	23	,, ..	0	12	6
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26 words, including name and address, 1s. 6d., and 6d. for every additional line (about 9 words) or part of a line.

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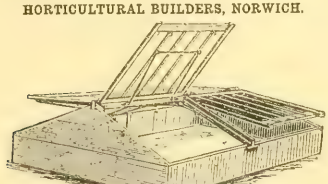
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PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS, 41, Wellington Street, Strand, London, W.C.

CHARLES FRAZER'S EXECUTORS,

HORTICULTURAL BUILDERS, NORWICH.



No. 55.—Span-roof Garden Frame.

The illustration shows a Frame 8 feet by 6 feet. Made of good redwood deal, sides and ends 1¼ inch thick, painted three coats of oil colour; lights 2 inches thick, glazed with 21-oz. sheet glass. Height of sides, 14 inches. Height at ridge, 32 inches. The lights are hinged and fitted with "Registered" Set-opes, which safely support them for ventilation, &c., and the hinges are so formed that the lights can be turned quite over, or taken off at pleasure.

	Length.	Width.		
1 Light Frame,	4 feet by 6 feet ...		£2	17 6
2 ,, ,,	8 feet by 6 feet ...	CASH PRICES.	4	7 6
3 ,, ,,	12 feet by 6 feet ...	CARRIAGE	5	17 6
4 ,, ,,	16 feet by 6 feet ...	and	7	7 6
5 ,, ,,	20 feet by 6 feet ...	PACKING	8	17 6
6 ,, ,,	24 feet by 6 feet ...	FREE.	10	7 6

Carriage Paid to all Goods Stations in England and Wales, also to Edinburgh, Glasgow, Dublin and Belfast, and equal Stations.

New Illustrated Catalogue of Conservatories, Greenhouses, Garden Frames, Poultry Houses, Dog Kennels, &c., post-free for six stamps.

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The SPECIAL CORNERS of the *EVENING STANDARD*.
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Sole Agents for all Advertisements in the *OFFICIAL GOVERNMENT POLICE GAZETTE*.

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Telegraph Address—"WILLING'S, London." Telephone No. 2773.

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MADE WITH BOILING WATER.
EPPS'S
GRATEFUL—COMFORTING.
COCOA
MADE WITH BOILING MILK.

Entries close Wednesday, 15th inst.

INTERNATIONAL EXHIBITION OF ELECTRICAL ENGINEERING, GENERAL INVENTIONS AND INDUSTRIES, EDINBURGH, 1890.
Under the Patronage of
HER MOST GRACIOUS MAJESTY THE QUEEN.
President.
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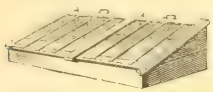
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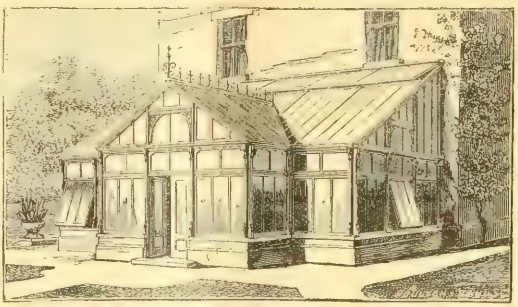
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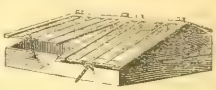


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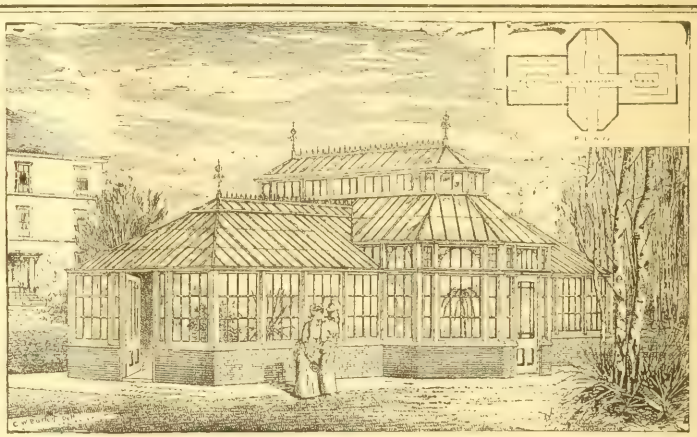
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THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, is $4.30 for Twelve Months.

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OAKLIES MITCHELL, Nurseryman, Stranraer.

SEEDS—SEEDS—SEEDS.—Select Stocks of Vegetable and Flower Seeds at Wholesale Prices. Before purchasing elsewhere, send for General CATALOGUE, Gratis and post-free.
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LILIUM AURATUM.—Good, plump, sound Bulbs, 6s., 9s., 12s., 18s., and 24s. per dozen.
All other good LILIES at equally low prices.
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PRIMULA SINENSIS FIMBRIATA "EMPRESS."
This is a very fine semi-double variety. The colour is a delicate pink of a very pleasing tone. Per Packet, 3s. 6d.
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CARTER'S VADE MECUM for 1890 is Now Ready, and HAS BEEN POSTED TO MESSRS. CARTERS' CUSTOMERS. Price ONE SHILLING (post-free) to unknown correspondents. It contains six elegant Coloured Illustrations, and will be found a most thorough book of reference by all who desire to cultivate successfully the choicest Vegetables and the prettiest Flowers.
JAMES CARTER AND CO., The Queen's Seedsmen by Royal Warrant, 237 and 238, HIGH HOLBORN, W.C.

HOOPER AND CO. (Limited) beg to announce that their SEED CATALOGUE for 1890 is Published, and will be forwarded on application.
Covent Garden and Pinesapple Nurseries, London.

AUSTRALIAN SEEDS.
LUCERNE, GRASS SEEDS, PEAS of sorts, PALMS, EUCALYPTI, CYCADS, CASUARINA, &c., Seeds and Plants.
We shall be pleased to quote Purchasers at any time.
Bank Drafts must in all cases accompany orders.
Offers of Sole Agencies for Seedsmen's Sundries, Utensils, &c., requested.
STEPHENSON AND JOHNSON, Seed Growers and Merchants, 9, King Street, W., Sydney, N.S.W.

To the Trade.

WHOLESALE SEED CATALOGUE for 1890.—We have now published our Catalogue of Vegetable and Flower Seeds, containing also all the best Novelties of the season. May be had on application. Any of our customers not having received one by post will oblige by letting us know, when another shall at once be posted.
WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

Trade Price Current, 1890.

PETER LAWSON AND SON (Limited), Wholesale Seed Growers and Merchants, Edinburgh, have Posted their ANNUAL CATALOGUE of VEGETABLE and FLOWER SEEDS to their Customers. If not delivered in any case, another copy will be posted on application.
The ANNUAL CATALOGUE of AGRICULTURAL SEEDS will be published later on; meanwhile, special offers will be made when requested.

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CHARLES COOPER AND CO., WHOLESALE FLORISTS and COMMISSION AGENTS, Bedfordbury, Covent Garden, W.C., are OPEN TO RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS.
Highest Market Prices guaranteed.

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MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
Telegraph Address—"COMMISSION, SIDCUP."

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WANTED, a good Second-hand SADDLE TUBULAR BOILER, to heat from 1750 4-in. piping. Price and particulars.
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SUTTON'S PERFECT GEM PEA.—A dwarf wrinkled second early, which has proved a great acquisition. The haulm only attains a height of 18 to 24 inches, and is almost hidden beneath a crowd of perfectly straight handsome pods, well filled with large Peas of superior flavour. Testimonial:—"Fully podded from top to bottom; large green Peas, which are surely the sweetest and most tender I ever tasted; colour perfect."—Mr. R. GILBERT, The Gardens, Burghley House. Per pint, 2s. 6d. For full particulars of Sutton's Specialties in Vegetables, Potatos, and Flowers, see Sutton's "Amateurs' Guide," the most complete gardening annual issued. Price 1s., Post-free; gratis to customers ordering goods value 20s. and upwards.
SUTTON'S SEEDS GENUINE ONLY DIRECT FROM SUTTON AND SONS, The Queen's Seedsmen, READING.

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This is a beautiful semi-double variety. The colour is of a deep crimson, somewhat more intense in shade than "Meteor." Per packet, 3s. 6d.
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Strong transplanted Quicks, large quantity.
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£5 per 100, Black Italian POPLARS, 7 to 10 feet stems, good.
Cash with order.
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CHARLES TURNER, having purchased the Stock of this sterling new variety, is much pleased to introduce it, and can with the greatest confidence recommend it as the best Cucumber ever sent out. Price per packet, 1s. 6d. and 2s. 6d. Descriptive CATALOGUE upon application.
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The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society. Canes 30s. per 100; 4s. per dozen. Trade supplied; Cash with order. Captain Strawberry Plants, 4s. per 100. Buy direct from the Grower.
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The most complete and exhaustive Treatise on Grapes and their Culture ever published.
New Edition.
Price 5s., post free 5s. 6d.
A. F. BARRON, Royal Horticultural Society, Chiswick.

SHARPE'S VICTOR POTATO (True).—The earliest prolific Potato extant. Extra selected from original stock. Price, 2s. per stone of 14 lb. Cash with order.
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THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday and Saturday Next.

Choice-named Standard and Dwarf ROSES, including many show varieties; EVERGREENS, SHRUBS and CONIFERS, LILY OF THE VALLEY Crowns, Pyramid and Dwarf-trained FRUIT TREES, large Collection of English-grown LILIES; LILIUM AURATUM, in quantity; SPIRÆA JAPONICA, DAHLIAS, CARNATIONS, and other BORDER PLANTS; GLADIOLI, fine sorts; HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other DUTCH BULBS.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, January 15 and 18, at half-past 12 o'Clock precisely each day.

On view mornings of Sale, and Catalogues had.

Thursday next, January 16.

Three cases of ARAUCARIA EXCELSA, and 150 plants of MAGNOLIA GRANDIFLORA, received direct.

MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT.

On view morning of Sale, and Catalogues had.

Thursday Next, January 16.

EXTENSIVE IMPORTATIONS from JAPAN.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 16, at half-past 12 o'Clock precisely, extensive importations from Japan, comprising 30,000 grand bulbs of LILIUM AURATUM, L. LONGIFLORUM, 500 L. JAPONICUM KRAMERI, L. SPECIOSUM ALBUM and RUBRUM, L. FOLIS, ALBIS MARGINATIS, and many other LILIES, just received from Japan in splendid condition.

On view morning of Sale, and Catalogues had.

Thursday, January 16.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 16, at half-past 12 o'Clock precisely, a fine lot of ORCHIDS in FLOWER and BUD, from well-known collections, consisting of some fine specimens and varieties.

On view morning of Sale, and Catalogues had.

Monday Next.

DUTCH BULBS consisting of HYACINTHS, TULIPS, CROCUS and NARCISSUS, being the surplus stock of a London Seedsman, about 300 lots of various English grown LILIES and HARDY BULBS, AZALEAS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, January 13, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

ABSOLUTELY WITHOUT RESERVE.

463 CASES OF JAPANESE LILIES,

just received from Japan (the whole of the Bulbs in previous consignments having been disposed of), comprising

21,000 LILIUM AURATUM,

including a great number of exceptionally large roots, which are in grand condition, the whole to be offered in lots of 6, 10, 50, 100, and 500.

10,100 VARIOUS LILIES FROM JAPAN

consisting of 3,400 Lilium Krameri, 1,000 L. macranthum, 2,300 L. speciosum album, rubrum, and roseum, 1,200 L. longiflorum and 1,300 L. rubro vittatum, virginale, Brownii, Hansonii, Leitchlini, Batemanniæ, and concolor, 400 L. melpomene, and 150 L. album Kraetzeri.

The Sale will also include—

10,500	American Pearl Tube-roses	600	Lilium Harrisii
4,000	Double African Tube-roses	1,000	,, monstrosum album
		300	,, szovitzianum
10,000	Gladiolus Brenchleyensis	200	,, Washingtonianum
			,, Humboldti and parvum
4,500	,, Rosy Morn	100	,, candense
1,100	Tigridia grandiflora, grandiflora alba, and conchiflora	250	calochorti
		3,000	Montbretia Pottsii
		1,000	,, crocosmæflora
300	Azalea Mollis		

together with extra strong clumps of Helleborus niger, Greenhouse Plants and Ferns in variety, collection of Daffodils, various English-grown Lilies and Hardy Bulbs, Cypripediums from America, &c., in all about 900 lots.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London E.C., on WEDNESDAY NEXT, January 15, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues post free on application.

N.B. The Auctioneers desire to call the special attention of the Trade to this highly important Sale. The Japanese Lilies have been examined, and are in splendid condition, the large Lilium auratum being especially fine.

Friday Next.

CATTLEYA MENDELII and C. MOSSIÆ, and other ORCHIDS, from Mr. G. T. White.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, on FRIDAY NEXT, January 17, at half-past 12 o'Clock, a fine lot of CATTLEYA MENDELII, C. MOSSIÆ, and other ORCHIDS, from Mr. G. T. White, together with a large assortment of ESTABLISHED ORCHIDS, various Properties.

On view morning of Sale, and Catalogues had.

Sales from Sample of NURSERY STOCK and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SAMPLE SALE will take place on THURSDAY, January 23, for which they will be glad to RECEIVE ENTRIES on or before the 14th inst.

Mount View, Sheffield.

Sale of the First Portion of the VALUABLE COLLECTION of upwards of 1600 ESTABLISHED ORCHIDS formed by the late David Ward, Esq., J.P. The plants are in the best possible condition. The collection is one of the finest in the district, and includes Specimens from several well-known Collections.

MESSRS. WILLIAM BUSH AND SON, respectfully give notice that they are favoured with instructions from the executors to SELL by AUCTION on the Premises as above, on WEDNESDAY and THURSDAY, January 22 and 23, 1890, at 11 A.M. precisely each day, the First Portion of the ABOVE VALUABLE COLLECTION, comprising 500 lots in Bloom and Bud.

For further particulars, see Catalogues. May be viewed (by order from the Auctioneers) six days preceding Sale, from 11 to 3 each day. Auctioneers' Offices and Sale Rooms, 2 and 3, East Parade, Sheffield.

N.B.—The SECOND PORTION of the COLLECTION WILL BE SOLD about the FIRST WEEK in MARCH; and the THIRD and LAST PORTION in MAY.

Channel Islands.—To Grape Growers.

FOR SALE, with possession, Old-established and well-known BUSINESS, comprising over 4 acres of Freehold Land, 1300 feet of Glass, Dwelling-house and Trade Buildings. Easy terms of payment may be arranged.

Further particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

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TO BE DISPOSED OF, an Old-established BUSINESS. Price £400 for Lease, Good-will, and Stock. Rent, £50. Conservatory and Stable. Very well situate.

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TO BE LET, on Lease, near Weybridge, about 3 acres of LAND, suitable for Nurseries, containing 16,800 super. feet Modern Glasshouses, fully heated on best principle, and planted with Black Hamburgh, Muscat of Alexandria, Gros Colmar, and Alicante Vines—mostly 4 year old canes. Productive Tomato Crop can be grown till Vines bear. Apply, Mr. G. MUNRO, Fruit Salesman, Covent Garden, W.C.

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Have an immense stock, to which they are constantly adding, and all are offered at the lowest possible prices. LISTS with Prices and particulars post-free on application to the Company,

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

LILIUM AURATUM, home-grown flowering Bulbs, 6s. to 9s. per dozen; a few extra, 12s. per dozen.

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RHODODENDRONS, best named hardy varieties, 18s., 24s., 30s., to 40s., per dozen; Seedlings from the above, 1 to 1½ foot, well budded, 6s. to 9s. per dozen.

Sweet-scented and other Greenhouse kinds, 2s. 6d., 3s. 6d., to 5s. each, covered with buds. General CATALOGUE free.

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WYCH ELM, 8 to 10 feet, 25s. per 1000; English, 8 to 10 feet, 25s. per 1000. BIRCH, 10 to 12 feet, 16s. per 100. POPLARS, 10 to 12 feet, 20s. per 100. Corsican PINE, 4 to 5 feet, 75s. per 100. Extra strong QUICKS, 6 feet, 30s. per 1000. Austrian PINES, 2½, 3½, 7s. per 100.

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The Successful Transplanting of Large Trees and Plants.

BOOK ON TRANSPLANTING LARGE TREES AND SHRUBS. Post-free on application.

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HENDERS' PRIZE PETUNIAS, the finest strain in existence. Grand Double Fringed, 1s. 6d. and 3s. per packet; Single Fringed, new, saved from fine fringed flowers, 2s. per packet; Single Striped, specialty for 40 years, 1s. and 2s. per packet.

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Henders' CATALOGUE of first quality Seed free on application.

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To the Trade.

NUTTING AND SONS have now Posted their WHOLESALE CATALOGUE of GARDEN and FLOWER SEEDS to all their Customers. If not received, a Copy will be sent on application.

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CHRYSANTHEMUMS, best sorts true to name, strong Cuttings now ready, from 1s. 6d. per dozen, 10s. per 100. Many of the best prizes in the country are taken by my customers. For price of New Japanese Incurved, &c., see CATALOGUE, 2 stamps, of W. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

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JAMES CARTER AND CO. have one of the largest and most perfect stocks in the country. For full particulars, see Carter's beautifully illustrated CATALOGUE. Gratis and Post-free to intending Customers.

Royal Seedsmen by Sealed Warrants.

237 and 238 HIGH HOLBORN, LONDON, W.C.

MESSRS. DICKSON beg leave to intimate that their CATALOGUE (No. 370) of VEGETABLE and FLOWER SEEDS has been Posted to their Customers. If not received, Messrs. Dickson will be pleased to send another Copy. Their newly issued LIST of

HERBACEOUS PLANTS

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Royal Nurseries and Seed Establishment, Chester.

LARCH FIRS.—20,000, 3 to 4 feet high; 20,000, 4 to 6 feet high, extra strong, twice transplanted, specially good, and are offered cheap to clear.

Large quantities of strong FOREST TREES, including Ash, Oak, Beech, Hornbeam, Spruce Firs, and Austrian Pines to offer.

COVERT Plants, Laurels, Evergreen Privet, Tree Box, Berberis, and strong Quicks, of which samples may be had, and Priced CATALOGUE free by post.

R. TUCKER, Nurseries, Faringdon, Berks.

HOOPER AND CO. (Limited), beg to announce that their Wholesale Seed CATALOGUE has been published and issued, and should be in the hands of their Customers. In case of not being received, another Copy will be forwarded upon application.

Seed Growers and Merchants, Covent Garden, London, W.C.

TO COMPETITORS, and all who require Seeds and Plants of the choicest and most reliable kinds, we offer to send our New CATALOGUE and Competitor's GUIDE (128 pages) gratis and Post-free.

TEN CERTIFICATES OF MERIT were awarded our strains of Vegetables at the Great Vegetable Conference held by the Royal Horticultural Society in 1889.

NINE FIRST CLASS CERTIFICATES and "Commendations of Strains" have been awarded by the Floral Committee of the Royal Horticultural Society during the last two years to our Florists' Flowers, most of them after trial at Chiswick.

DOBBIE AND CO., Seed Growers and Florists, Rothesay, Scotland.

Brocoli.—A Good One not Easily Got.

HARTLAND'S "APRIL QUEEN."—Is a sterling Novelty from South of Ireland. Certainly one of the finest in cultivation; ready for use during the months of April and May. The heads are of immense size, and the leaves, which are most abundant and peculiar in colour, form such a thorough protection, that the outer appearance, before being stript, is that of a "high quality" Cabbage. It has been grown locally to great perfection—some heads weighing over 14 lb., from the very close protection—white as snow.

In sealed packets, 1s. 6d.

WM. BAYLOR HARTLAND, Old Established Seed Warehouse, 24, Patrick Street, Cork.

Wholesale, HURST AND SONS, London.

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Awarded Silver Medal and twenty Certificates, 1889.

The finest collection in Europe.

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SMALL SHRUBS, &c.—Araucaria imbricata, 10 inches, 50s. per 100; Abies orientalis, 2 yr., 30s. per 1000; Aralia Sieboldii transplanted, 8s. per 100; Japan Box, Bushy, 6s. per 100; Sweet Bays, 2 yr., 30s. per 1000; Cupressus macrocarpa, 6 to 8 inches, 20s. per 1000; do., 9 to 10 inches, pots, 10s. per 100; Cupressus erecta viridis, 6 to 8 inches, 80s. per 1000; C. striata, 1 foot, 12s. per 100; C. Allionii, 9 inches, 8s. per 100; Escallonia macrantha, pots, 12s. per 100; Laurustinus, 8 inches, 8s. per 100; Oak, Evergreen, 1 year, 35s. per 1000; Pampas Grass, 9 inches, 50s. per 1000; Rhododendron ponticum, 1 yr. transplanted, 25s. per 1000; Yucca gloriosa, potted, 14s. per 100; Dracæna australis, potted, 14s. per 100; Pinus Cembra, 3-yr., 20s. per 1000; Pinus insignis, 1-yr. transplanted, 30s. per 1000; P. excelsa, 1-yr., 4s. per 100; Picea pinsapo, 1-yr., 4s. per 100; P. Nordmanniana, 1-yr., 1-yr. transplanted, 40s. per 1000; Thuia Lobbii, 10 to 12 inches, 50s. per 1000; Yews, English, 1-yr., 2-yr. transplanted, 35s. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer.

Established, 1859. **J. B. THOMAS,** Telegraph Address: "Animated," London. Telephone, No. 2822.

COVENT GARDEN MARKET, W.C.,

Has recently acquired Premises (adjoining) previously held by the late Mr. BLACK, and Specially adapted for the Sale of } **FORCED FRUIT.**

For FOREIGN FRUIT and OTHER PRODUCE } **AUCTION MART, FLORAL HALL.**

Important to Everyone Interested in Gardening.

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SPRING, 1890.

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THE
Gardeners' Chronicle.

SATURDAY, JANUARY 11, 1890.

NOVELTIES OF THE PAST YEAR.

(Concluded from p. 8.)

EACH new year proclaims the triumphs of the hybridist and raiser of improved varieties of garden plants from seeds. Seeing the rewards the gardener gets in this direction, it has often been remarked that there are so few workers in this interesting field. Probably a great many persons who have material in their hands would do something in assisting floriculture in this way but for the fact that while we praise and admire the plants which are presented to us as improvements, we do not know the number of worthless varieties which have been raised conjointly with them, and which have received the same care until they flowered, and proved that they were of small or no worth; and in many cases the raiser has difficulty in making the few good things obtained recoup him for the trouble and cost incurred. Much will doubtless depend in this field of work on the selection made, and on working it intelligently.

In these particulars Messrs. J. Veitch & Sons stand pre-eminent, as witness the excellence of the work done on Hippeastrums, the Amaryllis of gardens; the warm greenhouse Rhododendrons, the winter-flowering section of Begonia, of which John Heal is a type; and the Orchids, Nepenthes, and a variety of other plants. In the Rhododendrons we have mentioned, there are, thanks to their efforts chiefly, more beautiful and varied flowers, a fact which has caused in many gardens a house to be devoted to their cultivation. The curious crosses with Rhododendron javanicum, Lord Wolseley, and Azalea indica promise still further augmentation to the class; while their hybrids with the brilliantly-coloured and neat-habited R. Curtisii have already evolved a new section which has yet to be perfected. Among their Rhododendrons certificated in 1889, Messrs. Veitch enumerate the handsome R. Her Majesty (Fosterianum×

arboreum), with large, almost flat, white, fragrant flowers, delicately tinted with blush on the outer sides; and an Award of Merit was justly made to the following: R. Duchess of Fife, R. Ophelia, R. Virgil, R. Ne plus ultra, R. Princess Beatrice, and R. Aspasia, all of which possessed improvements on old forms, and were exquisite in colour.

In Hippeastrum (Amaryllis), the certificated flowers of the John Ruskin type are very rich in hues of crimson, and one plant of this type—Optima—has the largest known flower, its diameter being over 9 inches. H. Terentian, H. Lustrous, H. Mirabella, H. Sirocco, are new varieties of great merit.

Messrs. Veitch & Sons received a First-class Certificate at the Royal Horticultural Society for Nepenthes Curtisii, and their new N. Burkeii proves one of the richest coloured of pitcher plants. Cornus sibirica Spathii, with yellow variegation; Dracæna Doucetii, green leaves striped with white; Epiphyllum Makoyanum, a richly coloured compact plant; Retinospora filifera aurea, a pretty and neat habited Conifer; the curious and distinct Asplenium scandens and the fine Vallota-like Cyrtanthus sanguineus, an old but still rare plant, were certificated to Messrs. Veitch during the past year. Late in the year the same firm received also recognition for their compact-habited, floriferous, and brightly-coloured Carnation, "Winter Cheer,' which may be truly said to be of great excellence. Among the Hippeastrums other good new ones of the year were Salvator Rosa, Vulcan, and Dark Beauty, all of Messrs. Paul & Son's raising.

Two new Aroids have been introduced by Mr. Wm. Bull, viz., Anubias heterophylla, a curious and fine species; and Anthurium cymbiforme, which has white spathes and salmon-pink spadices.

Sir Trevor Lawrence was awarded a First-class Certificate for the noble-looking Anthurium leodense; and among seedling Anthuriums he has flowered one named appropriately A. Burfordense ×. The handsome and extensive family of Iridaceæ receive noteworthy additions in the hybrids of M. Lemoine, of G. gandavensis, and G. Saundersii. Others have also been at work on the same species, and in Watsonia iridifolia O'Brienii, a snow-white variety, collected as a single bulb among thousands of coloured varieties, we have one of the finest of white Irids. In recognition of the beauty of the plant, a First-class Certificate was bestowed on it; and also on Mr. Ware's old but beautiful Watsonia rosea, by the Royal Horticultural Society.

Messrs. B. S. Williams & Son received First-class Certificates for two valuable new plants in Sarracenia decora × and Carludovica palmifolia, the latter a very elegant and useful plant.

FERNS

mainly seem to get new additions from the market growers by variations, obtained among their numerous raisings. Among those of Mr. H. B. May, Pteris cretica nobilis, P. leptophylla princeps, and P. serrulata densa are fine sports, well adapted for marketing, and for which the firm propagates and grows them. The P. serrulata plumosa of Mr. W. Coleman, and the curious and pretty P. tremula Smithiana, of Messrs. R. Smith & Co. seem likely to answer well for the same purpose. Messrs. W. and J. Birkenhead, of Sale, received First-class Certificates for two fine hardy Ferns in Athyrium f. f. regale, Barnes' variety; and Struthiopteris pennsylvanica recurva, and there can be no doubt that if their extensive nurseries at Sale were nearer to London, we should see more of the beautiful specialties in Ferns with which they make such an elegant display wherever they exhibit. Aspidium (Cyrtomium) falcatum Fensom's variety must not be forgotten, for it is a very distinct and handsome plant, and the Adiantum capillus veneris grandis of Mr. T. Jannock may be likened to a dwarf A. Farleyense. Palms receive one noteworthy species in Phœnix Roebelenii, a pigmy tree Palm imported from the Laos States, Siam. In other sections of

FLORISTS' FLOWERS,

good work has been done amongst the so-called florists' plants, and chiefly by the same hands. With tuberous Begonias, Messrs. H. Cannell & Sons have made great advances, especially in the double-flowered kinds, and in the matter of producing a very dwarf, compact, and extraordinarily floriferous strain; whoever desires a superb selection should get those that received Awards of Merit and First-class Certificates during last year, viz., A. Blanc, Frank Beadle, Mrs. Litkie, Mrs. A. Moens, Mrs. Cayzer, Lady Harriet Cavendish, Sir W. C. Brooks, and Rosebud; and Messrs. Cannell also received First-class Certificates at the Royal Botanic Society for A. F. Barron, J. Douglas, J. Marshall, Hon. Mrs. G. Goschen, Imogen, Lady Lewisham, and Madame Soupert, all good and distinct.

Messrs. J. Laing & Son, Forest Hill, S.E., also keep up their old repute in these plants, their Stanstead Gem and Duchess of Teck having been awarded First-class Certificates by the Royal Horticultural Society, and their gigantea, Lady Stafford Northcote, Miss French, and Stanstead Gem received a like award from the Royal Botanic Society.

Both Messrs. Cannell and Messrs. Laing are entering heartily into the culture and introduction Chrysanthemums, and both have brought forward good varieties; and Mr. Stevens, Mr. T. S. Ware, and Mr. Owen, are other introducers of prominence; but the most singular novelty is the hairy white Chrysanthemum Mrs. Alpheus Hardy, of Messrs. Pitcher & Manda, an American firm of Orchid growers and dealers in new plants. It is distinct, and having a not unpleasant fragrance it will be admired on that account; and when it is subjected to the higher degree of culture that Chrysanthemums get in this country, it will doubtless be much sought after.

The Dahlia record shows Messrs. Keynes, Williams & Co., Mr. T. S. Ware, and others, still at work on these plants, and the fine displays which Messrs. Kelway & Son, of Langport, have also made at times at the Drill Hall and other large gatherings, show to what a degree of perfection the flowers of Delphiniums, Gladiolus, Pæonies, Gaillardias, Pyrethrums, and other flowers, have been brought. The awards at the different meetings at which they were displayed were numerous.

The Rose, always a favourite, has added a few novelties out of the many which have been exhibited, some of which have received awards. We name Claire Jacquier, Silver Queen, and Duchess of Albany, shown by Messrs. W. Paul & Son; and the fine Souvenir de S. A. Prince, shown by Mr. G. Prince; and Gloire de Margottin by Messrs. H. Lane & Son.

Among other novelties recognised as being of worth will be found the Clivea John Laing, of Messrs. J. Laing & Son; C. Lady Wolverton, of Mr. P. Davidson; Taxus adpressa variegata, of Messrs Fisher, Son, & Sibray; Fuchsia Dorothy Fry, of Mr. J. Fry; Garraway's Double White Mignonette, Mimulus grandis; Pansy, Golden Crown; Dianthus Snowflake, Primrose Blue Gem, and P. the Mikado, all five shown by Mr. R. Dean, Ealing; and from his beautiful and remarkable collection of Primroses, Mr. G. F. Wilson, Weybridge, had the Quakeress and G. F. Wilson, which were awarded Certificates of Merit.

Professor Michael Foster introduced a pretty novelty in Primula petiolaris; and Messrs. Ryder & Son, by their collection of new varieties of Primula Sieboldii, demonstrated the wide variation to be obtained in this plant.

In Auriculas, Mr. J. Douglas produced several novelties, his Heather Bell and Marcus Aurelius being perhaps the best two; and Mr. H. B. May's two new Bouvardias, B. Hogarth fl. pl., and B. Mrs. R. Green, are advances on the older varieties.

Among popular flowers to be obtained from seeds, no better example of obtaining distinct varieties of fixed type which come true from seeds, for at least a number of years, can be mentioned than the beautiful collections of Sweet Peas of Mr. H. Eckford, of Wem, Salop, whose strain is acknowledged by the Floral Committees' awards whenever they are exhibited. In the same class may be placed Messrs. J. Veitch & Son's strain of Canterbury Bells and double and single Rhodanthe, Mr. J. Walker's Sweet Williams, Capsicum Coral Red (S. Mortimer), and Mr. J. James's Cinerarias.

The favourite Lilies received certificated additions during last year, chiefly to improved varieties of well-known species. Of these are the beautiful L. Wallichianum superbum of Messrs. Hugh Low & Co., L. Martagon album of Mr. Ware, and Messrs. Barr & Son, and L. pardalinum luteum of Messrs. J. Veitch & Sons. Iris Rosenbachiana was also Certificated to Mr. J. Douglas and Messrs. Barr & Son—the latter firm exhibiting some fine things among their large collections of Narcissus.

One of the most beautiful and interesting is N. Johnstoni Mrs. Geo. Cannell, which, with other novelties, Mr. Barr himself collected during his recent journeyings in search of Narcissi in Spain, the gatherings being now incorporated in the million of bulbs made up of over 500 varieties which Messrs. Barr & Sons have planted out for flowering this year, and which will yield, doubtless, some valuable additions.

In other kinds of hardy plants Messrs. Paul & Son, Mr. Ware, Messrs. Barr, and others have each many novelties to show; and in provincial nurseries there are, doubtless, a fair proportion which have not yet attained fame, but which will assist in keeping up the unflagging progress which floriculture has made in the British Isles during the present century.

Among the novelties of the year illustrated in the pages of the *Gardeners' Chronicle* during the past year will be found Chrysanthemum Mrs. Alpheus Hardy, November 9, p. 533; Lemoine's Gladioli, September 28, p. 359; Nepenthes Burkeii, November 2, p. 493; Nepenthes Curtisii, December 7, p. 661; Phœnix Roebelenii, October 26, p. 475; Pteris cretica nobilis, November 16, p. 561. *James O'Brien.*

NEW OR NOTEWORTHY PLANTS.

ANGRÆCUM ICHNEUMONEUM, *Lindl.*

ONE might imagine this to be a Reichenbachian species, judging from its name, but such, however, is not the case, as it was first described many years ago by Dr. Lindley, who evidently saw some resemblance in its flowers to the ichneumon fly—a kind of insect whose chief peculiarity is its habit of preying on other insects. Although so long known to botanists, it may nevertheless be looked upon as new to cultivation, as it does not appear to have been introduced in quantity until about two years

ago. I met with a fine plant of it in flower in Mr. F. G. Tautz's collection in November last, but I fear it is one of those plants which will find little favour with horticulturists, but will no doubt drive the botanists into ecstasies. It is characterised by its distichous, oblique, ligulate, acute deep green leaves, which are from 6 to 12 inches long; and pendulous racemes of flowers from 8 to 10 inches long, of closely arranged pale yellowish white flowers. The plant in question had three such racemes, and on one of them were counted fifty flowers, each being over half an inch across when spread out. The slightly recurved sepals and petals are oblong-acute, the former being somewhat broader than the latter. The lip is oblong, slightly convex, and three-lobed or toothed in front, and furnished behind with a spur more than 1 inch long, the basal half being terete and slender, while the apical portion is much inflated and slightly compressed, reminding one, from its translucent appearance, of the air-bladder of a small fish. The column is short, thick, and truncate. *John Weathers.*

IRIS BAKERIANA.

This will prove a most valuable addition to the Xiphion group, to which it belongs, and its good qualities make it quite worthy of being distinguished by the name so happily attached to a new member of this genus. In the Cambridge Botanic Garden, under a south wall, the flowers were open three days before the Christmas week, and they lasted three days after, being quite unaffected by the 14° of frost that occurred on the morning of the 29th. In opening, its flowers preceded those of I. Histrio by about two days, but it is possible that these particular plants have yet to fix their permanent flowering season, for our climate, as it is said in the *Botanical Magazine*, that the flowering season is in February and March. The flowers that are portrayed in that work were produced at Shelford. The bulbs here were presented by the great benefactor of Baden, Herr Max Leichtlin. The chief attractive features of the four flowers produced consist in the beautiful painting of the blade of the outer segments, in the plain lavender coloured inner segments, styles, and crests, and in the strong and delightful perfume of Violets pervading the flower. The blade of the outer segments has a terminal lip-like area of deep purple-violet colour, and above this, in actual position, it is ornamented with small oblong or elongated spots of the same colour upon a white space. In these particulars the four flowers display some degree of variation, one having the blade almost entirely occupied by the lip-like violet area, and the others differ in the degree of frequency and distribution of the spots. They all agree in having a fairly regular and almost exactly semicircular termination to the white ground space against the deep violet lip, and also in having very small oblong or elongated spots; and, further, in showing no indication whatever of a yellow median line.

In all these points they differ from the figured specimen in the *Botanical Magazine*, which shows the blade to have an inconspicuous yellow median line or mark, to be painted with comparatively large and round spots, and to have a distribution of the deep violet mass of colour, that may be described as going round the blade and as not forming a lip. The end of the white ground is not semicircular, and its margin is broken into in a blotchy manner, while in the flowers here described it is broken into slightly by blunt and short points of colour.

The coloration is not at all the same, and it would seem, from the figure, that there may be two forms of the species, one, that figured in the *Magazine*, and the other that of the Cambridge plants, each of which might have its own slight variations as here described. Though it may not be so, it would be interesting if there should be more than one stock. As a species it comes very near to I. reticulata, but is clearly distinct from it by the cylindrical 8-ribbed leaves, and like I. reticulata it stands apparently without any very near relative. Professor Foster, who describes this species in the *Botanical Magazine*, t. 7084, after referring to the cylindrical leaves in comparison with those of I. reticulata, says:—"As minor differences may be noted, the absence of any marked crest or ridge on the fall, the more ovate and more pointed blade of the fall and the flange at its base." This Armenian Iris is one of great interest as well as of beauty, and its discovery is due to the Rev. G. F. Gates, of the American Mission. *R. J. Lynch, Botanic Gardens, Cambridge.*

TONGUES IN TREES.

(*Continued from p. 715, in vol. vii.*)

TO CARVE HIS RUSTIC NAME UPON A TREE.

WE shall recognise at once the extent to which flower names are preserved in personal and family nomenclature. Of Christian names we have Rosa and Rose, Flora, Margaret, Laura, less commonly Daisy, Lily, Chloe, Narcissa, Cherry, Violet, for women; Basil, Narcissus, Hyacinth, for men. Readers of George Meredith's splendid novels will recall the two sisters Dahlia and Rhoda. The gardener in Crabbe's *Tales*, astonished the parson by bringing a Lonicera, or Honeysuckle, to the font:—

"Why Lonicera wilt thou name thy child?
I asked the gardener's wife in accents mild.
We have a right, replied the sturdy dame,
And Lonicera was the infant's name.
If next a son shall yield our gardener joy,
Then Hyacinthus shall be that fair boy;
And if a girl, they will at length agree
That Belladonna shall that fair maid be."

Surnames are Wood, Woodland, Woodfield, Crabbe, Appleyard, Sweetapple, Birch, Okes, Bayes, Elder, Nutt, Bush, Hayes, Hedges, Hawthorn, Heath, Rush; we have Flower, Berry, Parsley, Rice, Weld, Woodruffe, Leek, Onions, Peppercorn, Primrose, Leaf, Thorn. Cobb is a familiar surname in Kent, the home of the large Cob-nut; we remember Peter Quince in Shakspeare, Sir Peter Teazle in the *School for Scandal*, Box in the well known farce. Spink is a corruption of Pink, Arnott of Earth-nut, Kemp of Hemp, Snooks of Sevenoaks. Weld is the wild Mignonette, Sebright the wild Sage, Pettigrew the Butcher's-broom, Harlock the Burdock. The advertising columns have familiarised us with Pear's Soap and Harper Twelvetrees, with singular propriety Linnæus, the founder of modern botany, takes his name from Linden; and the present Curator of Kew Gardens is Mr. Thistleton Dyer.

"A PICKLOCK TO A PLACE."

It is natural that names of places should commemorate the plants which grow or grew around them. We shall think of Appleby and Appledurcombe, of Maple Durham, Saffron Walden, Bromsgrove, Shrewsbury (anciently Shrubsbury), Basilsleigh, Woodstock, Grassmere, Nettlebed, Poplar, Yewdale, Ewelme, Nine Elms, Oakham, Berkhamstead, Halse (or Hazel), Heatherton: of the London suburb, Primrose Hill; of Strawberry Hill, sacred to Walpole in the last century—to Lady Waldegrave in this; of Box Hill, of which inimitable Mrs. Elton and her sister from Maple Grove were in the habit of "exploring." In the same way, many plant-names contain the actual geography of their origin. Canterbury Bell is obvious, so is Gueldres Rose. Alexanders, the Smyrnium olusatrum, comes from Alexandria; Candytuft, from Candia; Elecampane, from Campania; Medick, from Media; Caraway, from Caria; the Mayduke Cherry, from Medoc; Walnut, or Welsh-nut, from the north of Italy, called Walsch, or foreign land, by the German settlers; Peach, is Persicus; Shalot, Ascalonicus; Spinach, Hispanicus; Damson, rightly spelt, is the Damascene Plum, a correction less clear in the Dames or Damascus Violet, since the mistake is there stereotyped, as often happens, by its Latin equivalent, matronalis. In like fashion are enshrined in plants the names of their discoverer, or of eminent contemporary botanists:—Dahlia, of the Swedish botanist, Dahl; Fuchsia, of Leonard Fuchs; Tradescantia, of John Tradescant, first keeper of the Oxford Botanic Garden; the pretty northern Linnæa, of Linnæus; Sibthorpia and Sherardia, of famous Oxford botanists; Nicotiana, of Jean Nicot, a Portuguese, who first popularised Tobacco in Europe; Cinchona, of the Countess Chinchon, to whom we owe Peruvian bark; and by quoting less ordinary plants, the list might be much extended.

I MARK TIME, DOST THOU?

Some names are bound up with the time of year in which the flowers bloom—such are Christmas Rose, Summer Snowdrop, Lent Lily, Pasque Flower, Pink (corrupted from Pinksten, Pentecost), St. John's Wort, opening on St. John's Day; Michaelmas Daisy, May, or May-flower. The historic May-flower of the Pilgrim Fathers is named, not from our Hawthorn, but from the lovely Epigæa repens, which springs up and covers the ground in North America as soon as the snow has melted. Tennyson has stamped the month of March as "the roaring moon of Daffodil and Crocus;" the summer Jenneting with which he tempts the blackbird is the early or June-ting Pear.

THE HARMLESS FOLLY OF THE TIME.

We may be allowed a glance at the delightfully suggestive names which our forefathers gave to native plants. The Clematis was the Old Man's Beard, the Traveller's Joy, the Virgin's Bower, The Alchemilla was the Lady's Mantle, its large leaf having the fringed edges and picturesque foldings of a shawl; the delicate Fern called Lady's Tresses resembled the spiral curls common fifty years ago on ladies' foreheads. From its coquettishly hanging head and half-hidden face, the Pansy bears a whole catalogue of amatory names: it is Heart's-ease, Love in Idleness, Pink of my John, Tittle my Fancy, Cuddle me, Jump up and Kiss me, Kiss behind the Garden Gate. The Devil in a Bush bears horned capsules peeping viciously out of a finely-divided involucre; its softer name is Love in a Mist. Lady-smocks, used by Izaac Walton for the Cuckoo-flower, waved in the wind like smocks or shirts hung up by fairies to dry. None can fail to see the resemblances indicated in the leaf of Coltsfoot, Crowfoot, Pennywort, Hound's-tongue; in the flowers of the imitative Orchids, of Ragged Robin, Lady's Slipper, Mourning Widow, Maiden Blush; in the fruit of Crane's-bill, and Bird's-foot Trefoil. The Goat's-beard, closing its yellow or purple blooms at 12 o'clock, is the Go-to-bed-at-Noon; the yellow-rattle explains itself to anyone who will apply it to his ear and shake it; Touch-me-not is the wild Balsam, whose ripe pods when touched burst and scatter their seeds; Naked Boys is a somewhat liberal but graphic image for the clean, slender, leafless perianth of the autumn Colchicum.

THE SENSITIVE PLANT IN A GARDEN GREW.

There are plants whose bizarre or remarkable character requires brief separate notice. Such are the gigantic Sequoias of the Sierra Nevada, reaching 450 feet in height, with a trunk 116 feet in circumference. To fell one of these required the labour of five men during twenty-two days; and, after it had been fairly severed at the stump, wedges were driven in for two days with a battering-ram before it could be thrown out of its equilibrium, and compelled to fall. The fables of the poisonous Upas have dwindled to the fact that the effluvium from its juice, when newly cut, produces eruptions of the skin. There is the Cannon-ball tree of Guiana, whose enormous fruits, falling in the stillness of a tropical forest, produce the effect of artillery; the Rafflesia, a parasitic flower, measuring a yard across, its smell of tainted beef attracting flies to fill its fleshy tissues with eggs and maggots; the Urania, or Traveller's Tree, of Madagascar, from whose immense leaves, when pierced during the most arid season, quarts of delicious water can be drawn; the Cow Tree (Galactodendron), yielding a profuse flow of fragrant and wholesome milky fluid; the grotesque Scythian Lamb, its brown hairy root-stalk so nearly simulating an animal, that it was believed to hang down and feed upon the grass about it; the Wind-witch

of Kansas (Cyclostoma platyphyllum), a Thistle 6 feet in diameter; it dries, breaks off from its root, bounds before the wind, links itself with others to the number of six or seven, till the enormous mass, careering over the level plain, spreads terror amongst men and beasts. In the passage of the Psalms — "Make them like unto a *wheel*, and as the stubble before the wind," this monster [or one like it] is said to be indicated by the word "wheel."

Deeply interesting also are the cases of vital action on the part of plants, suggestive almost of conscious volition and spontaneous energy. The Sensitive Plant shrinks not only from a touch, but under the influence of chloroform it becomes indifferent to assault and handling. The Telegraph Plant of India (Desmodium gyrans) raises and depresses its leaflets with a jerking motion. Our own microscopic Oscillatoieæ, common in damp and mossy ground, creep, recede, wave, and curl, with regular but unaccountable meanderings. The Diatomaceæ of the ditches, exquisite skeletons of flint clothed with vegetable tissue, swim rhythmically by admitting or expelling from their frames tiny jets of water. The Water-soldier rises from the muddy bottom to the surface of a pond that it may expand its blooms, sinking again so soon as they are withered. The Vallisneria bears its male blossoms deep below the surface of the water, its female blossom floats upon the top; at the season of maturity the male breaks off and ascends, that its pollen may reach the pistil. The belief that Mummy Wheat can retain vitality through forty centuries is exploded; yet the sudden and profuse appearance of new plants in a particular spot or district, points to extraordinary power of dormancy under unfavourable surroundings, with a quick consciousness of change favourable to germination. If the plough be carried into the ground a foot deeper than usual, weeds will appear which have not been observed before. The quarrying for cement in Warwickshire some years ago, was followed by abundant growth of the Bee Orchis, previously a stranger to the ground. When a large Beech tree is cut down, the ground below, which its growth has rendered barren, will in the following year sometimes be densely carpeted with wild Strawberries. Land treated with nitrate of soda yields masses of White Clover. A traveller crossing the battlefield of Linden, two days after the fight, turned away in horror from thousands of stripped unburied corpses which lay like sheep upon the plain. Visiting the same spot in the summer following, it seemed to him as though Isaiah's prophecy were fulfilled—"The earth shall disclose her blood and shall no more cover her slain;" for as far as the eye could reach the soil was concealed by millions of scarlet Poppies. *W. Tuckwell, Stockton Rectory, Rugby.*

(To be concluded.)

THE CULTURE OF WINTER CUCUMBERS.

How to keep up a supply of good Cucumbers during the winter months, is a matter of some importance to many country gardeners. When good houses have been built, and every appliance found that may be considered requisite, it is not an easy matter to keep up a continuous supply from a small house. Many gardeners have to face this and other difficulties, when their employers are unwilling to go to the expense of suitable structures. I have had in my time to grow Cucumbers in many queer-looking glass structures, and seen them grown in dog-hole-looking places, wherein the gardener could scarcely turn himself. In constructing glass-houses for the culture of Cucumbers or any other class of plants, it is of considerable importance to study well the requirements of the plants; and, indeed, this is mostly done. But another matter of equal importance is the comfort and health of the gardeners. It is quite trying enough to have to labour in houses with the temperature excessively high, without the addition of the body being cramped in a narrow space, wherein there is scarcely room to move the hands. Those of us who have lived in country gardens, where the atmosphere is pure, and also near London, with an impure atmosphere, know how much more difficult it is to keep such a tender-leaved plant as the Cucumber is in health near London, and I have no hesitation in saying that it is getting more difficult every year; and I am reminded that other growers of plants and fruits are very perceptibly feeling the effects of a more impure atmosphere. Mr. John Ward, of Leytonstone, one of our best gardeners, told me that some plants he used to grow well at that place ten years ago do not succeed now. Some thirty or more years ago the late Mr. James Gray, of Danvers Street, Chelsea, built a half-span Cucumber-house in his work-yard, and grew Cucumbers very successfully. The results were noted at the time in the *Gardeners' Chronicle* by Dr. Lindley. Soon after that I had to do with erecting various houses at Loxford Hall, and one of them, a Cucumber-house, was erected by Gray on the pattern of his own house at Chelsea; and I do not think I ever saw Cucumbers or Melons grow and fruit better anywhere else than in those; and so close were we to London that the glass had to be washed at short intervals to remove the dirt and soot left by fogs. The houses, large enough for a man to stand upright in and do his work with comfort, were 11 feet wide, 10 feet 6 inches high from the floor-line to the apex of the roof. The beds in which the plants were set were 5 feet wide. The path was below the ridge, and a stage was erected at the back of the house about 2 feet wide, and which was useful for growing Orange trees, Figs, and Vines in pots. We had a removable trellis for Cucumbers, and which was fixed as close as we could have it to the glass roof in winter, and further removed in summer. The houses were well heated by four rows of 4-inch pipes, so that it was not difficult to have a minimum temperature of 65° in winter during severe frost without overheating them. At that period there was no difficulty experienced in keeping up a constant supply of Cucumbers from four plants during winter; but ten years later, with the most careful culture, it was not possible to keep the plants in good health so long as before, and the Cucumbers were of poor quality, and I find it is the same now, though we are now further removed from the fog centre, and we cannot now obtain good Cucumbers before March.

An efficiently heated and well ventilated house is of the first importance, but all the details of the work must be well looked into. Bottom-heat is very necessary, and this was supplied in the house mentioned from two rows of 3-inch hot-water pipes. I found it a good plan to cover the pipes in with a good depth of brickbats, and over these a layer of fresh cut turf, the grass side being placed undermost, and where that is not to be got, rough litter will answer the same purpose fairly well. Next comes the compost, which should be about 15 inches in depth, and be light and rich, of good fibrous loam three parts, leaf mould one part, and decayed stable manure one part. Sow the seeds about the first week in September, and do not allow the plants, which are to produce Cucumbers after Christmas, to carry any before that time. Over-cropping is a grave error, more especially in mid-winter. In a bed so wide as 5 feet, it is as well not to fill up the whole space at once with soil. Only about one half of it should be filled, and the hills kept compact by a wall of turves until they have become exhausted, when the remaining space may be filled up with compost.

The Cucumber has tender leaves, and when thinning out the growths, the gardener must be careful not to damage them. Overcrowding shoots and leaves is an error, and should be avoided. The plants may be kept in a good bearing condition for twelve months when well managed, and the leaves kept free from mildew and aphis and thrips. Of all the varieties of Cucumber in cultivation I have tried many, but still find my wants best supplied by Rollisson's Telegraph, or any good strain of Telegraph.

Mr. Lockie, the raiser of Blue Gown, has produced a new variety—a perfect model of what a Cucumber should be; it has been named Lockie's Perfection. As I have seen it, it is 1 foot or more in length, round and straight. It is now being sent out by Mr. Charles Turner, of The Royal Nurseries, Slough, and was figured in our columns in 1889. *J. Douglas.*

LOCKINGE, WANTAGE;

THIS, the residence of Lord Wantage—Colonel Loyd Lindsay of earlier years, and by that name much better known—is surrounded by gardens of much beauty, which have often been noticed in these pages, the last occasion being on October 12 last year, at p. 405.

Our illustration (fig. 6) shows the house as it now exists, after many alterations and additions, its little parterre of flowers, with balustraded wall to separate it from the park, the adjoining conservatory and corridor of glass connecting it with the rooms; and, on the left hand, the village church. For a fuller description of the place, we refer our readers to the note given above.

THE BULB SEASON OF 1889.

IN reviewing the season just closed, a few points of interest present themselves, which it may be well very briefly to chronicle. Speaking generally, it has been both encouraging and disappointing. Paradoxical as it may seem, this statement is fully borne out by the facts of the case. Early in May last there was every prospect of a very heavy crop of large, well-developed bulbs; the dry hot weather which followed soon altered the favourable appearances. The bulbs, lacking the needful moisture, were prematurely ripened, and, although in apparently good condition, they have been much smaller than in several previous years. This should not affect their blooming qualities, if they are fairly and generously treated; but where they are starved or neglected, the results are certain to be unsatisfactory.

While the size, and in some respects, the quality of the bulbs have been disappointing, the demand has been most encouraging. This remark applies especially to the trade of the legitimate dealer, and it is the more gratifying, when one notices the rapid development of the auction-sales, which it was at one time feared would crush out the dealer's trade, especially in the smaller towns. These auctions are a very sore point with seedsmen, and the determination to rigorously boycott those Dutchmen who "try to run with the hare and hunt with the hounds" can hardly be wondered at.

Taking the principal items in the catalogues *seriatim*, we have first to deal with:—

Hyacinths, and here the report must be favourable all round, with the minor exception of miniatures, the demand for these having fallen off considerably. Named varieties, especially those with distinct and rich colours, have been very largely in demand, both for private use and market trade. As some articles in your columns have recently showed, the numbers used for Covent Garden Market alone are enormous.

Hyacinths for bedding purposes have also had a largely increased sale. In this connection it is worth noting that the old-fashioned nondescript mixtures are losing their hold on popular favour, and second-size bulbs of good named varieties are gradually taking their place. Doubtless this is in some measure due to an improved taste, as well as an improved state of the public purse. This latter is a very important factor in all that concerns the bulb trade, as indeed of every other.

Tulips next claim our attention, and here the remarks respecting Hyacinths equally apply. Year by year the trade in these has progressed literally "by leaps and bounds." As a result, the stock of the best forcing varieties has run so low that prices have been from 10 to 50 per cent. higher than last

year, and yet, in spite of this rise, many of the later orders have not been filled. Quite recently a new feature has developed itself in connection with this branch of the trade, as several of the largest growers for market are sending back the bulbs to Holland after they have flowered, instead of throwing them to the muck-heap, as has usually been done.

The star of the Narcissi is still in the ascendant, and the Daffodil craze seems to be yearly increasing in intensity. Whatever may ultimately be the end of this matter, its present features are exceptionally interesting, as showing what can be done with Dame Nature, human and otherwise, when a few intelligent and energetic individuals take her fairly in hand. Only a few years ago we sang of the—

> "Daffy-down-dilly by the side of the well,
> A very pretty flower with a nasty smell,"

to that of the present season. The remarkably low prices at which some of the very best-named varieties have been offered may in some measure account for this; but in addition there can be no doubt that the beauty and utility of these "harbingers of spring" are being more fully recognised.

Our old friend, the Snowdrop, is still "way up" in popular favour; while Scilla præcox and Chionodoxa lucilæ are gradually winning their place as indispensable to every well regulated garden.

Anemones and Ranunculuses are once more beginning to receive the attention they deserve. In Mr. Mason's catalogue, before referred to, I find no fewer than 780 varieties quoted, many of them at prices almost fabulous. For many years, however, the list has been gradually curtailed, but, thanks to the efforts of our French neighbours, they are now being rescued from an undeserved oblivion. This is especially true of Anemones, and some new varieties recently introduced from the Riviera are exceedingly beautiful. Of these, Chapeau de Cardinal, Rouge de Sollies, and Rose de Nice are perhaps the best, and are not likely to lack admirers. In this connection, the brilliant A. fulgens should not be overlooked, and if the demand is any index to popularity, it must be one of the most popular flowers of the day.

Tuberoses, especially American-grown roots, are selling by hundreds of thousands, the trade increasing rapidly every year; thanks to the splendid roots now being sent over from Africa, it is possible to have these beautiful flowers nearly the whole year round.

Under the miscellaneous heading, Irises, Liliums, and Freesias have been the most largely in demand. The mere mention of the fact must suffice, although the extraordinary trade now carried on in the Bermuda Easter Lily deserves more than a passing notice. The same remark also applies to the sales of Lily of the Valley crowns, for in dealing with these, nothing less than millions will suffice to indicate the extent of trade.

Many other floral gems there are, none of which are permitted to waste their sweetness on the desert air. All have their circle of admirers, and may some day attain to the proportions and popularity now enjoyed by the Daffodil or the Hyacinth.

> "Beautiful are they, every one of them
> Bright stars of Earth, by which perchance we see
> What Eden was, what Paradise may be."

Impartially they light up the splendid mansions of the rich and the lowly dwellings of the poor, with beauties that delight and refine every sense that they affect, and leave no sting behind. By their aid, the drear and gloomy gulf which in these northern climes divides the golden tints of autumn from the flowers of spring, is spanned with a floral bridge of truly surpassing beauty.

Whether we view this matter from a sentimental or a business standpoint, the growth of trade in the means by which such good results may be accomplished is a hopeful sign for the future of humanity. The love of the beautiful more widely instilled and more warmly cherished will in process of time work out a much needed social, moral and physical revolution. The foregoing is in an imperfect degree a record of the progress made in one branch of this glorious and important work. *S. B. D.*



Fig. 6.—Lockinge House, Wantage: from a photograph. (see p. 40.)

but now *Nous avons changé tout cela*, and no one would think of offering bulbs of this genus without reminding us of the "Daffodil which comes"—I need not further quote.

In some respects the present craze reminds one of the famous and historical Tulip mania. Will the ending be the same, I wonder? Looking over a bulb catalogue issued in 1800, by John Mason, at the sign of the "Orange Tree" in Fleet Street, I find no fewer than 383 sorts of late border Tulips are quoted at prices ranging from 6*d.* to £20 per root. Alas, for the Tulip maniacs! to-day three lines, and sometimes only one, is sufficient for them; while in some cases they are omitted from the catalogues altogether.

Crocuses, neglected for several years, have this year been "booming," and one must go back to the good old days when the Floral Barrd (two r's, and a capital B, please), of Kynge Streete, with true poetic fervour, sang "Within a shield of verdant spears, the brilliant Crocus glows," to find a demand equal

Whether we view this matter from a sentimental or a business standpoint, the growth of trade in the means by which such good results may be accomplished is a hopeful sign for the future of humanity. The love of the beautiful more widely instilled and more warmly cherished will in process of time work out a much needed social, moral and physical revolution. The foregoing is in an imperfect degree a record of the progress made in one branch of this glorious and important work. *S. B. D.*

Olearia Traversii forms an attractive tree, although the flowers are not remarkable for their beauty. The coriaceous leaves, of a bright-green on their upper surface, and white with silky down below, the white branches and involucre afford continuous changes of colour when the tree is agitated by the wind. It is the only New Zealand species of Olearia with opposite leaves. *T. Kirk, in "Forest Flora of New Zealand."*

*

HYBRID RHODODENDRONS.

WHEN the doctrine of evolution was brought prominently forward by Darwin, a number of his opponents were continually protesting against those who held his views, that they could never get seed from hybrids. But every florist could have told them they could get ample seed from almost any hybrid in plants that they pleased. They might take any species and pollinate it with any other, and get an abundance of seed, the subsequent hybrids being equally fertile. So that that objection to the doctrine of evolution vanished. Rhododendrons, it had been found, were very widely dispersed in the world. In North America they abound. Coming to Europe, to the Alps, we find the alpine Rose. Travelling eastwards, the Rhododendron ponticum is found. Further eastwards is the one well known for many years—the Rhododendron arboreum. Garden Rhododendrons are mainly descendants of this species and of American forms. Sir Joseph Hooker, in 1847 to 1851, on the Sikkim Himalaya Mountains, came across an enormous number of Rhododendrons of a totally different type from those from America. Mr. Veitch's travellers going further eastwards, found other species. The first in 1850, which was named jasminiflorum, was found in Malacca. It bore a slender flower, with a long tube and very small border. The next were discovered in Sumatra, the Malay Islands, Borneo, and Java. Mr. Veitch's grandfather first tried what he could do with these, taking the pollen of the orange broad-mouthed jaranicum, and placing it upon the stigma of jasminiflorum, the result of which was to produce one named Princess Royal.

Pollinating a pure white flower with pollen from an orange one has the effect of washing out (using the term metaphorically) the yellow, and producing a bright pink, the tube being longer, the border larger, and the shape of the flower prettier than the original. Taking the pink one, and crossing it with the jasminiflorum, it was found that the reintroduction of the white washed out the pink, and a form was produced almost identical with the pink, but pure white. From these an immense number of combinations have been started. It had been found that, in other cases, a combination of white with orange eliminated the yellow. Thus, the bronze Abutilon Darwini was the only one known for many years. Gardeners could no nothing with it till it was found that the white, when combined with orange, produced pinks and yellows. Though pink was usually the result of a combination of white with orange, sometimes the reverse takes place; white eliminated pink or red and left yellow, the pink only being seen in the anthers; in other cases there were crimson anthers with a crimson corolla. Taking R. Lobbii, and combining it with the large yellow, the result is a crimson with a tube almost straight. Uniting pink with a bright yellow, the former is washed out, and the yellow left, the form being that of the pink original. It also not unfrequently happens that two colours eliminate each other. Thus, crossing a pink with a golden-yellow sometimes produces a white variety, with a tube and form very much the same as in the yellow form. Taking a pink and combining it with orange, the same result is produced; the two original colours are eliminated, and a yellow produced totally different in shape from the original white.

Another effect produced by crossing is the restoration of colour. The effect of a combination of white with bright yellow is to eliminate the yellow and produce pink, although there was no pink visible in either of the parents, this colour being restored from the grandparent. It occasionally happens, however, that the result of pollinating is a hybrid exactly like one of the parents. Taking the white and using with it the pollen of the golden-yellow R. Teysmannii, the latter has been reproduced. This is an instance of pre-potency. There is another peculiar result from hybridising. Taking a large orange-coloured blossom of the third generation, and placing upon its stigma a tiny blossom of Malayanum, the result is not distinguishable from the latter except in the leaf. A whole series, called the multicolor section, has also been raised by taking the pollen of a lemon and crimson-coloured species, and placing it upon crimson, and combining an orange with others, a corolla was produced much smaller than the original. Another effect sometimes happens, and a combination of two species produces a corolla larger than either.

In the course of his experiments, Mr. Veitch also found out this fact, which was confirmed in his experience of Orchids:—If one had, say, a group of Cypripediums from the Old World and a group also from the New World, although Old World hybrids could be raised with ease, there was difficulty in raising seedlings from a combination of species from the two worlds. So with the Rhododendrons. With the seven species mentioned, Mr. Veitch had raised, as he had said, 150 different forms, and there was no saying how many more might be produced; but when he tried to raise hybrids between these and others, he found the difficulties exceedingly great, succeeding in only one case, producing one which was practically the same as the East Indian one—pure white. Lately there flowered one which had been six years before flowering, and which was obtained by taking the common Azalea and uniting it with an orange one of the fourth generation. This produced two plants—one about a foot high, and the other 3 inches. The blossoms were orange-coloured, the flower being in texture more like those of the Azalea than the Rhododendron. It was often said that when two forms were united, the staminate gives the character of the flowers, and the one which bore the seed the character of the foliage, and that rule holds good in this case. But it is far from being the case when taking the broad view, and examining a large number.

In some forms the characteristic leaf is not reproduced. The rule breaks down entirely. Each transmits certain peculiarities, whether in corolla or leaf, according to some pre-potency. The reason for this can not be given. One other curious result: Mr. Veitch wanted to raise double flowers, but could never see his way, because no botanist could create anything, but had to wait till Nature showed a sign, and then he must be quick in detecting that sign. On one occasion, Mr. Veitch's foreman noticed one anther to be flattened out like a little petal. He took pollen from the other anthers on the same flower, and placed it on the stigma of that flower, and obtained from it fifteen seeds, which blossomed one after the other. A most curious thing was that many of these were double, some single, and some half-double. And thus an entire section, known as the Balsaminiflora, was produced by self-fertilisation. One result of self-fertilisation in this case was that it differentiated the parentages, and at the same time doubled the whole of them. The result of uniting the doubles with the singles was to destroy the doubling, the hybrid becoming single, or nearly so. *George Henslow.*

ORCHID NOTES AND GLEANINGS.

LÆLIA GOULDIANA, *Rchb. f.*

Two fine racemes of this handsome Lælia have just been received at Kew, one coming from Mr. W. Stevens, Walton, Stone, Staffordshire; and the other from Mr. R. Johnson, Stand Hall Gardens, Whitefield, near Manchester. Not all the plants in gardens seem to be true to name, for on three distinct occasions ordinary L. autumnalis has been sent for the rarer plant. A question raised when the plant was described was, whether it was a genuine species, a variety of something else, or a natural hybrid. On comparing it with allied forms, I have arrived at the conclusion that it is a natural hybrid between Lælia autumnalis and L. anceps, having the general character of the former, but with the pencilling on the lip, and, to a smaller degree, the bracts and other unmistakable traces of the parentage of the latter. During a recent visit to Messrs. B. S. Williams & Son's nursery, Upper Holloway, I was shown a coloured drawing of the original Lælia Crawshayana, which has evidently the same parentage, though it is just possible, as was suggested by Prof Reichenbach, that L. Gouldiana may be the reverse cross. Another point brought out by the examination of the drawing just mentioned is, that the plant sent twice to Kew as L. Crawshayana, and on which I have already commented in these columns, is not the typical plant at all, though it is probably the variety leucoptera, described by Reichenbach. But this plant would appear to have a different parentage, viz., to be between L. autumnalis and L. albida as previously pointed out; and therefore it should not be referred to as a variety of L. Crawshayana. This plant I propose to call simply Lælia leucoptera×. One other combination is possible, viz., that between L. albida and L. anceps, but I am not aware that such a hybrid has yet been observed. That plants of ordinary autumnalis should have flowered out a batch of supposed Gouldiana is not remarkable, especially if the latter is a genuine natural hybrid, as there is every reason to believe it is, for it is sure to be a comparatively rare plant, and is probably scarcely distinguishable when out of flower. It is certainly a brilliantly coloured and very handsome plant. *R. A. Rolfe.*

SOPHRONITES GRANDIFLORA.

This little gem is just now flowering very freely here. We grow it in baskets and pans suspended close to the glass in the very coolest house, where it gets plenty of light and moisture. It makes a pleasant contrast when arranged amongst the white forms of Odontoglossum crispum. *S. Cooke, Rosefield.*

SACCOLABIUM HENDERSONIANUM.

Amongst the small kinds, this is one of the prettiest, and deserves to find a place in every collection, however small. Its numerous flower-spikes and rose-coloured flowers, rare amongst Orchids, make it one of the gayest Orchids, either for the houses or exhibition. In travelling along the great rivers of Western Borneo during the months of June and July, their rosy flowers are to be seen from a great distance. They grow on small-leaved, sparse branched low trees, and mainly on the outer branches overhanging the water; many of the trees being literally covered with them, and sometimes young, strong plants send out a dozen straight-growing spikes of 6 to 8 inches in length. Abundance of light, and constant exposure to rays of the sun, seem to be essential to their well-being. During the rainy season—that is, from October until April—they are exposed to an almost incessant downpour, and for the rest of the year their roots endeavour to get their nourishment direct from the rivers, or conceal them beneath the mosses and Ferns growing around them. In cultivation the plants should be fastened to a block, and this should be suspended just above a water tank, but without bringing them too far from the glass. *C. Roebelen, Singapore.*

CYPRIPEDIUM INSIGNE.

Mr. Coupland of the Hall Gardens, Penny Bridge, Ulverston, sent us a flower whose peculiarities seem worthy of notice. In an ordinary Cypripedium the two side sepals are, it will be remembered, not separate but joined, and not only are they thus joined, but they are as it were dragged out of position so that the upper sepal and the duplex lower one stand opposite the one to the other thus ‾‾. In the flower before us, the three sepals were separate from the beginning, and arranged in a triangular fashion as in most Orchids _‾‾_. At the same time the two lateral petals instead of being directed horizontally, as usual, or having a slightly downward curve, were directed upwards, so as to fill in the gaps between the upper and the lateral sepals.

ODONTOGLOSSUM HEBRAICUM VAR. ASPERSUM.

This variety was named by the late Professor Reichenbach, but his description has not previously been published. It differs from the type in its free

growth and rather lax racemes of golden yellow flowers, beautifully blotched with purple brown. *Reichenbachia*, t. 79.

AËRIDES SUAVISSIMUM AND ITS VARIETIES.

Aërides suavissimum is a very handsome species, introduced from the Straits of Malacca by Messrs. Loddiges, and which flowered in this country for the first time in 1849. It was described in the *Journal of the Horticultural Society* (vol. iv., p. 264) by Dr. Lindley. The sepals and petals were described as being white, tipped with lilac, and the lip pale nankin-yellow, with a lilac streak along the centre of the middle lobe. The flowers are borne in long drooping racemes, and exhale a very powerful aromatic perfume. The plant is somewhat variable in colour, and, unfortunately, it seems to have been greeted with a new name at almost every successive introduction, and to which circumstance perhaps may be attributed the fact that of late years it has been in a measure lost sight of.

The receipt of a very fine raceme, with a leaf from Mr. H. J. Ross, of Florence, has afforded me the opportunity of looking up the matter, and the result has induced me to pen this note. Mr. Ross's specimen was labelled A. Rohanianum, Rchb. f., but on comparing it with the description of that plant, and with several other forms which have received specific names, I have come to the conclusion that several described species must be considered as varieties only of A. suavissimum. They are as follows :—A. flavidum, Lindl. in Paxt. *Fl. Gard.*, ii. (1851—52), p. 101, a form with the segments of a very pale rose colour, which flowered in the collection of A. Kendrick, Esq. A. Reichenbachi, Linden, in Koch & Fintelm. *Wochenschrift*, 1858, p. 61, a form with the segments white, spotted with amethyst, the lip white, with yellow side lobes, and a green spur. Introduced from Borneo. Figured in *Xenia Orchidacea*, ii., t. 104, also in *Lindenia*, t. 1, the latter figure, however, more nearly resembling the typical suavissimum.—A. nobile, Warner, *Select Orch*, ser. i. (1862—65), t. 11, a fine form, with pale flowers very closely resembling A. flavidum. There is also a poor figure of it in *Gartenflora*, t. 641. —A Rohanianum, Rchb. f., in *Gard. Chron*, 1884, pt. 1, p. 206; a form described as having the segments white or rose, or rose-mauve, and always with a white border; the lobes of the lip white, the spur sulphur, orange-coloured, with numerous small spots; the horns inside the lip are also said to be somewhat peculiar, but I can see no difference between them and those of A. suavissimum. Of A. suavissimum there are figures in Paxton's *Flower Garden*, ii., t. 66, and in Lemaire's *Jardin Fleuriste*, ii., t. 213, both of them differing as much from the form originally described as do some of the above forms from each other. The form figured in *Lindenia* is said to have been imported from the Philippines, so that the species appears to be widely diffused. Lindley called it "the sweetest air-plant," and, in addition to its delicious fragrance, its long and dense racemes are certainly very handsome. *R. A. Rolfe.*

LÆLIA ANCEPS AND ITS VARS., AT "THE DELL."

It is always a pleasure to go through Baron Schroder's Orchid houses and see the magnificent collection of plants at certain times when they are in bloom. A most effective display is made by the varieties of Lælia anceps, whose masses of large flowers look very gay. One of the least known and most distinct varieties of L. anceps is that known as amabilis, which was described for the first time in the *Gardeners' Chronicle*, for Jan. 26, 1889, by the late Prof. Reichenbach. The flowers are lovely, the sepals and petals being of the clearest white, sometimes faintly flushed with rose; the lip is remarkable for the conspicuous crimson streaks on the side lobes, and the mauve-purple blotch on the middle lobe in front of the bright yellow callus, which is lined with purple down the centre. L. a. Percivaliana, with its white lilac-flushed sepals and petals, and the deep magenta front-lobe of the lip, was highly attractive; also some wonderful specimens of L. a. Dawsoni, and L. a. Sanderiana—these two last producing immense flowers, remarkable for the purity of their colouring. L. a. Williamsii has very large flowers which are almost entirely white, except for the yellow disc and purple streaks on the side-lobes of the lip. Among the other varieties that were noticed, were L. a. Hilliana, with white sepals and petals, and a faint mauve flush on the lip; L. a. alba, with flowers wholly white were it not for the yellow disc; L. a. rosea, with white flowers tinted with rose; and the very distinct but rather rare L. a. Barkeriana, with its very deep rose-purple flowers. *Visitor.* [Figures of most of these varieties were given in our 1st volume for 1887. ED.]

NEW YEAR FLOWERS AT BURFORD LODGE.

ON New Year's Day an inspection of the gardens of Sir Trevor Lawrence, Bart., M.P., revealed a rich display of flowers in the renowned collection of Orchids, and other departments under glass, and notably the rich collection of Anthuriums, which occupy almost all the space of two houses, and the various species of winter-flowering Begonias. The hybrids of Calanthe have been in fine order the whole winter, and still the successional plants of C. Veitchii superba×, C. Veitchii lactea×, a clear white-flowered form, and C. Sedeni × with its rich crimson eye, offer sufficient beauty where a selection of varieties may have to be made. With these, C. rosea×, C. porphyrea×, and others, obtained by Sir Trevor Lawrence, by crossing with Limatodes labrosa; some good forms of C. Regnieri, and C. vestita superba, make a very bright display. The house of Mexican Lælias has a centre of attraction, a noble plant of the new Lælia Gouldiana, with ten spikes and about forty flowers, and of which an illustration will appear in these pages shortly. It is richly coloured, and the best of the dwarf Lælias. The L. anceps varieties are commencing to flower with the white L. a. vestalis, and other white forms; the true form of L. a. Percivaliana, L. a. Hilliana, L. a. Dawsoni, &c., being also among those which are already expanded. The fine dwarf L. furfuracea and a large specimen of the neat L. albida were in bloom, and in the same house was a specimen of the yellow-lipped Odontoglossum Londesboroughianum now so seldom seen.

The Dendrobes in bloom consisted chiefly of hybrids, and many of them raised at Burford. Among these the crosses with D. Findlayanum, and named D. chrysotoxus×, and D. melanodiscus×, are very pretty; and apparently to the same section belongs D. xanthocentrum×, a pretty variety, with the large labellum two-thirds yellow, and with but the faintest brown spot at the base; the beautiful D. micans×, D. euosmum leucopterum×, D. Dominianum×, and D. splendidissimum×; four Veitchian hybrids, and D. rhodocentrum, and others are in bloom.

One of the most curious features among the Dendrobes is the flowering together of the varieties of D. nobile, and which offers special facilities for comparing the flowers of the different varieties which have sported in gardens, viz., D. nobile Tollianum, which exhibits traces of trilabellia, and further has the peculiarity of always flowering with its labellum turned upwards; D. n. Cooksonii, which is a marked case of trilabellia, the petals partaking of the characteristics of the lip. To these may be added an extraordinary form now in flower, in which the labellum has merged into the lower halves of the two lower sepals, the trilabellia being shifted from the inner to the outer plane of segments.

Throughout the year there are Cypripediums in flower; and many of those seen were the C. venustum crosses, which, however, they may be despised when small and weak, make fine objects when their peculiarly large, shining flowers are strong. Among these are C. pavoninum × (C. venustum and C. Boxallii), C. Measuresianum ×, C. chloroneurum ×, and C. politum ×.

Also in bloom were many plants of C. callosum, C. nitens ×, and approaching it in appearance, C. insigne Mooreanum ×.

The cool houses have the usual Odontoglossums just coming in, with plants of the rose-coloured O. Cervantesi morada of the Liverpool Horticultural Company; O. Krameri, O. Rossii majus, Oncidium barbatum, Pilumna fragrans, a single specimen of the orange scarlet Epidendrum vitellinum, and several fine Sophronitis grandiflora, some of them having thirty or forty flowers on a panful. The Masdevallias also give their quota, with some large specimens of M. tovarensis and some of the scarlet species, and the curious M. muscosa, with its moving labellum, the singular M. pulvinaris; and with them Pleurothallis ornata, with upturned velvety black flowers, edged with white fringe, sensitive to the faintest breath of air.

The warm houses have in bloom several Vandæ Amesiana, Saccolabium violaceum, S. Harrisonianum, Paphinia grandis, Spathoglottis Regnierii, Angræcum sesquipedale, Cœlogyne lentiginosa, C. speciosa, and others; and among the odd plants none are more beautiful than a raft covered with the dwarf Epidendrum polybulbon, whose flowers have yellow and chestnut petals, and a snow-white lip. Among these Epidendrum prestans, Odontoglossum cariniferum, Sophronitis violacea, Oncidium cucullatum, O. cheirophorum, Cattleya chocoensis, and one of the finest forms of C. Lawrenceanum which has yet bloomed, are in flower.

THE COLLECTION OF ANTHURIUMS,

so ornamental in foliage and inflorescence, and especially of the rich scarlet A. Andreanum section, have noteworthy examples in A. Laingii, with large white spathe, and dull rose-coloured spadix; A. Lindeni, white, delicately tipped with rose; A. Edwardii roseum, and A. Mortfontainense, both good; A. Princess Clementine, a white A. Andreanum, and several unnamed Burford seedlings of rich colours.

Among the Begonias, B. John Heal, which is pretty, and always welcome in winter, and the varieties of B. nitida, were the most attractive. Large specimens of the rich-coloured Impatiens Hawkerii, the blue Tillandsia Lindenii, Senecio pulcher, and other winter-flowering plants, make gay the houses in which Mr. Bain, who has so long been the gardener at Burford Lodge, takes such pride.

PYRETHRUM (INSECT POWDER PLANT).

THE following compilation of particulars respecting Pyrethrum, the Insect-powder plant, will probably be interesting to those who know the value of *petites cultures* in piling up little profits.

During the long series of desultory campaigns kept up by the Russian Government in the Caucasus, and resulting in the annexation of the country, the military cantonments simply swarmed with fleas Like Pharaoh's frogs, these insects were everywhere, but were not as easily kept at bay. The floors of some of the tents seemed to be alive with them, and the men were at their wits' end to get rid of the pests. They so effectually banished sleep, that whole companies would prefer to lie in the open and take their chance of weather, rather than share the tents with the fleas.

Some of the Tcherkess prisoners, who knew the ways of the country better than their invaders, at last let out the secret of a plant whose smell was fatal to the lively flea; this was the Pyrethrum roseum. It did not appear to be in commerce, but was gathered up the mountain slopes at an altitude of 6000 to 8000 ft., whenever wanted, hung up to dry, and rubbed to powder between the hands. However, before long, the collection of plants became a regular occupation among the shepherds, and a Russo-Armenian merchant named Yumtikoff bought all that was brought in, and manufactured the powder.

From that small beginning arose a very considerable industry, the export tax upon which is a valuable item in the revenue of the province.

It is not quite clear whether the success of P. roseum as an insecticide induced trials on other allied species, or whether the mountaineers of Dalmatia had already knowledge of the properties of a similar plant. But ere long Pyrethrum cinerariæ folium was largely cultivated in the Littorale, and so anxious were the growers to keep the monopoly in their own hands, that all the seed sent out for sale to agents of other countries was carefully baked to prevent its germination. In 1856, M. C. Willemot commenced the cultivation of Caucasian Pyrethrum on a large scale in France. His plants were examined by Duchartre, and, not being recognised as a slight variety of P. roseum, were called by him P. Willemotii Duch. This accounts for the two synonyms in vogue.

For ourselves, it will be handiest to call the two species Caucasian and Dalmatian Pyrethrum respectively. Willemot recommends a somewhat open, dry soil, well-drained, and not too clayey in character, the plant being very ready to die when germinating in too much humidity, and easily killed when mature by water-logging the nursery-bed with careless irrigation. The seed is best mixed with light sandy soil, sown on the surface of a well-prepared bed, and covered with a thin stratum of sandy mould. A light rolling after sowing is beneficial. The bed must not be allowed to dry out to the shallow depth of the seed. In about thirty days the young plants make their appearance, and as soon as large enough to be handled, are transplanted 6 inches apart on a well-prepared bed. Three months subsequently they are re-transplanted at double the former distance. The plants bloom in the spring of their second year. Thus far for the French practice. Here the greater heat of our climate, and a little careful management, may ensure flowering the first season. The best rule will be to treat the plant in about the same way as we are accustomed to treat Asters, Zinnias, and the like.

In California the cultivation of the Dalmatian plant is carried on by a settler from Dalmatia much in the same way as Mr. Willemot has directed. A fine, loose, open soil with a little old manure, form the nursery bed. The seed is mixed with sand, sown on the surface, and raked in to not more than half-an inch in depth. Too much water will destroy the seed. Weeding and transplanting in damp weather, when about a month old, concludes his directions.

Of the two species, P. roseum is by far the more showy. Its flower is not at all unlike a rather poor Aster, the rays varying from pinkish-white to deep blood-red. The leaf is cut like a Fern. P. cinerariæ folium is white-flowered, and has a considerable resemblance to the Lasiospermum, or Cape white Camomile-weed, which covers outspans and roadsides, having a yellow disk and brilliant white rays, the underside of which is discoloured to a dull grey. The leaves are also Fern-like, but more coarsely divided than in the P. roseum.

In the manufacture of the powder the flower-heads must be gathered in fine weather, immediately on their opening, as that is the period when the essential-oil, on which its insecticide virtue depends, is most plentiful. They are then dried in the shade, where a draught of air can be secured. Exposure to the sun, to moisture, or to artificial heat, deteriorates the produce extremely. When quite dry they may be ground at once, or preserved in tin canisters till the whole harvest is ready for manipulation. The plants themselves are also cut to within 4 inches from the ground, and after drying are ground up. Of this inferior produce, one-third part by weight is added to the powder of the blossoms. There is no doubt that the Colonial snuff manufacturers could grind a better and more saleable article than could be prepared by any foreign appliances. Of course, a coffee-mill, finely set, will somehow grind the material, but as the effect of the powder depends to a certain extent on its degree of fineness, it would be a pity to lose the advantage to be got by the special work of the snuff-mill and graduated sieves.

It is not to be expected that Pyrethrum will be of any great use as an insecticide in agricultural operations. Mr. Willemot, zealous to promote the new industry, proposed to protect wheat and maize from weevil by mixing ten ounces of his powder with ten bushels of grain. The effect would be scarcely appreciable. With bisulphide of carbon readily applied and certain in action, there is little reason to try Pyrethrum.

It has been tried in the United States to destroy insects in gardens in various ways, *e.g.*, in form of dry powder puffed over the plants, in a mixture with water, and in fumigation. In all cases there is so much loss of the volatile oil by free contact with the atmosphere that its use can scarcely be said to be economical on any but a very small scale. Roses and Cinerarias may be cleared of aphis or green-fly by its means, but even in these cases the plan is amateurish, and presents no advantages over the old methods with tobacco water and tobacco fumigation. Domestic use as a safeguard against the lively flea is probably the proper outlet for the sale of Pyrethrum. *P. MacOwan, F.L.S., Cape Town Botanic Garden.*



Fig. 7.—R. alba var. suaveolens. Grown for attar in Germany.

ATTAR OF ROSES.

Through the kindness of Dr. Dieck, director of the Arboretum Zoeschen, near Merseburg, Germany, we are enabled to give figures of two species of the Rose, which, owing mainly to his endeavours, have been introduced by him into the Fatherland from Eastern Roumelia.

Our readers are aware of the fact that all, or nearly all the attar of Roses consumed in Europe, came originally from that part of the Sultan's dominions. The exportation of cuttings or plants was rigorously forbidden by the Turkish officials, so that the acquirement of cuttings or plants in a living state was almost impossible; and it was only when many of the Mahommedan Bulgarians and Roumelians migrated from their homes into Asia Minor after the late war, taking their beloved Roses with them, that it became possible to hoodwink and trick the officials, and send packages of cuttings, &c., to Zoeschen. The Kazanlik Roses—that is, Rosa alba var. suaveolens (fig. 7), and the red R. damascena var. trigini tipetala (fig. 8)—are the Roses which stand highest as attar (oil) producers, although there are others grown by the peasantry in Roumelia and Bulgaria. We may mention the fact that the well-known Rosa centifolia gives sparely a delicious attar, but that owing to the abundant cellular matter in the shoots it is difficult of propagation; moreover, the petals have to be separated from the calyx by hand, which is not necessary with R. alba and R. damascena, thereby making its preparation more costly.

The hardiness of the last two Roses is undoubted, for they come from the neighbourhood of the Shipka Pass (*Anglice*, wild Rose), where the Russian soldiers died in great numbers from the effects of cold. Moreover, the plants have undergone the rigours of a German winter last year without injury, although the temperature fell to zero, Fahrenheit.

The blooms are picked in the earliest hours of the morning, and sent off without delay to the distillers, who give in Leipzig 6*d.* per kilogramme of blooms, inclusive of calyx; and as between 250 to 500 of these go the kilogramme, and constitute the crop of one bush, the profits are considerable under intelligent care, on good soil. One Rose plant is allowed to 1½ square yard = forty-four on 100 square yards, and will carry 250 blooms.

HARD-WOODED GREENHOUSE PLANTS.

Those of us whose gardening experience dates back long enough, can well remember how popular hard-wooded greenhouse plants once were, and how proud those gardeners used to be who succeeded in growing better plants than their neighbours; and it, indeed, was a creditable performance for a gardener to produce a collection of Cape and New Holland plants in good condition and well flowered. Fashion has changed in respect to many of these subjects, and has pushed many beautiful plants, once much grown, into the background; but they will, I think, again come to the front when their decorative value shall be fully realised. The leading trade growers are apparently aware of this fact, and will not lose sight of the best things. Some of the old favourites are quite as popular as they ever were, notably the Indian Azaleas, which are amongst the best of the hard-wooded plants, and no one will venture to assert that they have not great beauty and are popular.

Cape Heaths, with their delicate pearly blossoms, are grown in most gardens, and those which flower in winter are grown and sold by tens of thousands; but even with all the Heaths, greenhouse Azaleas,

and Rhododendrons, Hippeastrums, and other popular plants thrown in, there are no truly blue flowers amongst them. There is supposed to be a blue Hippeastrum [Griffinia?], but it will, I fear, be just such a mythical plant as the blue Chrysanthemum. H. Rayneri is supposed to be the plant, but its flowers, as coloured in the *Botanical Magazine*, t. 5883, are more of a rose than purple tint. [Amaryllis Rayneri is a synonym of Hippeastrum procerum.] Those who have the plant find a difficulty in blooming it; therefore, if we want blue or purple flowers, we must grow those named at the head of this paper, and to them might be added some of the beautiful floriferous greenhouse Statices, such as the robust S. Holfordii and S. profusa, the last being well named, for the wealth of bloom produced by a full-grown plant is quite marvellous.

Pleroma elegans, a greenhouse plant of great beauty, is of free growth, and has been in cultivation in England for more than forty years. It was first discovered by Mr. Gardner in the Organ Mountains,



Fig. 8.—R. gallica var. trigintipetala, grown for attar in Germany. (see p. 44)

but Messrs. Veitch & Sons were the first to introduce it into cultivation, through their collector, Mr. W. Lobb. It will live and thrive in a greenhouse all the year round, but we obtain the largest and finest flowers when the plants are started in an early vinery at the same time as the Vines, the extra heat afforded giving the plants a better start; and they develop better at a later period in the greenhouse, the plants being placed in the greenhouse just before the flowers open. The old plants are apt to have long naked stems in course of time, but they will usually, with good management, have a presentable appearance for at least six years. The plant is easily propagated from cuttings taken in July, which strike freely if placed in a pot, covered with a bell-glass, on a shelf in the greenhouse. The cuttings should be of the same season's growth, and taken before the wood has become very hard. From six to nine cuttings may be inserted in a 5-inch pot, a compost of two-parts sandy peat, one part loam, and silver sand, if necessary, should be employed. The cuttings will push forth roots, and may be potted towards the end of September, potting being done in 3-inch pots, the compost being the same as that in the cutting pots, care being taken that there is a little fibre in the loam peat. We must not forget that "as the twig is bent the tree is inclined," and we must set about training the plants carefully from the first. This one and many other of the same character should be trained in the form of a spreading bush; and to do this, the young shoots, which will develop rapidly, must frequently have the points pinched out, and the growths be tied out laterally, and not twisted round sticks as is sometimes done, and other unnatural modes of training should be avoided. In their early stages of growth, the plants will push freely if placed in a temperature of 55°. Keep them near the glass so as to develop short-jointed shoots; they will flower nicely on second year's growth. When well established, they require repotting once in a year, and a good time to do so is when they pass out of bloom. The repotting must be done with care, and the potting material should be of the best; tough fibrous peat and loam torn to pieces by hand being best, some sharp sand added to the whole, and if small lumps of charcoal be interspersed through the potting material, the results are beneficial. The plants, it may be said, do not need a large shift, and a change from a 7-inch pot to 9-inch one, or from a 9 to an 11-inch will be usually sufficient to secure good growth. The mass of soil should be in a moist state before being turned out of the old pot. Press the soil rather firmly in around the ball of roots, and do not water the newly potted plants for three or four days. After the repotting, the plants should be kept in a closer place for a few days, and if the air gets dry, sprinkle the paths of the house two or three times a day with water. In summer or early autumn, new roots speedily push into the new compost; but if the plants are watered at once after the re-potting, and the new soil should thus be made too wet, it will sometimes become sour, with the consequence that the plants will not do so well as would have been the case had the roots pushed out into the new soil before water was afforded. It may be desirable to very lightly sprinkle the plants with a syringe, if the weather be warm and dry. In growing these, or, indeed, hard-wooded plants of any kind, they should always be placed near to the glass in a house which is light and airy, not too closely together, and above all not crowded by Pelargoniums, Cinerarias, &c., or other soft-wooded plants. There is often a serious error committed by persons who have but one or two greenhouses, and are anxious to do as much as they can with their resources, for they not only overcrowd the plants, but mix hard and soft-wood plants together in indiscriminate fashion. Failure is then certain, unless very great attention is given to them.

Lasiandra macrantha has even more beautiful flowers than the above plant, but it requires a rather warmer temperature, and I am not able to induce it to make a floriferous specimen plant. The variety L. floribunda will blossom in small plants, and it is one that should not be neglected. It requires with a warmer temperature much the same kind of treatment as the first-named.

Hovea Celsii, an Australian plant, should be in every greenhouse, for its deep purple-blue flowers on slender stems are sure to please. We have here a plant that is about thirty years old, which has flowered freely every year since the seedling state. It does not form a self-supporting bush, and when its shoots are twined round a few sticks, or are dwarfed by being bent down, the character of the plant becomes lost. I now allow the growths to run up in their own free way, cutting the plant down when it has flowered out. It is best propagated by seeds, and flowers when quite young. Another beautiful plant from the same continent is the blue-flowered Leschenaultia biloba major, a really greenhouse plant, and one which may be propagated freely enough from cuttings treated like Pleroma. It used to be considered one of the choicest of exhibition plants, and I well remember Mr. J. Fraser, Lea Bridge, exhibiting a beautiful specimen at Regent's Park on almost the last occasion he sent his grand specimens for competition; but it has gone into the limbo of forgetfulness with the Epacrises of 6 and 7 feet high, and as much through. [It is still well done by Mr. Balchin, of Hassock's Gate. Ed.]

The Leschenaultia can not be grown into an immense specimen; but well-grown examples of 2 feet high and as much through were appraised at their true value, both by exhibitors and judges; no other hard-wooded greenhouse plant has such beautiful blue flowers, or is so effective for the greenhouse or at exhibitions. The slender growths are deep green in colour, as are the small leaves. The plant is liable to greenfly, and the shoots may be covered with them before the fact is noticed. The shoots are of more upright habit than some other species of the same genus, and require more care in training, as they are very liable to snap off.

The Statices are some of the most useful plants for exhibition and the greenhouse, the small blue flowers, with their pure white corolla, being very effective. S. profusa is more to be depended upon for exhibition purposes; but S. Holfordii is a more noble looking plant, and should be started in the warm-house in the spring with the Pleromas. Statices require ample pots in which to grow. *J. Douglas.*

Trees and Shrubs.

PYRUS JAPONICA ALBA.

I wish to put forward the claims of this plant for culture in pots in a cold-house during the winter. I am referring to the pure white variety introduced by Messrs. Veitch & Sons some time ago. A plant of it in a pot that stood out-of-doors all the summer and up to the end of November, is now in bloom, the blossoms of the most snowy whiteness, and though the plant is small, they are freely produced. It is in a cold-house, and therefore helped only by such fugitive solar heat as can be captured by the glass at the end of December and early in January. It will go out-of-doors again as soon as possible, for I find it is very subject to blight in the young foliage, if kept under glass too long. *R. D.*

PHILADELPHUS LEMOINEI ×.

The result of a cross between P. microphyllus and P. coronarius. The plant forms a compact, nearly spherical mass of foliage, as wide as it is high. The leaves, which are narrowly oval, are about one quarter the size of those of P. coronarius, and nearly five times as large as those of P. microphyllus. The flowers are large, with spreading petals. It is very free-flowering and fragrant. It was raised by M. Lemoine, of Nancy, and is described and figured in *Garden and Forest* for December 25, 1889, by Prof. Sargent.

HARDY TERRESTRIAL ORCHIDS.

CYPRIPEDIUM spectabile when well grown and bloomed always repays the cultivator for his trouble, but it is only one amongst many other easily grown Orchids. I have succeeded with this and others, potted and plunged in cocoa-nut fibre, in a cold frame, fixed to a north wall, the plants being watered when the soil got dry, and the sashes were put over them in winter and removed entirely between June 10 and November 1.

The following method, whilst adhering to these lines, though it did not appear to improve the plants much, sufficed to bloom them well and many others. A cold frame 4½ feet in width, 2 feet high in front, and 4 feet high at the back, made with two thicknesses of board, with interstice of about 1½ inches between the boards, was erected at the foot of a wall facing south east; the soil was taken out to the depth of 10 inches, and at the bottom 3 inches of coarse coal ashes were placed; then the space between the boards of the front and sides was filled up with fibre, and a layer of coal ashes was placed around the frame on the outsides, 3 inches deep, and of a width of 2 feet; the latter to form a walk, and to aid in keeping out severe frosts. The sashes of such a frame are better if they are hinged at the back. Sufficient compost suited to the needs of the different plants is then prepared so as to give an average depth of 13 inches. This may consist of two parts turfy peat, two parts leaf mould, and one part sphagnum moss, with about one-sixth part of silver-sand. The peat to be cut to pieces roughly with a spade, all the fibre being retained; then the longer roots in the peat and the sphagnum moss should be roughly chopped up with a bill-hook, and the whole of the materials mixed well together and made into a bed, treading all firmly. It is in planting the roots that any difficulty will occur. Those species which have the most robust growth and tall flower spikes must be placed at the back of the frame.

The subsequent care necessary will consist during the growing season of watering each plant as may be necessary; some, such as the Ram's-head Cypripedium and the Coral-root, both from the Eastern States of America, will need careful treatment in regard to this, but the whole of the plants should be watered somewhat freely when growing, no harm following the practice if the drainage has been well done. During bright sunshine, in the forenoon of each day, and until the sun leaves the frame, some kind of partial shading will be requisite. It must not be forgotten, however, that terrestrial Orchids, hardy in this country, come from countries very dissimilar as regards conditions; thus, Cypripedium spectabile, and C. pubescens from the eastern United States perforce, will succeed well together, under the conditions here given, as also will Cymbidium pulchellus, and our native Cypripedium calceolus. Though, therefore, I have unquestionable proof that Cypripedium spectabile, as before noted, will succeed admirably even on a cold northern site in our climate, and where a limited amount of sunshine reaches it, I know well that sunshine in proper season and in moderation is the life of plants. Hence, in that aspect, and if shading, be well attended to, the species named, and others, may be successfully grown and bloomed. The gentle heat engendered within the frame incites to vigorous growth, and maintains healthy longevity. During sharp frosts, it will be well to place a mat over the sashes and sides, or, as I have sometimes done with C. spectabile in a frame on a northern aspect, place a layer of a few inches of dry leaves over the roots. *William Earley.*

FRUIT REGISTER.

BRABANT BELLEFLEUR.

THIS is a most beautiful Apple in appearance, and a very desirable late kind, keeping well into May, without deteriorating to any great extent; and it is of excellent quality, and only wants to be seen, and its all-round qualities known, to be more extensively grown than it is at the present time. As a pyramid, it is not at all suitable, but in any other form it succeeds well, being a good cropper, and healthy grower, though not very strong. *G. Woodward.*

MRS. PEARSON GRAPE.

The white Grape next to Muscat of Alexandria in goodness, at this time of year, is undoubtedly Mrs. Pearson. Grown here in a house with Foster's Seedling, Mrs. Pince's Black Muscat, Gros Guillaume, Trebbiana, and Muscat of Alexandria, and which were started about the middle of February last, we find that the flavour is indeed very little inferior to that of the Muscat of Alexandria. This Vine is grafted on Raisin de Calabre, and it is a good grower and a free setter. In my opinion, Mrs. Pearson is the very best late white Grape in cultivation, and it should be grown in every place where white Grapes are required at a late part of the season. *H. W. Ward, Longford Castle.*

HENRY SHAW.

THE Board of Commissioners of St. Louis have forwarded to us a memorial statement referring to the services and munificence of the late Henry Shaw, from which we extract the following: –

Henry Shaw, born in Sheffield, England, July 24, 1800, died at his residence, Tower Grove, August 25, 1889. He came to St. Louis in 1819, engaged actively in business for more than twenty years, amassed a large fortune during an active and honourable career, and retiring about the year 1840, devoted his time to travel, study, and other preparations for the scientific pursuits and public work which he subsequently undertook. Returning to St. Louis in the year 1848, he commenced the execution of his matured purpose — the establishment of a botanical garden for the adornment of the city of his home, the enjoyment of its citizens, the cultivation of taste, and the advancement of science. He erected his country residence within the garden grounds, and personally attended to all steps necessary in the development of his noble design. In a few years the garden grew into order and beauty, and finally matured into one of the most complete institutions of the kind in the New or Old World. He found his pleasure in this pure and elevating task; but the ulterior design, steadily adhered to, was the benefit of all classes of society, and the creation for the use of the present and future generations of an institution directly ministering to the growth of the city, and in aid of higher tastes and manners, and the spiritual elevation of society.

In the year 1868 he deeded, as a gift to the city, the land embraced in Tower Grove Park, the only conditions being that the city should provide means for the work of improvement, for the annual maintenance of the same, and that a strip surrounding the park should be leased for villa residences, the revenues from which should go towards the support of the Botanical Gardens. The actual land so dedicated to public purposes was 276 acres; and he designed the plan of the park, the work of improvement being carried out under his personal supervision—all these difficult and valuable services being rendered gratuitously to the public. He lived to see the park practically completed, and he also donated for its ornamentation the beautiful statues of Humboldt, Shakespeare and Columbus, and the six busts on the lawns surrounding the Music Pavilion. His chief enjoyment was the park and garden, and the spectacle of the people of the city visiting the lovely scenes he had created was to him a bright and unfailing pleasure.

In addition to these remarkable acts of philanthropy and public spirit, he was the benefactor of various institutions of charity and learning, and an active patron of botanical science. Among his recent acts was the creation and endowment of a Chair of Botany in connection with Washington University, and the publication of the Botanical Papers of Dr. George Engelmann, edited by Professor Asa Gray, of Harvard, assisted by Professor William Tralease, of Washington University, and distributed to scientific bodies throughout the world by the Smithsonian Institution.

By his last will and testament, the Missouri Botanical Gardens are placed upon a substantial and immutable basis. His whole estate, less only individual bequests, is created an endowment fund for their perpetual maintenance, and under the management of a Board of Trustees.

REDLANDS.

[SEE SUPPLEMENTARY SHEET.]

IN a former number we referred to the Orchids and Orchid culture carried on at Redlands, near Glasgow, and we have now the pleasure of describing in some measure the plants that come out so admirably in the ink photograph which forms the special supplement to this issue.

It may be stated that the house itself is 30 feet long by 20 feet wide, and 17 feet at the apex. It is span-roofed, and was constructed and used as a vinery. The border for Vine roots was all inside, and when it was remodelled for plant growing purposes, the soil was not removed, consequently the ground area husbands an additional supply of moisture for evaporation purposes, and it plays very successfully into the hand of the culturist—much more so than the modern stoves with stone or concreted or composition floorage, which pleases the eye far better evidently than it pleases the plants.

The principal plants in the foreground comprise Anthurium Warrocqueanum, with the pitchers of N. Hookeri, dangling as it were, as ornamental appendages between it and the eye line. Then immediately in front is the old but highly effective Alocasia metallica, with Lawrence's bearded Ladies Slipper (C. Lawrencianum), as it were, peeping out among its bronzy peltate leaves. Then to the left Phyllotænium Lindeni, with its cordate-sagittate leaves, beautiful in their variegation with the sprays of pinnated foliage of the admirable Weddell's Cocos as a setting, the whole confronted with a group of the variegated form of Panicum, than which there is not a more effective grass for decorative purposes after this kind.

Passing over the lesser dignified fry, all of which however help to make a picture complete, let us pay a compliment to Mr. George Russell, the gardener to Mr. J. B. Mirrilees, for the admirable manner in which he cultivates the various beautiful examples of Nepenthes. Not even in the Veitchian establishment could this be excelled, and the admirable way in which they have been arranged to form a feature for reproduction upon paper, adds to the value of the skilled gardener in his artistic arrangement. There is even a charm about the teak baskets hanging in mid air which give a homely character to the scene. Pitcher growers will not be slow in singling out the species. Hookerii comes singularly well out, and so do Masterianus ×, which colours magnificently near the light. We never saw this form, for instance, with such a piece of russety colouring—far more pronounced, in fact, in that way than a Royal George

Peach grown and finished on the open wall—as in the examples shown by Mr. Lindsay from the Royal Botanic Gardens, Edinburgh, at the Great Plum Congress; and on inquiry we found it was due to close proximity to the glass covering, which by the way induces the pitchers to distend as well. Then N. sanguinea is also to the fore with several of intermedia, and peeping out among its fellows can be observed the handsome Veitchii. This always reminds us looking at the lid of a full trimmed fancy coat-collar. It is, as we have already described in the *Northern Gardener*, p. 78, "a pale green pitcher, somewhat emerald-like with a well-marked prominent fringe down the centre, the expanded portion showing two broad prominent wings, pinked out like the breast of a shirt, after the starch and smoothing-iron have done their work; with a tiny ovate lid."

There is a large lot of plants in this house which fall behind those photographed—none more interesting]than the Rubiaceous Rudgea macrophylla, a fellow plant, so far as leaves go, to the magnificent Medinilla, only it yields great umbels of Stephanotis-like flowers, which, Mr. Russell tells us, sometimes bring as many as from 300 to 400 on one umbelliferous head! Little wonder that Professor Bower and his students, notwithstanding the many things to be seen in their own Botanic Gardens, make an occasional visit here. *J. A.*

The Orchid Houses.

The first three months of the year are, as I have found the best for the repotting and rebasketing of Orchids, so far as the general stock goes; but when speaking of repotting Orchids, it is not to be implied that every one of them is to be shifted as if they were zonal Pelargoniums. It should be understood rather that no Orchid should be disturbed unless there is evidence that it requires, or will soon require to be repotted or basketed. Some growers repot cool Orchids at the end of the summer, but to the amateur in a small way, it is risky, as he cannot give his plants the needful extra care which their disturbed condition at that season demands, and any neglect in the matter of shading and watering, would cause them quickly to shrivel, and lose more in a week than can be made up in a year. I would advocate, therefore, the commencement of the repotting in the early part of this month, clearing a space in the cool-house, where the work may be carried out, unless there is a shed adjoining, which does away with the necessity of taking the plants into the outer air.

The Masdevallias should be attended to first, then the Odontoglossums, and afterwards the other cool-house plants; and it is well in the case of old plants of Masdevallia, which have formed dense tufts, to break them up, and if stock is not required, to place the different pieces in the same pot or pan, leaving a space of one inch, or thereabouts, between them. I have noticed that Masdevallias, and, indeed, any other herbaceous perennials, indoors or out, which has a tufty habit of growth from the centre outwards, if left undivided too long, deteriorates first in the quality of the flowers, and then frequently dies at the centre, decay often carrying off the entire plant.

For the repotting a heap of sphagnum moss which has been picked over, and a separate heap of fibry peat broken up by the hands, should be kept on the bench; the mixing of the proportions of each being done during the repotting, and not by mixing all the materials together beforehand. By keeping the materials separate, the sizes of the pieces of peat and their position in the pots and also that of the moss can be regulated at will. During the operation of repotting every care should be taken that the plants are freed from insects and dirt; and it is well to have a pan of weak tobacco water, or properly-mixed Fir-tree-oil, at hand, in which to dip each plant after it is sponged over, and before placing it in the fresh pot. In repotting those which do not require breaking up, as little disturbance of the roots as possible should take place, the old material being carefully removed, and as carefully replaced with fresh. Every damaged leaf should be removed by cutting it away just above the joint at which it would fall off naturally. As Masdevallias, and many other evergreen Orchids, bear their leaves for far too long a time when under cultivation, turning shabby instead of falling off, as they would when growing wild, these are the leaves, which should be removed from the plants.

Orchids, after repotting, require much care in watering, so that while the materials are wet enough to preserve the plants, they are not so wet that they would be spoiled before the new roots take to them. *James O'Brien.*

Plants and Their Culture.

Stove Plants.—In continuing my notes on the inmates of the stove, my aim will be to relate as fully as the space at my disposal allows, the treatment which I have found to be the most successful in regard to them. It is frequently noticed in gardens that many plants are grown in temperatures quite unsuited to their needs, and in soils in which the roots can scarcely exist. It should be the study of every young cultivator to learn, so far as there may be necessity for his so doing, the natural habitats of each, and to adapt his practice in some measure to those conditions. [See our leader of this and last week. Ed.]. Some plants are kept in a growing state the year round, when rest would be beneficial to them. I have inculcated during the past year the cultivation of healthy, robust plants, and frequent propagation, as well as insisted on due attention being paid to small details of management for keeping large plants in vigour, such as frequent cleansing, good drainage, and manuring when necessary, to encourage growth. Large plants often possess large quantities of roots, and the soil soon gets impoverished, needing supplies of manure in some form to get it to perform its work. The large plants at Sion are dressed with Clay's Fertiliser once or twice a month, and in the summer still more frequently; and many of them have not been repotted for years, so that it would result in disaster if root-feeding were overlooked.

The temperature of the stove should now be kept at its minimum, 60° at night being sufficiently high, a rise of 10° during the day being permitted, and, in the event of severe frosts, a slightly lower temperature will do less harm for a short time than the excessive driving of the fires. All hot-houses are the better for being covered on the lower part of the sashes and front lights, and if the whole roof could be covered it would be much better for the plants, as moisture would not condense on the glass, and the air would be moister, and less heat needed. The top ventilators should be opened a little when the weather permits this being done.

Tubers and Bulbs.—Plants at rest will require to be examined to see that they are not suffering from over-dryness at the root. Gloxinias and other tubers should not be allowed to shrivel for want of water; but they should be thoroughly watered and then replaced in their resting quarters. A few of the tubers which have started into growth should be placed on bottom heat near the light. Early in the month, seed may be sown to supply flowering plants after the old tubers are over.

Amaryllis aulica if it has had a long rest in a cool house will now furnish bloom if placed in the stove, the plants being repotted when done blooming, and at that time the division of the bulbs may be undertaken. For potting soil, use loam with plenty of fibre in it, decayed cow dung, coarse sand, and adding a few lumps of charcoal. For large bulbs, ½-inch bones may be placed over the crocks, and a small quantity of bone dust added to the compost. Some of the hybrid varieties may be placed in heat, those commencing to grow being first taken. We place our bulbs on a warm stage half plunged in coarse fibre, and close to the roof, and as the flowers open, the plants are removed to the drier and cooler part of the house. Bulbs which may be started at a later date may be placed in an intermediate house while in bloom. Calanthes, though classed as Orchids, may be grown in any hot house, and as soon as they go out of bloom the pseudobulbs should be shaken out, and stored in pans in dry sand or cocoa fibre, placing them as deeply as they were in the pots when growing, keeping them in the same temperature, and affording them a long rest-period. By this treatment, the young tender roots will be uninjured when potted up, and if the latter be carefully done, I find this plan a better one than dividing and shaking out the bulbs which have been rested in the pots. Eucharis amazonica, which may have been in bloom through the past month, should have encouragement to grow freely by keeping them near the light, and affording them liquid manure occasionally if the pots are full of roots. *G. Wythes, Syon House, Brentford.*

The Kitchen Garden.

As soon as a change of weather takes places, and the ground is in suitable condition, a few rows of early Peas should be sown in some sheltered and dryish part of the garden, that which enjoys a southern aspect being the best. Of varieties to sow, Veitch's Extra Early, Sutton's Emerald Gem, and William the First, are excellent. Should mice be troublesome in the garden, first give the seeds a slight damping, and sprinkle red lead over them, it does no harm to vegetation, and it is seldom that mice attack them if the process of coating them with red lead is well done. At the same time a sowing either on turves or in 3-inch pots should be made, and placed in a newly started Peach house till the young plants break through the soil, when they should immediately be removed to a cold frame or pit where frost will not reach them, giving abundance of air at all favourable times so as to induce a sturdy growth. Any Peas sown in November, which may be peeping through the soil, should have a few crumbs of mould drawn up to them which will prevent damage by severe frost and wind, and as an extra precaution, a small quantity of leaf mould should be scattered among the plants. Put the stick to the rows early, and shelter the rows from wind with Spruce or Larch twigs, sticking these among the sticks.

A sowing of Broad Beans may also be made, and for general use Early Mazagan and the Green Windsor are two of the best for early use. A few rows at this early date will suffice, it being not advisable to sow Beans on a large scale till next month.

French Beans.—As the days lengthen, these may be more successfully grown, and the best varieties to sow now are Ne Plus Ultra and Osborn Dwarf Forcing, and the first-named is a most productive cropper. If suitable pits are at command, Beans do well planted out singly at a foot apart, and they may also be sown in 60's, two or three seeds in each, and when 4 inches high, transplanted a trifle further apart, care being taken not to damage the roots when turning them out of the pots. A somewhat light fibrous loam, with a plentiful supply of rough, sweet leaf-mould, or spent Mushroom-bed manure, added, make a suitable compost in which to grow kidney Beans. Those who grow and fruit them in pots on shelves in vineries, &c., will experience more difficulty in keeping the plants free of insects than those who grow them in pits. Thrips and red-spider being the worst foes to the tender foliage, and are fostered by dryness at the roots, care must be aken to guard against this evil by copious waterings when the plants require water, and by over-head syringing morning and afternoon in bright weather, or when much fire-heat is employed. Beans to be grown in pots may either be sown in small pots, and transplanted, or they may be sown in bearing pots, these being three-quarters filled with the compost, pressed moderately firm before sowing. Pots should be thoroughly clean and well drained. A temperature of 55° to 60°, with a rise of 10° by day, with sun-heat, should be maintained.

Asparagus roots should be taken in in numbers sufficient to meet the demand, placing them closely together on a properly prepared hotbed, with a bottom-heat of 80° to 85°, and top-heat from 55° to 60°. Asparagus thus treated will have shoots fit for cutting in three weeks from time of putting the roots into the bed.

Seakale will now force with ease, and when lifting the roots, all the strong thongs not wanted on the plants should be secured and tied up in bundles, for planting at the proper season. The thickest of these, if planted on well-prepared land, will make fine heads for forcing after one season. When preparing the pieces, which should be 6 inches long, care should be taken that the right or upper end is kept upward, and this is best done by cutting the tops straight across, and the bottom in a slanting direction.

If not already done, place some sets of the earliest Potatos in boxes to sprout for frame and pot work. Place the boxes, which should be shallow, in a Peach-house or vinery for the present, giving the tubers a slight wetting occasionally. Lift and put in heat roots of Sorrell, Mint, Tarragon, according to the requirements; shallow boxes are preferable to pots. Onions may be sown thickly in boxes for salading. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, JAN. 14.—Royal Horticultural Society: Fruit, Floral, and Scientific Committees, at Westminster.

THURSDAY, JAN. 16.—Gardeners' Royal Benevolent Institution: Annual Meeting and Election, at "Simpson's," at 3 P.M.

SALES.

MONDAY, JAN. 13.—Dutch Bulbs, at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 15.—Roses, Fruit Trees, Border Plants, Dutch Bulbs, &c., at Stevens' Rooms. Japanese and other Lilies at Protheroe & Morris' Rooms.

THURSDAY, JAN. 16.—Orchids in Flower and Bud, Araucaria excelsa, Lilium auratum, and other Lilies from Japan, at Stevens' Rooms.

FRIDAY, JAN. 17.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, JAN. 18.—Roses, Fruit Trees, Border Plants, Dutch Bulbs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—36°.7.

The Gardeners' Problem.

[IN continuation of his remarks in our last issue, MR. DYER proceeds to discuss the question as to the extent to which the gardener may be guided in his practice by a knowledge of plant-structure, and of the conditions under which plants grow in Nature.]

Neither geographical distribution nor the study of natural physical conditions appear to me to be infallible guides, when we have to begin by widely departing from them. I do not say that when information about them is procurable, it should not be considered; but taken by itself, it will not ordinarily lead to success in the gardening art. We grow Pleiones pretty successfully at Kew; yet we have Sir JOSEPH HOOKER'S testimony to the fact that our treatment is widely different from anything that the plants receive in the Himalayas.

I shall no doubt be told that such facts as I have stated prove only "that the plants in question possess greater power of adaptation than was before suspected." I believe this idea of the elasticity of plant constitution obscures the real facts of the case. That adaptation goes on in Nature I do not for a moment doubt; but I believe it to be a comparatively slow process of the results of which in a given time we see but little. The real fact is that the plant as it occurs in Nature tells us but little of its innate capabilities. These it may unaided never be able to take advantage of, and they can only be revealed by experiment. The constitution of the individual species, I am disposed to consider, singularly inelastic, and bounded by limits which are not readily broken down when reached. But it is evident that in a state of Nature they are very frequently not reached.

The struggle for existence may have driven a plant into a position where it is little able to do itself justice; it is not till it comes into the hands of the gardener that it will get a chance. Plumbago capensis will grow equally well in the stove, the greenhouse, and, in Cornwall, in the open air; it does not get drawn by the one extreme of temperature, or checked by the other. Trachelospermum jasminoides is another well-known instance; Mr. JOAD even grew it in the open air in the neighbourhood of London. It is not in these cases, to my mind, a question of adaptation, but of insensibility within wide limits to a range of temperature. An Englishman does not adapt himself to the climate of India, but he can tolerate it. On the other hand, if we try to grow a Kentia a few degrees below the temperature it likes, we signally fail, because the constitutional limit in this case is comparatively narrow.

If we trusted to natural indications, we might conclude that species of very restricted distribution would be exceptionally difficult to cultivate, yet experience rather proves the reverse. Two of the most local of known plants are Wulfenia carinthiaca and Ramondia pyrenaica, yet neither proves difficult of cultivation. If I remember rightly, the Chilian Galinsoga parviflora, so abundantly naturalised about Kew, is in its native locality a comparatively rare plant. Who again could predict, from the range in Europe of Saxifraga umbrosa, that it would become the London Pride of the back courts of the metropolis.

There is, however, one important piece of information which we can draw from Nature, and that is the period and conditions necessary for "rest." This is, after all, rather a negative than a positive fact. Rest is not growth or cultivation, but the abeyance of both. It is the hint to the gardener to stay his hand. But even here Nature has to be regarded sometimes with a spirit of incredulity. I used to wonder why there was such a prodigious quantity of the stems of that curious little Tree Fern, Brainea, in our museums. I found that, as long as we imitated the conditions under which it occurred on the sun-dried hills of Hong Kong, there was never any dearth of specimens for anatomical purposes. Now that we treat it in a perfectly unorthodox manner, we require the stems to carry their living fronds. As JOHN SMITH has stated in the place I have already quoted from: "The health of a general collection of tropical plants grown in a hothouse, will not allow us to put them under the influence of their natural dry season. The deviation from Nature has to be accepted."

But we are recommended to look for illumination to anatomical and structural characters. To say nothing of the fact that life is short, and that we want to grow our plants without waiting for the results of their *post mortem* examination, I am more than doubtful that if we did, we should be much the wiser. In the discussion on Professor FOSTER'S paper on Irises, a very competent authority, pointed out that "the circumstance that the common German Iris thrives so well in London gardens was readily explained by the direction and peculiar structure of its leaves." This is all very well, but as a matter of fact, these characters are shared by a large number of other species of Iris, and these do not thrive at all in London gardens, or for that matter, as regards some of them, in any.

The fact is, that these anatomical and structural peculiarities of plants are for the most part what are called "adaptive." They have relation to the needs of the plant in Nature in the "struggle for existence." In cultivation this struggle is in abeyance altogether. The conditions of existence are for the most part entirely altered, and structure and anatomy are no longer closely adjusted to them. A knowledge of the one by no means leads necessarily to an elucidation of the other.

Nor are the relations of structure to function and to external conditions always a safe guide. One illustration must suffice. When describing the Bornean Rhododendrons, Dr. LINDLEY remarked:—"It has been suggested to me that these fine plants will not prove cultivable because they are epiphytes. I cannot concur in this opinion. . . . BLUME tells us that the Java species are mostly 'parasitical on trees,' that is to say, epiphytes; and yet the Rhododendron javanicum is as manageable as Rhododendron arboreum. The probability is that they do not require to be treated as epiphytes, and that, like Orchids, they will grow better if committed judiciously to the earth."

Here we find the skilled gardener deliberately setting aside the relations of structure to external conditions as soon as he had got hold of them. The fact is, that in dealing with plants under artificial conditions we have to go deeper—far, in fact, behind the superficial facts of structure. We come down, to use Professor FOSTER'S words, to those things in the plant which are undreamt of in the latest philosophy of our newest botany. We come down to those inherent and inherited properties of the protoplasm of the species of which the outward structure is only the envelope. Upon the possibilities and limitations of this inner constitution the gardener plays, as Nature has played; and the experience of each does not, in my judgment, much help the other. There are limitations of temperature, of light, of nutrition, of rest. As long as the gardener conforms to and does not transcend these he may do what he pleases, and it is perfectly immaterial whether Nature has given the sanction of her example beforehand. But in this matter the microscope will not help us. Optically, the protoplasm of a plant which requires stove treatment does not differ from that of an alpine. But the difference is there, though it does not, and probably never will, reveal itself to the eye. Cultural experiment is the only means by which, as far as I can see, it can be explored. We have struggled at Kew, as many Orchid growers have done before us, with Grammatophyllum. A happy inspiration led Messrs. BACKHOUSE to try it in a Cattleya-house, where it rewarded them by growing "like a weed." Where was the hint from Nature for such a treatment?

No doubt I shall be told that it is a very deplorable thing that the Director of Kew should set himself to run down botany. I do not, however, really do anything of the kind. I only rescue botany, and in some degree myself, from a false position. I say that the data of botany afford, at best, a very insecure guide to horticultural practice. The fact is well known, and professed botanists gain nothing by shirking its recognition. Is botanical study on that account to be excluded from horticulture? By no means. The truly successful gardener is a man of observation essentially. If his practice is empirical, he is guided at every point by what he sees, and by his reflections on what he sees. He must know, then, the meaning of what he is



STOVE-HOUSE AT REDLANDS, GLASGOW.

looking at, and should have a general notion of the essentials in the structure and physiology of the plant. But a mere knowledge of botany will no more make him a good cultivator than a knowledge of osteology will enable a man to treat a case of typhoid fever. There is no commoner mistake now-a-days than to suppose that scientific knowledge is a panacea in itself. Its value lies in the habits of observation which it should stimulate, and the exercise of the reflective powers upon the results of observation. The ideal gardener's life should be one of continuous experiment, and anything more stimulating to the mental faculties it is difficult to conceive. He should not be deterred by botanical prepossessions. Mr. Darwin often told me that he "loved a fool's experiment;" by this he meant an experiment in which he was guided by instinct rather than by experience. He never hesitated to run counter to accepted ideas, if he thought he could add anything to knowledge by doing so. A gardener, even if he be a "routine practitioner," who successfully cultivates a new plant under conditions far alien to its natural ones, has, in my judgment, solved no mean scientific problem. If he sometimes finds himself making "a fool's experiment," he may comfort himself with the thought that if any fool could do the same, only a wise man can get any good out of it.

I have occupied a great deal of space in saying all this. I could easily write a book about it. Perhaps some day I shall, and then if the Editor cares to print this, I will ask his permission to reprint it as an introductory chapter. *W. T. Thiselton Dyer, Royal Gardens, Kew.*

Linnean Society.—At an evening meeting to be held on Thursday, January 16, 1890, at 8 p.m., the following papers will be read:—1, "Life History of a remarkable Uredine on Jasminum grandiflorum," by A. Barclay. 2. "Certain protective provisions in some larval British Teleosteons," by E. Prince, F.L.S.

National Chrysanthemum Society.—A meeting of the General Committee took place at Anderton's Hotel, on the 6th inst., Mr. R. Ballantine, the Chairman, presiding. The minutes of the last meeting having been read, the Hon. Secretary made a report as to the appointment of judges at the centenary show in November next, and Mr. H. Payne, the Foreign Hon. Secretary mentioned some correspondence he had had with the Secretary of the late International Exhibition in Ghent. The Hon. Secretary announced the death of Mr. W. Blake, of Tilbury Docks, a member of the committee, and also of the society for many years, and moved a vote of condolence with his widow and children which was carried. Mr. Holmes reported that he had placed the probable dates of the Exhibition of Early Chrysanthemums in September next, and the Mid-winter Show in January, 1891, before the manager of the Royal Aquarium at Westminster, and moved they be Sept. 10 and 11, and January 7 and 8, which was agreed to. Judges were appointed at both these exhibitions, and it was stated that the National Dahlia Society would be asked to nominate judges of Dahlias, as heretofore, at the September Show. The Hon. Secretary also reported that the October Show of the series promoted by the Royal Aquarium, would take place on October 15 and 16, and requested the Committee to define the classes in which prizes would be offered for October Chrysanthemums by the National Chrysanthemum Society. It was resolved that Japanese and Pompon varieties only be invited, and six classes were drafted for Japanese and two for Pompons, the Hon. Secretary being empowered to apportion a sum not exceeding £20 in prizes in these classes. The Hon. Secretary announced that the annual general meeting of the members of the Society would take place at Anderton's Hotel on the 27th, and reported that the accounts of the recent provincial show at Hull had been settled in a satisfactory manner. It was resolved that Mr. A. C. Restall, of Birmingham, supply the medals of the Society, as last year. Eighteen new members were elected, including five Fellows; this brings the roll of membership up to 691. The Guildford Chrysanthemum Society, the Stamford and District Horticultural Society, the Isle of Thanet Chrysanthemum Society, and the Auckland Society of New Zealand, were admitted to affiliation. Mr. G. Drain, jun., was elected on the committee, in the place of Mr. W. Blake, deceased. The Catalogue Committee were authorised to proceed with the work of preparing a new catalogue as soon as possible. A vote of thanks to the Chairman concluded the business.

Herr Ernst Benary.—Among the presents received by this distinguished German horticulturist on the occasion of his seventieth birthday, on November 10 last, was an album quite unique of its kind, containing the portraits of upwards of 500 of the principal seed merchants and horticulturists of the civilised world. This gift came to Herr Ernst Benary both as a great surprise and inexpressible pleasure; and in all probability he is the possessor of a gallery of portraits no other horticulturist past or present has or can possess. To each donor of his portrait for this album, Herr Benary has sent a highly finished cabinet portrait of himself as a souvenir of the interesting gift made by his sons, as well as the celebration of the fiftieth year of his connection with the Erfurt business.

Fruit Culture.—The Drapers' Company have sent to the Fruiterers' Company a donation of £105 towards the fund initiated by Sir James Whitehead, the late Lord Mayor, who is the Master of the Guild, for the promotion of fruit culture in homesteads and cottage gardens.

Garden Scholarships.—In connection with the Missouri Botanical Gardens, founded by the late Mr. Shaw, mentioned in another column, six scholarships are established for the instruction of young gardeners in practical and theoretical horticulture. During the first year of their scholarship, garden pupils will work at the practical duties of the garden nine or ten hours daily, according to the season, the same as regular employés of the garden, and will also be expected to read the notes and articles referring to the subject of their work, in one or more good journals. In the second year, in addition to five hours' daily work of the same sort, they will be given instruction, and will be required to do thorough reading in vegetable gardening, flower gardening, small-fruit culture, and orchard culture, besides keeping the run of the current papers. In the third year, in addition to five hours of daily labour, they will be instructed and given reading in forestry, elementary botany, landscape gardening, and the rudiments of surveying and draining, and will be required to take charge of clipping or indexing some department of the current gardening papers for the benefit of all. In the fourth year, besides the customary work, they will study the botany of weeds, garden vegetables, and fruits, in addition to assisting in the necessary indexing or clipping of papers, &c., and will be taught simple book-keeping, and the legal forms for leases, deeds, &c. The course for the fifth year, in addition to the customary work, will include the study of vegetable physiology, economic entomology, and fungi, especially those which cause diseases of cultivated plants; and each pupil will be expected to keep a simple set of accounts pertaining to some department of the garden. In the sixth year, in addition to the manual work, pupils will study the botany of garden and greenhouse plants, of Ferns, and of trees in their winter condition, besides the theoretical part of special gardening, connected with some branch of the work that they are charged with in the garden. From time to time, changes in this course will be made, as they shall appear to be desirable, and an effort will be made to give the best theoretical instruction possible in the various subjects prescribed; but it is not intended to make botanists or other scientific specialists of garden pupils, but, on the contrary, practical gardeners. *William Trelease, Director of the Missouri Botanical Gardens, St. Louis, Mo.*

Mr. W. H. Baxter.—It is now more than forty years since Mr. William Hart Baxter succeeded his father as Curator of the Oxford Botanic Garden, an appointment he was a few years since called on to resign. Subsequently, and until the present time, he held the appointment of Superintendent of the University Parks. Our readers, many of whom are familiar with the sphere of work with which the name of Baxter is associated, will regret as we do, to learn that he is now incapacitated by infirmity for the performance of his duties. For some time past Mr. Baxter's failing vision has been a source of much concern to his family and friends, and much sympathy will be felt for him in his affliction, which necessitates his retirement from duties with which, for many years, he has been so honourably associated. By a decree of Convocation, the University authorities have signified their appreciation of his long and valuable services by authorising the Curators of the University Chest to pay him annually the sum of £60; the Curators of the Botanic Garden and those of the Parks contribute equal sums of £20, which together constitute an annual pension of £100. We sincerely hope that Mr. Baxter may be spared for many years to enjoy the reward he has gained, and which he so well merits.

Wanted, a Public Hall for Horticulture.—The matter has been in the air for a long while, and there it remains at present. Mr. Hibberd tried to bring it down long ago. Messrs. Cannell have just had their shot. Every one seems to think the thing ought to be done, and, moreover, that it can be done. We have received a communication on the subject from Mr. Shirley Hibberd, and from which we take the following extract:—"We want a hall for horticulture. It should be in a central position, convenient for access from leading roads and railways, and the construction should adapt it for flower shows, dinners, and other festivals, committee meetings, offices, and perhaps a general mart or exchange for miscellaneous business; as, for example, the display of plants for sale, the accommodation of trading firms for meeting customers, and for housing samples, models, drawings, and other materials required in business transactions in connection with agricultural and horticultural industries. There would be needful two or three (or more) well-lighted rooms adapted for public meetings, in addition to one spacious and noble hall, lighted in the way of a picture gallery, with orchestral platform and such other necessary features as would render it complete for the convenience of flower-shows and festivals. Should the idea take shape, it will grow as the plan is developed, and it should be comprehensive as a place of resort for horticulturists, who only need some such centre of operations to assemble in thousands, where, as the case now stands, the *habitués* meet only in scores, and fresh faces are rarely seen. Country gentlemen, participating in the pleasures of the London season, would make a place in the list of things to be done of such an attraction as the hall would offer them, provided only the thing obtained success commensurate with the purpose in view. One of my friends, who has heard of my proposals, has made a public offer of a subscription towards the project. As a thing to be initiated by eleemosynary contributions, it should have no help from me, and I cannot imagine that many of my friends, to whom from time to time I have spoken on the subject, would put their hands to anything of that kind. There is only one foundation proper for a horticultural hall, and that is the commercial foundation. It must pay its way, or prove itself a mockery, a delusion, and a snare. I have not attempted any estimate of the amount of capital that would be required, but not having in view a cheap shanty or a

bad imitation of a railway terminus, I should say that a considerable sum would have to be invested, and business must be looked for to ensure reasonable returns. The £100 per annum now paid by the Royal Horticultural Society for occupation of the Drill Hall ought not to be taken into account in this connection. I may be outvoted any number of times, but I feel sure that were a door to open leading to something better, and within the Society's means, the exodus would be speedy and unanimous. The Society is growing, and should grow. If it can pay £100 now for a year's accommodation, the day should be near when it could as easily pay £1000. It is now what it has not been for fully thirty years—a horticultural society; and the public are now taking a new interest in its work, and are daily more and more disposed to assist it, as is ever the case with a good thing that inspires confidence. The activities of the horticulturists carry them to all the ends of the earth for places of festivity and business. There may be a good side to the discursive system that fixes an exhibition in this spot and a dinner in that, but a recognised and generally accepted central home would be an incalculable advantage to horticulture at large in the metropolis, and many sources of income would arise for a central hall that could afford accommodation for exhibitions, dinners, public meetings, and official correspondence for various institutions, both of London and the provinces."

DUTCH HORTICULTURAL SOCIETY.—At a meeting of this body, held on December 3, 1889, First-class Certificates were awarded to Mr. H. Y. Lemkes, Alfen, for Dracæna indivisa, with yellow bordered leaves. The plant was 1 metre in height; to Messrs. Groenewegen & Co., Amsterdam, for Chrysanthemum Stanstead Surprise; and for a Cyclamen persicum, with double and stelliform flowers. Second-class Certificates were given to Mr. O. Y. Quintus, Groninghen, for a hybrid Anthurium Andreanum; to Messrs. Groenewegen & Co. for Chrysanthemums Mrs. Heale and Mdlle. Mélanie Fabre; to the Zoological Garden of Rotterdam for a hybrid Dracæna (seedling) shown as Zoological Garden No. 1. The Arboricultural Committee awarded a First-class Certificate to Mr. H. A. F. de Vogel, The Hague, for two new kinds of Salix for osiers. These had been submitted to the meeting of September 10, but had been referred for trial. A Second-class Certificate was given to Mr. A. M. C. Jongkindt Coninck at Dedemsvaart for a Cupressus Lawsoniana crispa. A First-class Certificate was given by the Vegetables Committee to Messrs. Sluis & Groot, Enkhuizen, for two new Turnips, introduced from Russia under the names "early flat red" and "Prince Engalitscheff." The dates for the meetings of the Committees in 1890 are: February 12, March 18, April 15, May 14, June 19, July 17, August 26, September 25, and November 12.

WARE HORTICULTURAL.—At a meeting of the above society, held on December 31, a paper on "Tomato Culture" was read by Mr. J. B. RIDING. An interesting discussion followed, and a vote of thanks to the Chairman terminated a successful meeting.

MESSRS. KELWAY & SON.—On the evening of the 3rd inst., Mr. WM. KELWAY entertained the *employés* of this firm to a dinner at his residence, Brooklands. About 50 sat down, and a very pleasant evening was spent.

THE COBRA PLANT (DARLINGTONIA CALIFORNICA).—There is, Mr. F. W. BURBIDGE informs us, just now a remarkable specimen of this rare Californian Pitcher-plant at Mount Merrion Gardens, near Dublin, a short account of which may interest our readers. So far as is known, it is by far the finest plant in Europe, being now a mass of stout and healthy leaf-pitchers, 3 feet 9 inches in height, and nearly as much in diameter. It was a gift to Mr. DUNCAN WELSH as a small plant twelve years ago, and to him all credit is due for its present healthy development and vigour. It is of added interest, as, having been a gift from Glasnevin, in the days of the late Dr. DAVID MOORE. The finest pitcher-leaf is 3 feet 9 inches in height, but three other pitchers only fall short of that height by 3 inches, and another reaches 3 feet 3 inches. There are in all forty pitchers over a foot in height, and twenty or thirty under a foot in height, so that the 12-inch pan (12 inches by 7 inches) in which it grows is literally a mass of leafy pitchers. It has been photographed, and in a short time we hope to be in a position to illustrate it in these columns.

"THE FRUIT TRADE JOURNAL."—Under this title a new journal has been started which claims to be an "illustrated, technical, and perfectly original publication—the only journal of its kind in the world, and . . . therefore unique in every way." It is intended to serve the interests of the wholesale fruit trade and of the fruit preservers. It is to be published monthly during the spring and winter, and weekly during July, August, and September. The interests involved are so important and increasing so rapidly, that there is no doubt a niche to be filled, and we trust our new contemporary will fill it comfortably to itself, and with advantage to its clients.

THE CHRYSANTHEMUM FEVER.—"It is a fact, significant of the present tendency of horticultural fashion," says the *Garden and Forest*, "that the receipts from visitors at the Chrysanthemum exhibition held at Boston last month, exceeded the receipts taken at all the other exhibitions combined held by the Massachusetts Society during the year."

TRADE IN SEEDS WITH THE UNITED STATES.—We call attention to a classification of plants, vegetables, Potatos, and garden seeds (as we learn from a circular sent us by Messrs. R. J. GODWIN & SONS, 65, Wall Street, New York), which was issued by the U.S.A. Treasury Department, under date March 25, 1887. The list of articles admitted free, or with some modification of import duty, includes farm seeds, cereals, oil-seeds, &c., but we select only those which concern our readers the most:—

CLASSIFICATION OF SEEDS.

"The following provision of the Act of March 3, 1883, and citations of rulings of the department thereunder, regarding the classification for duty of imported seeds, &c., are published for the information and guidance of customs officers and others concerned.

"Potatos, 15 cents per bushel of 60 lb.

"Vegetables in their natural state, or in salt or brine, not specially enumerated or provided for in this Act, 10 per cent. *ad valorem*.

"Garden seeds, except seed of the Sugar-beet, 20 per cent. *ad valorem*.

"The following articles when imported shall be exempt from duty:—

"Plants, trees, shrubs, and Vines, of all kinds not otherwise provided for, and seeds of all kinds, except medicinal seeds not specially enumerated or provided for in this Act.

"Plants, trees, shrubs, roots, seed-cane, and seeds imported by the Department of Agriculture or the United States Botanical Garden.

"Garden Seeds.—Under these and sundry unpublished decisions of the Department, the following seeds are now held to be dutiable as 'garden seeds,' at the rate of 20 per cent. *ad valorem*, under the provision therefore in Schedule N. T. I., 465: Artichoke, Asparagus, Balm, Beans (not edible), Beets (not Sugar-beet), Borage, Broccoli, Brussels Sprout, Cabbage, Carrot, Cauliflower, Celeriac, Celery, Chevil, Chicory, Chive, Collard, Coriander, Corn-salad, Cress, Cucumbers, Dandelion, Egg-plant, Endive, Hyssop, Kale, Kohl Rabi, Lavender, Leek, Lettuce, Marjoram, Martynia proboscidea, Melon, Mushroom-spawn, Nasturtium, Okra, Onion, Parsley, Parsnips, Peas (not edible), Pepper, Radish, Rhubarb, Rosemary, Rue, Saffron, Sage, Salsify, Savory, Scorzonera, Seakale, Shalot, Sorrel, Spinach, Squash, Swiss-chard, Thyme, Tomato, Vegetable Marrow.

"Vegetables.—Beans (edible), Synopsis, 6948; Peas (edible), Synopsis, 7914; and Lentils, Synopsis, 8004; have been held to be dutiable at the rate of 10 per cent. *ad valorem*, under the provision in Schedule G. T. I., 286, for vegetables in their natural state. *C. S. Fairchild, Acting Secretary.*"

ICE-FLAKES.—M. CLOS describes in a recent number of the *Comptes Rendus*, an interesting case of the formation of flakes of extremely thin and striated ice, arranged lengthwise along the stems of certain plants. The flakes were attached in a wing-like fashion to the outer surface of the wood, the bark being raised or split to allow of their passage. The phenomenon is attributed to the exudation in straight lines of moisture which congeals at the moment of exudation, the portions first formed being pushed outwards by those formed subsequently. The conditions under which this formation occurs are not accurately known. At Toulouse, where the occurrence observed by Professor CLOS took place, the temperature fell during the preceding night to 6° C. or 21° F.

A PORTABLE BOTANICAL PRESS.—Mr. H. HELBING describes in a recent number of the *Pharmaceutical Journal* a herbarium press, much used in Germany, which is superior in many respects to those commonly used in this country. This press consists of two separate iron frames, each about 16 inches by 10. Each frame is filled with a network of iron wire, with meshes about an inch square. Two catches jut out from each side of one frame, small brass chains being fixed at corresponding points on the other, so that the links can be slipped over the catch. As soon as gathered, the fresh plants are laid on paper in the frames, and when the necessary quantity has been obtained, the frames are placed together with the plants between, and connected, the chains being pulled on to the teeth. Owing to the elasticity of the paper and plants, a pressure is produced more than enough to keep the links of the chains on the teeth.

Such a press is cheap, can be made by any smith, is neat, always ready for use, occupies very little space, and having a handle, can be easily carried about, so that the plants can be prepared and pressed at the place where they grow, thus giving the best chance of preserving them so as to retain their natural appearance. Drying goes on very quickly, the air passing freely through the wires, especially when hung up, while if it is necessary to apply heat, the moisture readily escapes, a great advantage over the presses with solid frames.

THE "BOTANICAL MAGAZINE."—The January number is of unusual interest. It opens with an excellent figure of the curious Guianan Pitcher-plant, *Heliamphora nutans*, t. 7093, which Messrs. Veitch were fortunate enough to flower in June last. The earliest account of this singular plant is that drawn up by the late Mr. BENTHAM, from specimens found by Sir ROBERT SCHOMBURGK in Guiana, at the base of the Roraima mountain, where it was rediscovered in 1881 by MR. BURKE, who was collecting for Messrs. VEITCH. The summit of this mountain was considered inaccessible, but Mr. IM THURN and others have succeeded in scaling it. Mr. IM THURN describes the plants as growing in wide-spreading, very dense tufts in the very wettest places, where the grass happens not to be long. The red-veined pitchers, its delicate white flowers raised high on red-tinted stems, its sturdy habit of growth, make it a pretty little picture wherever it grows; but it attains its full size and best development not down in the swamp, but up on the ledges of the cliff of Roraima, and even on the top (about 8000 feet).

Pleurothallis ornata, t. 7094, is a diminutive species of a genus which, though it contains 600 species, is for the most part destitute of attraction for Orchidists. The present species is of Mexican origin, and is remarkable for the fringe of silvery threads hanging down from the margins of the flower segments. Each of these threads (which are of equal length) consist of a single slender cylindrical cell a

little narrowed at the base, so that they vibrate at the lightest touch. Mr. FRANK OLIVER has communicated some observations on the subject to *Nature*, 1887, p. 303. The plant flowered at Kew.

Protea nana, t. 7095, is one of MASSON's introductions (1787), and is so attractive and striking that it is indeed surprising it should have been so long neglected. The inspection of the present figure will perhaps induce some of our plant-lovers to try their hand at its cultivation. Seeds could easily be obtained from the Cape, and the plant grown in a cool greenhouse.

Rosa berberidifolia, t. 7096, is the curious simple leaved Rose, whose construction and floral beauty attracted attention at the late Rose Conference (see *Gardeners' Chronicle*, 1889, vol. vi., p. 8, 9, figs. 1, 2, and p. 78, fig. 13. A summary of its botanical history and structure is given in the last part of the *Bulletin of the Botanical Society of Belgium*.

Iris (*Xiphion*) *Boissieri*, t. 7097.—A Portuguese bulbous Iris only known to grow on a mountain in the south of Portugal at elevations of from 2000 to 3000 feet. It is near to I. filifolia, but differs in having a small beard or fringe on the keel of the outer segments of the flower. It was first flowered in England by Professor FOSTER, and since by Messrs. BARR & SON.

"HOME, SWEET HOME."—One of the prettiest booklets we have seen this year is entitled *Home, Sweet Home*. Under this not particularly original heading, Mr. FREDERICK FITCH, a son of the famous botanical artist, W. H. FITCH, has gathered together several appropriate verses by Mrs. HEMANS and other authors, and has illustrated each page with some pretty and artistic sketch, having reference to the subject. The little sea-scape illustrating the poem "'Tis lone on the Waters," seems to us one of the best, while the only one to which the slightest objection can be raised is the rather depressing sketch of a robin about to enter a trap on which is suggestively written "The End." No publisher's name is attached.

PANDANUS ODORATISSIMUS.—This tree, supposed to have been introduced from India, is cultivated in damp valleys in Arabia, the male plant alone being grown. The flower-spikes are held in esteem for their delicious fragrance, as well as for personal decoration, being thrust by the natives into their turbans like an aigrette. M. DEFLERS states that a large trade is done in these spikes in the markets of the district of Tehama.

CATHA EDULIS.—The leaves of this tree are chewed by the natives of Arabia as a stimulant, like those of the Coca in S. America. They produce a feeling of exhilaration, and enable the consumer to undergo prolonged exertion and fasting without inconvenience. At religious ceremonies and domestic festivities, says M. DEFLERS, the Ouat is liberally distributed among those present. The town of Aden alone receives every year more than a thousand camel-loads of dried branches and leaves of this tree, packed tightly in Palm leaves. The shrub is cultivated in the region where Coffee is produced, at an altitude of 1600—1800 metres. The tree would be worth introducing to some of our colonies as a substitute for Tea.

THE CINERARIA CENTENARY, AND OTHERS.—No one up to the present time has thought of instituting a Cineraria Society, or of celebrating the centenary of its introduction. Nevertheless, during the year 1788 the Cineraria was first made known in this country, as also were Amaryllis reticulata, A. umbella (now known as Cyrtanthus obliquus), Eucomis punctata, and Kolreuteria paniculata. All these were found in cultivation at Kew by L'HERITIER when he visited this country in 1786, and were, with others, published in his *Sertum Anglicum* in 1788. The *Sertum* is devoted to the description and illustration of plants cultivated in gardens round London, especially those at Kew, of which he speaks in high terms. Of course the plants must have been actually introduced somewhat earlier, but for centenary purposes a margin must be allowed.

CANADIAN FERNS.—Professor LAWSON has published, under the title of the *Fern Flora of Canada*, a little manual intended for popular use, and descriptive of the Ferns of the Dominion. The botanical details are given with great clearness, and made even more clear by a plate representing the distinctive characters of the twenty-five genera. Among the rarer Ferns is one which has almost a tropical look, Adiantum pedatum. Schizæa pusilla is another interesting species, whose relations are chiefly tropical. Of its kind this little book is one of the best we have met with. It is published at Halifax, Nova Scotia, by A. and W. MACKINLAY, but might probably be obtained from Messrs. WILLIAMS & NORGATE or other booksellers here.

THE FORESTS OF NORTH AMERICA.—Dr. MAYR, who is now in Japan, has published a treatise in German entitled *Die Waldungen von Nord America*, in which he gives an account of the geographical distribution and climatal conditions of the forests, together with descriptions of the timber and indications of its uses. In the appendix are given schemes of arrangement of the species according to the structure of the wood, the peculiarities of the seed, &c. Numerous illustrations are given, but they compare unfavourably with the text. It is to be hoped that this book, which is full of interest for foresters in temperate countries, will speedily see the light in an English translation.

BULBS, PLANTS, AND SHRUBS IN FLOWER OUT OF DOORS AT BLACKROCK, CORK.—Mr. BAYLOR HARTLAND, of Temple Hill, Cork, says in a communication that reached us on Thursday that the following plants were in flower at the above place on the 7th inst.: Daffodils, Pallidus præcox, Tazetta, Scilly and paper white; Snowdrops of all sorts; Hepatica, the double red; Tritelea uniflora. In plants, Lenten and Christmas Roses in endless variety, particularly the first named, from Mr. ARCHER HIND's collection. There are all sorts of double and single Primroses. Aubritia græca, Gentiana acaulis, Violas of sorts, Iris stylosa, Schizostylis coccinea, Emperor Stocks and Wallflowers. The beautiful Prunus Pissardi is becoming full of buds, Mahonias of sorts, all in flower; Pyrus Maulei and Azara microphylla are crowded with bloom. We shall have, says Mr. Hartland, 100,000 blooms open in the open air of Ard Righ Daffodil about one month from this date.

PUBLICATIONS RECEIVED.—*Cornwall as a Winter Resort*. (Plymouth: W. BRENDON & SON, George Street.) *The Rosarians' Year-Book*. Edited by the Rev. H. H. D'OMBRAIN. (London: BEMROSE & SONS, 23, Old Bailey.)—*The Garden Oracle*. By SHIRLEY HIBBERD. (London: *Gardeners' Magazine* Office, 4, Ave Maria Lane, E.C.)—*The Culture of Vegetables and Flowers*. By SUTTON & SONS. Fourth Edition. (London: SIMPKIN, MARSHALL & Co., Limited.)

NOTICES OF BOOKS.

PROFITABLE FRUIT GROWING, by J. Wright. (London: E. H. May, 171, Fleet Street).

THIS is the essay which was premiated recently by the Fruiterers' Company, and its sensible practical character justifies the award. It is free from exaggerations as to the profit to be derived from fruit culture, at the same time it is not too discouraging to those who embark in the business judiciously, and with knowledge of what they are about.

Fruit growing is, however, not so profitable as might be imagined from the prices, &c., quoted at the commencement of each chapter. Taking, for instance, Strawberry growing: in very favourable positions, a fairly high profit may occasionally be realised; but then there are so many things which lead to failure, that this is but a very speculative work. A very wet season spoils a great part of the fruit, or the bloom may get frost-bitten by late frosts; and during a hot, dry season the plants not unfrequently receive such a check that the following year they fail to bloom at all. Again, with Apples, which take several years to grow to fine trees that will produce a reasonable return, there are the usual late spring frosts, and the caterpillars, which not unfrequently cripple the trees for a couple of years; or the summer may prove a wet, sunless one, and, as a consequence, the wood does not ripen, and fails to produce flowers for the following year; then there are storms, which may blow the greater part of the most promising fruit off early in the autumn, and this must be got rid of at any price. It will be seen, therefore, that the fruit growers have much that is unforeseen to contend with.

In parts of Kent, fruit plantations consist of all the kinds of fruits worth growing, and are often the property of, or are farmed by, noblemen and others who have capital, and who can face these failures with comparative equanimity; but those having only fruit, and who are heavily rented and burdened with tithes, no matter of what size their plantations may be, seldom attain independence; whilst, on the other hand, dozens become bankrupt. Judging from the accounts of fruit-farming we sometimes read in the newspapers, written, as these are in some cases, by those who have been getting a livelihood by it, it should be a profitable occupation; but is it so in reality? It is not a hard matter to make favourable deductions from exceptionally good seasons, but the real proof is in the average for a series of years. It is no uncommon thing to see in Kent much fruit of all kinds spoiled, the market price not being enough to pay for picking, to say nothing of freight and commission. Plantations in paddocks, hedgerows, &c., except of cider fruit, stewing Pears, or some kind of fruit of poor eating quality would be subject to constant depredation, unless watched constantly.

Marketing fruit is a matter well deserving attention by all fruit growers. It is a fact that much fruit is sent to London of small size and inferior in quality, from old orchards; and when Blenheim Pippins fetch only 1*s.* a bushel, it does not say much for the fruit, or the profits.

As regards the cultivation and management of market fruits, the author's advice is plain and good, and growers of fruit would do well to read, and take note of much that he has written.

THE COMPASS PLANT.

THE ornamental value of Silphium lacinitum has, I think, been somewhat underrated; indeed, when it is well grown it is a very striking plant, and flowering as it does, far into the late autumn, it is the more valuable. For sometime back, its stately inflorescences have been conspicuous objects in the back line of a rather broad border of herbaceous plants, where they have obtained a height of about six feet, from which numerous racemose panicles of large, soft yellow flowers diverge.

The ray florets are about two and a half inches long; but as the flowers are cup-shaped, they only measure three inches over as they grow. However, it is quite a striking plant, when with over a dozen of these developed on a single inflorescence, distributed over about half of its length, and clear above the radical leaves—which are about three feet high. The foliage itself is not without ornamental value: the leaves have a stout clasping stalk, which carries a deeply laciniate blade—nearly a foot over. And they are otherwise interesting, as according to some authorities, it is owing to their peculiar behaviour that the popular name of Compass plant has been given. The late Dr. Asa Gray said they presented their faces uniformly north and south. However much this may hold good in their native habitat, I cannot say, but as observed in the garden, the most common plan is for the leaves to be at right angles to each other, with their edges perpendicular; this,

if taken together with the statement of others—that the flowers open to the east, then it would, seeing that that point was determined, be a veritable compass-plant, comparable, by the leaves playing the part of the card, with the cardinal points on which the magnetic needle indicates. Be all that as it may, the plant will in all probability be more in request for decorative purposes than as an auxiliary scientific instrument.

It is of easy culture, any good, rich garden soil will suit. It may easily be increased by division, but more rapidly by seeds, which may usually be obtained from William Thompson, of Ipswich. There are a few other species of Silphium, which might be grown where variety is desired, the best of which are, S. terebinthaceum, a somewhat similar plant to laciniatum, but with entire, deeply-toothed leaves, and smaller, darker-coloured flowers; S. perfoliatum, and trifoliatum are two other distinct species, but inferior to laciniatum. *F. R.*

FLORISTS' FLOWERS.

PINKS.

IT is to be hoped that the effort being made to secure an exhibition or two of Pinks during the coming summer will not altogether fail. A revival of the culture of this fragrant flower is needed for its own sake. Its congener, the Carnation, has far outstripped it in the race of popularity, and that not because both are in flower at the same time, and therefore a surfeit of the scented Dianthus might be complained of, for the Pink blooms a month earlier; it is a hardy plant, will succeed in ordinary cultivation, and it is not usually grown in pots for exhibition purposes like the Carnation. It is customary to plant the florists' Pink out in prepared beds at the end of September or in October. A special compost is provided, the beds are raised above the ground level to throw off superabundant moisture; and the leading shoots of the plants are pegged down so that they may not be blown about by the wind. It is of little use leaving the purchase of laced Pinks until they spring, unless they can be had well established in pots, because the lacing on the petal edges of flowers produced by spring, transplanted plants is generally imperfect. In a suitable locality, where there is a comparatively pure atmosphere, and on an open spot, a bed of Pinks can be made a source of great satisfaction to the cultivator. Time was when Pink shows were fairly numerous in the South of England, but now, unfortunately, there is not one.

Thanks to Mr. James Thurston, of Cardiff, who has raised some very fine laced Pinks, I have a small collection, but I am wintering them in pots, in a raised frame, where there is a free circulation of air above and below. My soil is scarcely suitable for planting out in the open in autumn; and London fogs work such havoc, especially when accompanied by keen frost. My plants are well established in 48-sized pots; and at the end of January they will go into 32-sized pots to flower. They appear to do well in a compost made up of fibry loam, well decomposed manure, leaf-mould, and some road grit. The month of January is perhaps the most trying for Pinks in pots, but I am hopeful they will pass through it unharmed.

I am glad to find it is not the intention of the promoters of the proposed Pink exhibition to confine themselves to the florist's laced Pinks only. Not that it is difficult to procure a collection, but because there are among what may be termed the forcing, border, and cutting Pinks some very fine varieties of varying colours well worthy of cultivation. I may name a few of these, viz., Ascot, soft fleshy pink, and deep carmine centre; the highly fragrant deep rose-coloured Anna Boleyn; Derby Day, deep pink, laced with purple; Lord Lyon, deep rosy-purple—one of the best; Mary Auberton, rich ruby-red; Mrs. Sinkins, white; and its improved variety, Mrs. J. M. Welsh; Snowdon and Queen Victoria, also fine white varieties; and Rose Perfection, a charming shade of light cerise. This by no means completes the list, but it is a useful and obtainable selection. Once the plants are had, it is a comparatively easy matter to propagate them by means of pipings or cuttings taken about the time of flowering, placed in pots of sandy soil, and rooted under bell-glasses in a gentle bottom-heat. *R. D.*

NEW CHRYSANTHEMUM, MRS. S. COLEMAN.

My attention has been drawn to an article in the *Gardeners' Chronicle* of December 14, on Chrysanthemum sports, by E. Molyneux, in which he says that he "fears that 'Mrs. S. Coleman,' will prove less serviceable for exhibition than any of the type." Now in the interest of growers and exhibitors, I think the least I can do is to contradict that part of his statement, for I have been very successful in growing and exhibiting this variety during the past season, and I think that I may be in a position to describe it better than one who has not grown it, or very probably not even seen a flower of it developed from the crown bud, which, as most exhibitors know, is the best in incurved varieties, and are almost the only ones shown at the north of England exhibitions, and in the southern parts of the country, I shall not be wrong in saying that



FIG. 9.—ARNEBIA CORNUTA: FLOWERS YELLOW, PURPLE-SPOTTED.

seventy-five out of every hundred blooms staged are crown buds. The colour of Mrs. S. Coleman is a rich rosy bronze, with a beautiful deep yellow centre, a very full flower, and the form quite up to the standard of others of the Princess type. Apart from the description given by E. Molyneux, another authority, Mr. George Gordon, who mentions it in the *Gardeners' Magazine* of December 21, p. 813, may with safety be taken. In this note he wrote, "The flowers exhibited at Brighton were well shown. The Princess family is so well known amongst exhibitors, and the fact that Mrs. S. Coleman sported from the Princess of Wales is sufficient proof of its being worthy of recommendation. It is now being distributed by Mr. Robert Owen, of Maidenhead. *M. Russell.*

CHRYSANTHEMUM ETOILE DE LYON.

This must, I think, be reckoned as the finest novelty of the year, but still it has received much adverse criticism owing in a great measure to the many defective blooms which have been observed, and those almost white in colour, and which conveyed no idea of the beauty of its true colour, lilac-rose, when the flower is in proper character. The reason why so many badly coloured and formed blooms have been seen this season is owing entirely to the fact that the flower-buds formed too early; the buds really should not be "taken" earlier than the middle of August, then the florets are broad and strap-shaped, and have none of the quill-form seen in early developed flowers, and which caused so much ill-feeling to be displayed by growers. *E. M.*

CONTINENTAL NOVELTIES.

ARNEBIA CORNUTA.

THIS is one of the floral novelties in course of distribution by Mr. Ernst Benary, of Erfurt. It is an annual, obtained through Herr Max Leitchlin of Baden-Baden, the entire stock being in the hands of Mr. Benary. It is the first annual species of this genus. The plant attains to a height of 2 feet, is much branched, and furnished with linear oblong leaves. Its curious and beautiful flowers, expand daily in succession, and are produced on each branch. They are small, rich yellow, and marked with five large black spots, the latter turning on the second day to deep maroon. On the third day the colour vanishes, and becomes of a clear pure yellow. The plant blooms with unusual freedom all the summer. The flowers, when cut and placed in water, retain their freshness for ten days. The seeds should be sown in heat in February, and the plants planted out in the open ground at the end of April. It does best in an unmanured soil. *R. D.*

[Arnebia cornuta was described many years ago by Ledebour. It has a curious geographical distribution, being found not only in Siberia, but in South Eastern Russia, Algeria, and Tunis. It is like A. echioides, figured in our columns in 1879, vol. xii., p. 689, but in that species the spots only occupy the base of the petals. ED.]

THE AMATEUR'S "BEESTON" GREENHOUSE.

THE kind of greenhouse best suited to the wants of the amateur who keeps no gardener, is one that is reasonable as to cost, which shall not get easily out of repair, and which, while affording the needed protection to the plant within it, is readily ventilated and warmed. These points seem to us to be met in Messrs. Foster & Pearson's greenhouse, and as the top-lights are made on the old-fashioned plan, and, therefore, removable at pleasure by taking out the pin that fixes them on the iron rafters. They may be entirely taken off the roof for the full exposure of the plants—or for repairing and painting—a great point with amateurs.

The heating arrangements seen in the figure are those of a stove or forcing-house, and may be modified to fit it for any other kind of culture. It will be noticed that the air is warmed—in the winter at least—by being brought in contact with the hot-water pipes before it reaches the plants. This also admits of modifications, and for a greenhouse the pipes, as seen in the figure, would be much too near to the plants to be good. The woodwork is of red deal, and it is thrice painted. The height to the apex is 8 feet 1 inch, of the side lights 2 feet to 2 feet 3 inches, according as the house is 10 feet or 12 feet wide.

HOME CORRESPONDENCE.

ROYAL HORTICULTURAL SOCIETY.—I have been pleased to read in the *Gardeners' Chronicle* and elsewhere during the last two years the numerous grumbles, some sensible, some foolish, about the Royal Horticultural Society, as I have regarded them as evidences of the returning (may I not say returned) vitality of our Society; but hitherto I have refrained from answering any of them. Indeed now, I do not wish to notice grumbles, but only to set right a fact or two. A correspondent last week made several assertions in your columns, which, having been inserted by, and passed without any note or explanation from the Editor, readers may well be forgiven for supposing to bear his own imprimatur, and yet he cannot possibly be unaware that many of them are

absolutely groundless. Your correspondent asserts that "members of the committees of the Royal Horticultural Society have to submit to a tax," and the inference obviously is that this tax has been imposed by the present Council. The assertion is absolutely groundless. It is true that at one time, when the Society was, perhaps, at its lowest ebb, outsiders who did not even belong to it were asked to help on its committees, but I trust the day may never come back again when the Society will not contain within itself amply sufficient material for its own committees. Your correspondent asserts, that "the right to nominate to vacancies" has been taken away from the committees; whereas, only twelve lines above, he himself proves that such "right" never existed, as he says that such pseudo-nominations had to be submitted to the Council for approval, and were not always approved. Hence it follows, that in those days, as in these, the Council nominated; but then, as now, were only too grateful to any committee or any individual who would "suggest" suitable names for the purpose. The more interest Fellows take—and "suggestion" means interest—the better the Council will be pleased. Next he asserts that the "special ticket to committeemen has been withdrawn." This is the exact opposite of fact. It has been retained.

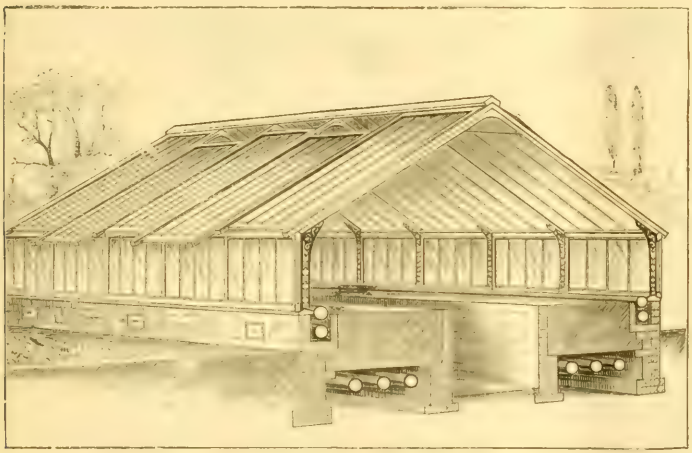


Fig. 10. THE AMATEUR'S "BEESON" GREENHOUSE. (SEE P. 52.)

Next, "Admission to special exhibitions has been withdrawn." Again, the exact opposite of fact; every committeeman has, as such (in addition to any tickets he may have a right to as a Fellow) a ticket presented to him admitting to all the Society's shows and exhibitions, in the Temple or elsewhere. As I am troubling you, I will venture a remark on almost the only real fact mentioned by your correspondent. He says, "the luncheon has been withdrawn." Quite true. Immediately on leaving South Kensington the Council dispensed with their own luncheon, and after a year's experience, finding that the attendance at Council meetings had not in consequence fallen off, they, a year later withdrew the "luncheons" from the committees also, thinking that if the Council can one day a fortnight go without luncheon for the sake of horticulture, so also can the committees. Since we left South Kensington, not one farthing of the Society's money has been spent on feeding the Council, the Secretary, or the Treasurer, who give far more of their time to the Society than the Committees do, and though no doubt it is pleasant to be lunched at a Society's expense, yet I do not believe that a single Fellow who has the Society's real welfare at heart, but will agree that it is far better—far more dignified—for them to work for their Society for nothing than to lay themselves open to the possible reproach of cavillers that they only do it for the sake of a luncheon. *W. Wilks, Shirley Vicarage, Croydon.* [We very willingly give insertion to Mr. Wilk's letter, but we demur to his conclusion that we are editorially responsible for the opinions of any correspondent. The complaint as to the tax, is, we believe, based on the fact that, by a comparatively recent enactment, all members of the committees are now obliged to be Fellows of the Society. Now that the subscription rate is so low, we do not think that this is a grievance worth mentioning in the case of horticulturists proper, but there are many amateurs and gentlemen unconnected directly with horticulture, whose assistance was most valuable as referees on certain points. These gentlemen gave their services like the rest of us, but with absolute disinterestedness. To refuse to continue to such gentlemen the small compliment implied by giving the privileges of a Guinea Fellow during their period of office, was to our thinking discourteous and ill-judged. As to the nominations to the several committees, the old practice, if we can trust to our recollection of a quarter of a century, was that at one of the last meetings of the year, the Chairman of each committee was instructed by the Council formally to ask the members present to suggest certain names to fill up the vacancies occurring by rotation or otherwise. These names were then submitted to the council. This practice we venture to think was a good one, as the committees are more likely to know suitable persons than are the Council, while the compliment thus paid to the committee by the Council engendered good will and sympathy. The present council has throughout proved itself so desirous of meeting the views of the fellows, and has so very readily adopted suggestions that have been made, that we do not doubt that they will readily continue to give consideration to any suggestion for the good of the Society that is made, and so far from objecting to criticism, they will hail it as far more satisfactory than either indifference or indiscriminate laudation. Ed.]

—— While agreeing generally with what Mr. C. Noble and Mr. R. Dean say respecting this body at p. 732, vol. vi., and p. 22, vol. vii., I should further like to ask the promoters of the Orchid Committee the reason why it was instituted and separated from the main body of the Floral Committee. I hope it will not be thought that I am asking the question in any captious spirit; on the contrary, I have every desire to see the matter settled amicably, but should they fail to adduce sufficient reason for its existence, then I fear that the other members of the Floral Committee, as well as those of the general public interested in horticulture, would have little alternative but to accept Mr. C. Noble's dictum as to "cliqueism and exclusive dealing." However, now that the necessity for its existence has been challenged, I hope they will be able to furnish a complete answer to the charge. Touching your suggestion, that they be considered as a section of the Floral Committee, that is exactly what has been done during the past year; they have retained all their original rights of voting and acting with full powers on every matter brought before the Floral Committee proper, thus clearly showing that they considered themselves a superior sect, inasmuch as in effect saying they were competent to deal with everything brought before the committee; but the others, in fact the large majority, were only capable of dealing with some things. If they can put any other construction on their actions, I should be glad to learn how. To argue that the other members were not well acquainted with Orchids would be no answer to the charge, for surely the most rabid orchidist would at least admit that members are average horticulturists, and fairly capable of forming a correct opinion on plants in general, and therefore, if with the able advocacy of the orchidic members—together with the evidence of the subject before them—they then failed to see sufficient merit in it to justify an award. I think the Fellows and the public will be pretty well satisfied that no award was necessary. By the way, it will be highly useful if some one would point out a few of the most striking imagined miscarriages of justice before the Orchid Committee was appointed, they would be useful for comparison with the doings of the latter body since it was instituted. *Frank Ross.* [The Orchid Committee, we have reason to believe, was instituted by the Council at the wish of several representative Orchid-growers and others, who deprecate the formation of another special society, which otherwise would almost certainly happen. By meeting after the Floral Committee and inviting any member of that body to sit on the Orchid Committee, the difficulty, if it is one, might readily be surmounted. Ed.]

A CLASHING OF DATES.—I observe that the meeting of the Royal Horticultural Society in November next is fixed for the 11th of that month. On that same date the Kingston Chrysanthemum show is announced to be held, and it is also the first of the National Chrysanthemum Society's four days' Centenary Celebration at the Royal Aquarium. I think the Royal Horticultural Society will be the greater sufferer from this unfortunate clashing of dates, and I trust the Council will see its way to making its meeting a week earlier. So many fixtures by affiliated Societies are dependent upon that of the Royal Aquarium Show of the National Chrysanthemum Society, that the latter, having made public announcement of its date, cannot now alter it. Chrysanthemum shows are now so numerous, and so many have to be crowded into the small space of a fortnight, that it is impossible but that some should clash with others. *R. D.*

LARGE GOOSEBERRIES.—At a meeting of the Birmingham Gardeners' Association held on December 10, Mr. J. Pope in a paper on "The Big Gooseberry," mentioned some leading Lancashire prize varieties, and the excellent qualities of many of them, and pleaded for the Gooseberry being recognised more than it is as a dessert fruit. The variety, Bobby, was alluded to as being the heaviest berry exhibited throughout England this year, the weight being 29 dwts.; but larger berries of other sorts have been exhibited, notably, London, exhibited in 1852, which was of the extraordinary weight of 37 dwts. 7 grains. *W. D.*

TUBEROSES FLOWERING A SECOND TIME.—Your correspondent, "A. P.," will scarcely find that the attempt to flower these bulbs a second time a success in this country, when we consider that we are not able to flower more that 75 per cent. of the average samples sent to this country. Could we induce bulb growth, then the chances would favour the attempt, but this, according to my experience, is exactly what we cannot do, and as the same bulb flowers but once, new bulbs being formed on the top of the old one annually, we are at a loss to know how to proceed. The bulbs, which usually form after the flowering is complete, are small, and flattened out, and bear some resemblance to the corms of Gladiolus The Bride, and quite different to the elongated bulbs with which we are familiar. We have nothing more thoroughly hardy than these, for I have known offsets to endure 22° of frost with impunity, fully exposed on the top of a rubbish-heap, and into which they had rooted freely. Some eight years since I planted a batch of these for trial, mainly offsets of large size, selecting a warm

border against a south-west wall, but they never made their appearance above ground, and the bed, after waiting several months, was planted with other things. What we lack is what the Tuberose appears to enjoy—a hot summer. The importations of these now reaching this country are of better quality than those of the corresponding season last year. *J.*

FIELD MICE AND BULBS.—One of our borders skirts the edge of a wood, and is much exposed to the depredations of field mice, which come up from the damp cold meadows in winter to the sheltered woody valley which bounds our garden. The yellow Crocus bulbs are especial tit-bits for their winter *menus*, and these they mine for on a very extensive scale. On this border we have had to replace two thousand bulbs to make good a year's depredations. You may see neat round holes all along the bulb lines where the mice have sunk their shafts, and from these they carry galleries below in true mining fashion. In tidying the wood-walks yesterday, my men noticed a round hole, tunnel-like, at the root of a large Sycamore tree, where the roots forked, and here was a field-mouse's nest, which proved to be packed full of fresh Crocus bulbs from our autumn plantings. No doubt there are many such hoards in the wood, containing many hundreds of bulbs, if we could only find them. Gilbert White observed that his newly discovered field-mouse—Mus minimus—built its summer nest of grass or Wheat stalks, and in winter changed its quarters, and burrowed deep down in the soil. We have this mouse here, and it stocks these holes with our garden bulbs for use during the period of hybernation. This throws light also upon a subject that has often puzzled me—the distribution of bulbous plants over wide areas. There are places in our wood and meadows where flowers suddenly appear where we never planted them, such as Crocuses, Snowdrops, and Daffodils, and they are not likely to have come from seeds. The spread of Daffodils over a whole meadow is also frequently noted, and this cannot be wholly accounted for by seeding. I have come to the conclusion that a good deal of this transportation of bulbs is the work of the mice, rats, and moles—for their winter stores. We are constantly at war with these interesting thieves, and find the water-trap, with a revolving wheel, the most effectual. We frequently find three or four mice in one trap set over night. Spring traps are not desirable, as they catch the birds as well as mice. *W. Brockbank, Brockhurst, Didsbury, Jan.* 4.

GARDENERS' ORPHAN FUND.—It is generally understood when a man holds ideas that do not in any way coincide with the views held by the great mass of his fellows, that he must be insane, or at least that he has a mental warp; under such conditions, I fear that I must be classed with the insane. I have lately received the second annual report of this Fund, and I must say it fills me with astonishment to think, that having in so short a time since its foundation been able to invest £2525 19*s.* 10*d.*, the managers of the Fund have displayed such unbounded prudence that they have made allowances to orphans during the year past of £139 15*s.* Now what I want to know is this—have the managers of the Fund so little faith in the nature of the work they have in hand, that they cannot give their contributors and friends credit for any determination to go on aiding the cause, and that they must, in consequence, invest nearly all their funds, whilst the poor unfortunate orphans, for whom it has been subscribed, go minus. Surely no body of men can dream that the springs of charity and pity are going to dry up; rather let us hope they will increase, as surely they will in proportion to the amount of good that is being done; but let it only be understood that the end in view is to raise an endowed fund, and you may say good-bye to anything approaching the same devotion which has already produced such grand results, and though in the meantime I be classed with the insane, it will surely not be long before positions will be changed. *G.*

PLANTING PERENNIALS IN A BORDER.—I am much indebted to those correspondents who have replied to my inquiries on the above subject in your columns, and have found many hints of importance which my friend may be induced to put into practice. The remarks by "J.," p. 685, December 14, are in regard to some of them beside the mark, for he says that he would discard the border; now it was about the planting of a border that advice was needed. I do not say that beds on turf or gravel would not be effective, in fact, they would, but to be so they must partake of the nature of a border as far as regarded their contents, if not in their form. If a bed of perennials is to be always gay during the flowering season, it must contain a mixture of plants, or it would at some season or other afford nothing to look at but fading foliage and seed-vessels. Certainly, when a bed is required to be at its best at any given time, it must be chiefly filled with those plants which flower at that season, and to plant many other things would be needless. This is a rule not often followed even in those places where the residents come and go at stated periods, the garden being as good as shut up at others. I think the whole force of a garden should be concentrated on that season, when it is enjoyed by the proprietor and his family and visitors. It is in this respect that the list of plants supplied by your able correspondents and their flowering time comes in so very usefully. My diamond, circular, oval, and other shaped plots do not meet with a kindly reception, but I would ask my critics how long would any one of these figures preserve its exact shape after being planted with plants having foliage the most diverse in shape, size, and mode of growth. Not one year, I think, as about all the outside lines of any figure a graceful irregularity would naturally arise. We must not look to the sky for cloud figures, these are far too irregular for our purpose, and as a garden itself is a work of the imagination as displayed in its arrangement, and should consist of well-balanced and ordered parts as a whole, so should the subordinate forms, such as beds and groups, fit into and contrast with each other in form and colour. A bed, like the example given, if planted as "J." intended it should be planted, ought to have been 10 yards long by 4 yards wide, and not 10 feet by 4 feet; the first containing an area of 360 square feet, a respectable amount of space, as against the given example of 40 square feet, which is far too small for anything but a bed of Alternanthera, or the like. *A. Y. E.*

THE WEATHER OF 1889.—I venture to send you a summary of the weather during the past year, taken in a very matter of fact, and not at all in a scientific way, which shows forcibly the peculiarly mixed condition of the weather assumed during the year. Very marked indeed is the fact that no continuity of character is shown for any considerable period; the alternations being many and rapid, whilst there seems to be fairly general satisfaction with the weather. There can be no doubt but that the dull cold, which with intervals of rain or sunshine prevailed so considerably during the later part of the spring, and the cold fierce rainstorms of the end of August were serious drawbacks, and materially affected crops injuriously, both early and late. It is curious to find that of their seasons Good Friday and Christmas Day were of the finest and warmest, whilst neither of the Bank Holidays were half so pleasant, indeed the two summer Bank Holidays were wet and ungenial. The year was born in a cloudy white hoar frost, which endured several days, and as if with true phantasmagorial effects, expired in a cloudy dense mist, fading away like a ghost in a melodrama, because enshrouded in vapour. January opened with hoar frost and fog which held till the 8th, when thaw set in, and on the 11th there was rain. The next day snow fell, then rain, and it became milder. The next day was dull, so was the 16th, the air getting softer, and then came a nice spring-like day. On the 20th, considerable rain fell, after a white frost, dull cold weather following. The weather alternated, fog, white frost, then after occasional showers up to the end of the month. February, open weather prevailed from the 1st, colder on the 4th with some snow, but milder next and following days with occasional cold changes and some rain. A sharp frost on the 9th and 10th, with snow on the latter 6 inches deep. Wind northerly and cold, very sharp frost on the mornings of the 12th and 13th, but thaw set in, and all snow had disappeared next day, weather becoming pleasant and mild. On the 16th was heavy rainfall, the ground now literally saturated with water. Then came a mild summer-like day, a wonderful contrast to what had just previously prevailed. Open fairly mild weather continued up to the 24th, when more snow fell, as also next day. Dull weather, with slight frost and falls of snow marked the days up to the 28th, when there was a sharp frost, as also on March 1, continuing up to the 6th, with slight snowfalls. On the 7th heavy rain fell, the soil being once more in a very cold wet state, and unfit for seed sowing. On the 9th we had quite a lovely spring day, then the wind became colder, and some fog prevailed, with cold wind from the north-east up to the 14th, which proved to be a bright and pleasant day. This weather continued up to the 19th, when rain again fell heavily. Then followed a fine day, then a wild, cold, wet one. Next, a fine bright day, the weather keeping dry and moderately cool up to the 28th, when we had a sharp white frost; the weather kept open till the 31st. April, as becomes its traditional reputation, opened showery, but mild, then dryer up to the 4th, when it became wild and stormy. The 5th was a fine open day, but the 6th was one of rain storms. Then followed dry east wind and pleasanter weather up to and on the 8th, when followed next day a wretchedly wet morning, the rest of the day being dull. Rain and cloudy dullness prevailed also the next day, the soil being in a deplorably sodden state. The 11th was cold and gloomy, remaining dull and dripping up to the 15th, when it became much colder, wind veering to N.E. This continued up to the 18th, next day (Good Friday), was a delightful one, the temperature being almost hot; then it remained open and fairly pleasant with some small showers up to the 24th, colder winds and heavy rains to the 26th, which opened fine, but showers fell towards night. This kind of weather continued up to the 30th, when a very heavy thunderstorm broke in the afternoon, with drenching rain; warmer but wet the following day, and on the 4th of May the weather was fine and warm; this pleasing change continued up to the 11th with slight showers, but on that day it became dull and cloudy, and cooler for a day or two, then became fine, warm, and summer-like up to the 19th, when the temperature fell and rain followed. Then came some charming weather up to the 26th, when the sky became clouded, wind easterly, and heavy rain fell at night, continued till midday the next day, so that the soil was once more in a saturated state. Rain with alternating sunshine marked the rest of the month. June opened warm and sunny, a hot parching wind from the south-west on the 3rd, warm and pleasant next day; then another turn of parching wind, on the 5th, but from the east, raising dense clouds of dust. Hot again next day, followed at night by a tremendous thunderstorm, also more thunder and rain on the next day. Then the wind veered east and the sky became dull, cloudy and the air cooler. Whit Sunday followed, a truly cold wet day, wind north-east, everybody holiday keeping quite miserable! It became warmer, but still dull and damp; but the 13th was fine and pleasant, also next day. Heavy rain fell on the 15th and night, but was fine next day. On the 17th and on to the 26th wind and dust prevailed, then it became much warmer, and grew hot up to July 2, when clouds intervened, becoming cooler. Up to the 5th the weather became quite summerish, and on the last date was once more hot and dusty, but grew cooler, with cloud and some gentle rain up to the 9th. On the next day it rained heavily the greater part of the day, but was fine in the evening. The 11th was a pleasant day, but on the 12th we had a tremendous downpour of rain; also a heavy rainfall on the 14th, with some intervening sunshine. The next day we had delightful weather, which continued up to the 21st, when it became showery, and next day it rained nearly all the day. It kept colder and rainy up to the 27th, when it took a dry turn, and warm pleasant weather followed up to August 5, Bank Holiday, which, again, was very wet at times, and sadly interfered with outdoor pleasures; the 6th also was showery, but nice weather prevailed up to the 11th, when heavy rain again fell at intervals, as also on the next day; then came some fine weather up to the 14th, when rain again fell heavily in the afternoon; then it took a warm and pleasant turn up to the 20th, when it became mild and windy, literally blowing great guns, whilst the next day it rained heavily, with strong wind nearly all day—terrible flower-show weather, as also for the harvest. On the 22nd, the weather was cold and unsettled, then followed better weather, cool for the season, but fine up to the end of the month. September opened rather cooler and unsettled, rain and wind alternating with sunshine till the 4th, when the weather again became pleasant. With slight alternations it kept fine and warm up to the 17th, when there was an unusually early sharp frost, doing exceeding harm to tender plants. A lesser frost followed next morning, then it became duller and cloudy, cold at night, also, till the 24th, when we had a thoroughly wet day. Dryer weather succeeded up to October 3, when heavy rain again fell; colder weather and heavy rains followed up to the 10th, when it was fairly fine, but next day heavy rain fell again; yet on the 12th the weather was delightful, and so it continued up to the 16th, when it was a thoroughly wet afternoon; then we had two fine days, followed by heavy rain and wind on the 19th and following day. Dull and

cold on the 22nd, very wet on the 23rd, and gloomy on the 24th. Then came a warm, sunny day, and was followed by one miserably wet on the 27th. Dull weather with some showers filled up the rest of the month. November started wet but became dryer, then rain fell heavily again on the 3rd, was dull on the 4th, and next morning there was a sharp white frost and then a fairly dry day. The 6th was a remarkably fine warm day, then a colder, duller day followed, and on the 10th came a delightful day. The weather kept mild and open up to the 13th, when it became foggy for two days, and on the 15th the weather was again very pleasant: it was dull and cooler up to the 24th, when rain fell in the morning. Milder weather followed, but on the 25th it was wild and wet. Light frosts followed, increasing in intensity on December 1, and continuing up to the 5th, when it became gradually softer, and on the 7th there was snow, which laid until the 9th, when rain fell and the snow soon disappeared; we had then two open days, but white frost came on the 12th and following day, with fogs at night. Then the weather became open on the 14th, and kept so up to the 22nd, when rain fell, and it was a wretched day; a fine day followed. Then came a wet morning, but fine later. Next was Christmas Day, when we had a remarkably dry, bright, soft day, extremely pleasant for the time of year. Dull, somewhat misty weather prevailed on the following day; but on the 29th there was a sharp white hoar frost with some fog, continued in a softer aspect up to the 31st, which was a densely foggy day, till about four o'clock, when the mist lifted, and a very bright, beautiful, but frosty night followed, leading to the new year, 1890. *A. D., Bedfont.*

CATS IN THE GARDEN.—I felt interested to read in your paper of December 21 the plan of employing a captive cat to scare birds in a garden. I tried the plan some three or four years ago in the garden of my cottage at Sidmouth, and I wish to point out to your readers that if tried with a full-grown cat, it is nearly sure to prove a failure. A strong cat took up its quarters in my garden just before Strawberries ripened, and made itself a "nest" in a corner under a thick bush. She was content to stay there, but I thought a clever scheme would be to chain her up to a dog-kennel in a more open part of the garden. She became furious, however, at the restraint, and seemed likely to go mad. It was a very dangerous process to take the collar off. She then went right away, but after three or four days came back, and occupied her old nest through the summer. Of course we fed her at the nest. It is probable that the plan might succeed if a young kitten were trained up to wear a collar and chain, but my trial showed me that no full-grown puss will stand it. *F. S.*

HEAVY CLAY LANDS.—In reply to the query respecting my remark, "It would not be discreet to use anything of a woody nature over drains in gardens" (p. 23). My thoughts were directed to fruit trees, which, I believe, are liable to have their roots attacked by fungi if they come in contact with material of this description. It is not an uncommon occurrence to find lines of pyramids and espaliers planted in gardens for the twofold purpose of utility and appearance, and in such cases some of the trees are almost of necessity in near proximity to drains. It may be argued—if it is conceded that the trees are subject to injury from the above cause—that the roots of trees of this character should be kept near to the surface of the soil, and consequently out of the reach of harm in this way. This, in many instances, would be the correct thing to do; there are soils, however, although capable of improvement by the process of draining, in which trees may be allowed to root deeply, and yet grow well and produce good crops of fruit. In such cases it is advisable to let well alone, and I think discreet to guard against introducing any substance into the soil which would be in any way likely to engender fungi, or be in other respects obnoxious to roots. *Thos. Coomber.*

—— I do not quite agree with "T. Coomber's" remarks on p. 23, as regards the treatment of heavy clay land. The land here is very heavy, and my experience of trenching is to get it done as early as possible in the autumn, and I find that this soil, by giving it a good stir up, say about the middle of the month of February, is put into good working order by the March winds, and numbers of woodlice, slugs, &c., also weed seeds are destroyed. If I left my trenched ground as "T. C." says, it would bake on the surface. I maintain that clay soils should be kept stirred on the surface on every available opportunity to ensure good crops. With regard to Onions following Celery, my Onions came as the next crop to Celery, and I must say that I never had an evener lot of bulbs than those of last season. The sorts grown were Reading Improved and James' Long Keeping. *W. L.*

A GOOD AUTUMNAL ROSE.—If I mistake not, my old friend Margottin, of Bourg La Reine, has given us in the new Rose (1888), Gloire de Margottin, one of the best autumnal blooms that we possess. Some years ago he told me that he should endeavour in hybridising to go back beyond General Jacqueminot, which has justly or unjustly been the parent of all our modern red Roses of the hybrid perpetual class, and that he should take that brilliant old semi-double Rose, Gloire de Rosamon, as the mother parent. We had a very brilliant but very thin Rose in Gloire de Bourg La Reine, and now in this we have an equally brilliant and rather fuller Rose, although not, I think, full enough ever to make it an exhibition Rose; but I have found no Rose equal to it in any small collection for autumn. For winter blooming I have but two plants of it, and yet I have been enabled to get really good blooms from it several times during the late autumn months, and have this day, January 2, cut a really good flower, excellent in shape and bright in colour. The habit of the plant is straggling, so much so, that I think it not unlikely that it will make a good pillar Rose, if so, its value would be still further increased. *Wild Rose.*

THE HABITATS OF PLANTS AND ARTIFICIAL CULTIVATION.—The interesting note, p. 16, reminds me of my old friend Dr. de Vry, well known as a chemist, botanist, and in connection with quinine and the Cinchona plant, in answer to a remark that it was always well to give a plant as nearly as possible the conditions under which it grew in its own country, he said not always; he had to cultivate the Cinchona in Java, and having studied the plant in India or Ceylon, I forget which, he found he could give all the conditions but one, this one being impossible. He found that an entirely different treatment was that which gave the most success. This gave me a good lesson, which I have acted on. There are now in different parts of the country scientific amateurs who by experience and careful observation find out for themselves how to make plants, new or little known to them, thrive best—surely they are not empirics? I have just had to do a little "empiricism" with half-a-dozen plants of Shortia galacifolia, to find where they will grow strongest they have been put in six different situations; I hope that they will grow in all, but do not know where they will thrive best. The Pyrola, Epigaca repens and Galax aphylla give a guide as to their probable requirements. Japanese travellers have told me that Lilium auratum is much finer in this country than they have ever seen it at home; and at the time of the Colonial Exhibition, a gentleman connected with the Canadian Commission, having on a visit to our Wisley garden, passed a clump of Sanguinaria canadensis in full flower, I said, do you not notice your fellow countryman? he answered, the flowers are so much larger than ours, that I did not recognise it. *George F. Wilson.*

ROBERT FENN POTATO.—My good friend, Mr. Robert Fenn, formerly of Woodstock, and now of Milhampstead, has informed me that a very fine looking seedling Potato, shown at the Crystal Palace Chrysanthemum Exhibition by Mr. Howard, of Canterbury, received a certificate of merit, and was named as above, and yet no mention of it was made in the papers. I sympathise a good deal in my old friend's complaint, that if it be some hairy or other rebel Chrysanthemum, there is no end to the noise made about it; and yet a hairy Chrysanthemum, let enthusiasts say what they may about it, is but a useful flower spoilt. On the other hand, a really good Potato comes as a valuable addition to our food supply. Without doubt, there is not much money in Potatos, whilst there is a little in Chrysanthemums; this is due chiefly to the burst of eloquent description which comes from the pens of press critics. Many of our press men have become Chrysanthemum "connoisseurs"—and have few eyes for anything else, especially such inferior stuff as Potatos. Why don't gardening press men give a fair and full notice of all the subjects that are presented to them, and not make so much profession of knowledge of specialties? However, to return to Robert Fenn Potato, I hope Mr. Howard will send some of it to Chiswick for trial next summer. Whatever may be the upshot of Potato trials, there, at least, it is certain that everything is done to give all the same chance, and the quality of any variety is fully tested. *A. D.* [Reporters cannot possibly notice all the subjects presented to them, and they may be excused at a so-called Chrysanthemum Show for confining their attention to Chrysanthemums. ED.]

CAMELLIA-BUDS DROPPING.—I should not have ventured to add anything to the above subject, it having been discussed by far abler men than myself (with apparently no nearer approach to the solution of the difficulty). But with the remarks of Mr. Saunders (p. 732, vol. vi.) "that Camellias dropping their buds must necessarily be unhealthy," I must certainly disagree, as I herewith forward you ocular demonstration to the contrary, if the dark green and glossy foliage of the enclosed shoots of Camellias are criterions of health. That marked A is planted out, and drops its buds when they have attained the size of the one enclosed; side by side of these are fimbriata alba, alba plena, imbricata, Countess of Orkney, healthy, flowering freely, and dropping no bud. The others, marked B and C are from plants in pots, which were stood out-of-doors during the summer, and removed into Peach-house in September, and have dropped their buds. Others in pots, not so healthy in appearance, have retained theirs, and are expanding, and all of these had clusters of buds which were thinned so as to leave the terminal one. With Mr. Saunders' concluding remarks, so far as soil and treatment, I agree. But what does he deem is a proper situation? Would the back wall of an early vinery, started in February, be suitable? For here we have the walls about 14 feet high, clothed with Camellias, healthy, and full of buds, which have been especially useful since October. Temperate, even conditions of climate are most suitable for the Camellia, but these mentioned above have experienced the two extremes, the house being now thrown wide open during the day, and the only heat at night is that derived from the house next to it, by leaving the middle door open. As far as my experience goes, I believe that if once a Camellia is allowed to get dry after the buds are fully developed, dropping will surely follow, though it does not necessarily make the plant unhealthy. I believe the dense shade of the Vines overhead counteracts the effect of the high temperature. *W. H. Stephens.* [Shade is beneficial, Camellias in their native country being found as underwood in forests. ED.]

WINTER MOTH AND LAMPS.—I should be glad to know how Mr. Beach (see p. 755, December 28) proposes to catch the female winter moth on the shades he advocates I would rather catch one female than twenty males. *W. Horne.*

DOUBLE-FLOWERED LILACS.—Double-flowered Lilacs are not generally valued at their proper worth, or they would be more commonly planted. Double-flowered Syringas are not novelties, Syringa vulgaris, alba plena, and S. v. rubra plena, being long known in gardens, but they do not seem to have prospered. Recently, however, deserving new forms of Syringa have originated on the Continent, and have from time to time been introduced into this country. Probably few spring flowering shrubs give more gorgeous displays than the single varieties, and have such delightful fragrance; but it is urged that their bloom is too transitory, but in double-flowered varieties this objection does not hold good, the blooms being more lasting. The double flowers are larger than the single ones, and give even greater profusion. Furthermore, the single-flowered varieties produce masses of seed, vessels, which impoverish the plant when its energies should be employed in perfecting shoots with strong flower buds. New varieties of double-flowered Lilac already introduced number about a dozen, and the following are offered by the trade at the price of from 1*s.* 6*d.* to 2*s.* 6*d.* each: Syringa vulgaris f. p. hyacinthiflora; S. v. f. p. Lemoinei, pure white; S. v. f. p. Mathieu de Dombasle reddish mauve; S. v. f. p. renoncule, azure mauve; S. v. rubella plena; S. v. f. p. Michel Buchner, pale lilac, with rose margins. The following, being of more recent introduction, are higher priced: S. v. f. p. Madame Jules Finger, satiny rose; S. v. f. p. pyramidal, cœrulean rose; S. v. f. p. Le Gaulois, dark peach; S. v. f. p. President Grévy, violet crimson, grand variety; S. v. f. p. M. Maxime Cornu, rosy lilac, hose-in-hose; and S. v. f. p. Senateur Volland, rosy pink, buds, Fuchsia red. *William Earley.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

JAN. 8 AND 9.—The mid-winter exhibition of this Society was held on Wednesday and Thursday last in the Royal Aquarium, Westminster. The general character of the exhibits was an advance on the quality of last year's mid-winter show, but in some few instances the blooms left much to be desired.

For the prizes offered for a collection of cut Chrysanthemums (any varieties) in bunches, there were several lots shown. The 1st place being won by Mr. R. Owen, Floral Nurseries, Maidenhead, with brightly coloured flowers, of which the best were Sunbeam, Mrs. F. Thompson, Beauty of Castlewood, L. Canning, Golden Gem, Mrs. H. J. Jones, and Cythere.

In the 2nd prize collection, which came from Mr. J. Kipling, gr. to Lord Lytton, Knebworth, there was a very pretty blending of the colours of the flowers of Kæmpfer, Etoile du Nord, Duchess of Edinburgh, M. Freeman, Ralph Brocklebank, Mrs. H. J. Jones, and Comte de Beauregard. Mr. G. Bolas, Hopton Hall Gardens, Wirksworth, was a good 3rd, with smaller flowers, having A. Chantrier, Souvenir de Haarlem, Ed. Audiguier, Peter the Great, and Princess Beatrice.

The finest stand of twenty-four blooms, any varieties, was that of Mr. Brown, gr. to Mrs. Waterlow, Great Doods, Reigate, who had some really very pretty blooms, clear and fresh; Mrs. J. H. Jones, C. Sharman, Cythere, Mont Blanc, Sceptre, Toulousaine, Boule d'Or, and Sarnia. Mr. W. Gilbert, gr. to B. Le Neve Foster, Esq., Sennow Hall, Guist, Norfolk, was 2nd, showing Gloriosum and W. G. Drover in fine form. Mr. Kipling was 3rd with Princess of Teck, Progne, and Golden Gem as his best.

The same exhibitor was leading in the class for twenty-four Japanese blooms, having in this stand what were, perhaps, the best lot of blooms in the show. They were of large size and fresh. Mr. H. Cannell, Gloriosum, Mr. Freeman, striatum, Carew Underwood, and Val d'Andorre being conspicuous. A close 2nd was seen in Mr. Sullivan, gr. to D. B. Chapman, Esq., Downshire House, Roehampton—a neat-looking, fresh lot. D. B. Chapman, gloriosum, Mrs. H. Cannell, L'or de Japon, and Stanstead White being among those shown.

Mr. Brown had the best twelve varieties Japanese, in which Hamlet, C. Sharman, Sunflower, Belle Paule, and Meg Mer- riles were the best. Mr. Gilbert, who was awarded the second place, also had fair quality blooms in La Boule d'Or, gloriosum, Madame Audiguier, &c.

There was a considerable quantity of other plants and flowers shown. Cyclamen were very well shown by all exhibitors, Mr. Clarke, of Hounslow, receiving 1st, being followed by Mr. J. May, Twickenham; and M. D. Phillips, Slough, all running closely. In the class from which nurserymen were excluded, the last-named exhibitor was placed 1st.

Primulas were another feature, and Messrs. H. Cannell & Sons, Swanley, Kent, made a capital display of well-grown and flowered plants. One named Progress, rich carmine, large single flower, is worthy of note; White Perfection and Improved Emperor were also good.

Messrs. Cannell offered prizes for twelve plants of Primulas of their own raising; Mr. T. Mursell, gr. to Mrs. Burton, Streatham, being 1st, with rather overgrown plants. Mr. Carter, gr. to Alderman Evans, Ewell Grove, Ewell, Surrey, had a nice lot of twelve plants, and took 1st in another class.

Groups of miscellaneous plants were of no special merit, and in the competition a 2nd prize, only was awarded.

Collections, not for competition, were sent by Mr. W. Holmes, Frampton Park Nurseries, Hackney; Messrs. J. Laing & Sons, Forest Hill, S.E.; and Mr. J. G. Drain, Southgate, N.

A meeting of the committee was held on Wednesday, with Mr. R. Ballantine in the chair. There were but few subjects submitted, as was to be expected at this season of the year. Of new Chryasnthemums, the following varieties were shown:—Mrs. Waterer, a Japanese variety from America, ivory-white, with green centre—somewhat dull looking, rough, and late blooming; the committee desired to see this again earlier next season. This came from Mr. E. Becket, Aldenham House Gardens, Elstree. And Kioto, a bright golden incurved Japanese variety, much in the way of Mr. H. Cannell; a late variety was shown, and which the committee also wished to see again. This is another American variety, and was shown by Mr. R. Owen.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

THE ordinary monthly meeting of this Society was held on the 7th inst., in 5, St. Andrew Square, Edinburgh, Professor Bayley Balfour, President, in the chair. A paper, by Mr. F. W. Moore, Curator of the Royal Botanic Gardens, Dublin, on "Experiments with Manure in Orchid Culture," was read by Mr. D. P. Laird. In opening his paper, the writer alluded to the difficulties experienced in the cultivation of individual species in various families of plants. The great family of Orchids had its share of intractable species. In regard to Pleiones, with the culture of which the writer had formerly had some difficulty when using the generally prescribed compost for these Orchids, to which he added experimentally, dried cow-manure. The success was only partial, owing to the quickly decomposing nature of the material. Liquid manure was tried, and was found to be more effectual in improving the condition of his plants. A layer of ¾-inch bones placed over the drainage gave good results, but did not realise the grower's ideal of perfection. In succeeding experiments with Pleiones, the bones were intermixed with the compost and along with them a "pinch" of fish potash guano, which worked a great improvement on the plants, enlarging the leaves and the pseudobulbs greatly. A 12-inch pan of P. maculata so treated last year gave as many as 137 blooms. Calanthe masuca, Cœlogyne flaccida, Cypripedium barbatum, C. insigne, Dendrobium nobile, Dendrochilum filiforme were all experimented upon with the fish phosphate guano with excellent results in every case. The effect of the manure was most marked on the last-named plant, with which till using it the writer had but indifferent success. Specimens of the inflorescence of Dendrochilum Cobbianum, taken from two separate plants, one of which was treated with the fish potash and the other not so treated, were exhibited, that of the former measured nearly 12 inches in length, while the latter was barely 6 inches long. Other species experimented on with this manure were Luddemannia Pescatorei, Anguloa Ruckeri sanguinea, and others; Cymbidium elegans; Masdevallias, several species; Restrepia elegans, Houlettia Brocklehurstiana, Pleurothallis velaticaulis, Dendrobiums, several species, and species of many other genera, selected with the view of testing the result of its application on many diverse forms.

The conclusions arrived at by the writer were, that the manure was uniformly beneficial. The proportions used were not stated, but the quantity was always small. It was given in spring while potting or top-dressing the plants, and only once a year, and it had never been supplied in a liquid state.

Exhibited on the table were some very superior specimens of Blenheim Pippin Apple, sent from Mr. Barron, Old Meldrum, Aberdeenshire. The fruits were the produce of a tree fifty years old, and were characterised by Mr. M. Dunn as the finest sample of the kind he had seen of Scotch growth for many years. They were awarded a Cultural Certificate. Flowers of Rhododendron præcox were exhibited by Mr. Foote, Parson's Green. Mr. Rushton, gardener, Clerwood, Corstorphine, exhibited a very fine stand of Chrysanthemums of exhibition proportions and quality, which were awarded a Cultural Certificate. Messrs. R. B. Laird & Sons exhibited a very superior bloom of Chrysanthemum Lady Lawrence, which was much admired.

VARIORUM.

ENTELEA ARBORESCENS, R. BROWN. — This handsome plant forms a much- branched shrub or small tree, sometimes 25 feet high, with a trunk from 4 inches to 9 inches in diameter. The foliage and flowers are striking and attractive, presenting an appearance widely different from that of any other native plant. The young shoots and leaves beneath are covered with a fine white down, the leaves being of a soft deep green above, and in outline bearing some resemblance to those of the black Mulberry: they are sometimes 9 inches in length, including the petiole, which varies from 1 inch to 3 inches, and are furnished at the base with a pair of narrow stipules. The blade is drooping, produced into a rounded lobe on each side of the base, and is narrowed into a long point at the apex. It varies from 2 inches to 6 inches in breadth, and the margin is cut into a vast number of small irregular blunt teeth, or crenatures. The flowers are developed in panicles or cymes, on very long stalks, springing from the axils of the uppermost leaves: the branches of the inflorescence, the pedicels, and the narrow bracteoles are white with fine down. The large flowers are snowy-white; the petals present a wrinkled appearance, and the stamens are very numerous. The fruit is very singular, about three-quarters of an inch in diameter, and clothed with hard brittle spines, sometimes an inch long, so that it bears some resemblance to a small Spanish Chestnut. It is from five to seven-celled, each cell containing numerous seeds. *T. Kirk, in "Forest Flora of New Zealand."*

ROSE STATISTICS.

[IN connection with the recent Rose Conference at Chiswick, a series of questions was put to Rose growers in different parts of the kingdom. The replies to these questions have, with great labour and zeal, been summarised by the energetic Secretary of the Royal Horticultural Society, and are published in the last number of the Journal. From that periodical we extract the following summary. ED.]

BEST TWELVE H.P.'S FOR SHOW. — Although thorough-going rosarians will, as I remarked in a previous note, revel in the returns, to a great many humbler Rose-lovers and Rose-growers they will prove somewhat hard reading, and for such as are content to extract the honey at second-hand, I have drawn up the following lists, resulting generally from the statistical returns:—

LIST I.

The Best Twelve H P.'s for Show Blooms. (79 Voters.)

	Votes.		Votes
1. A. K. Williams	71	33. Abel Carrière	
2. La France	69	33. Dr. Andry	
3. Marie Baumann	65	33. Countess of Rosebery	
4. Alfred Colomb	61	33. General Jacqueminot	4
5. Charles Lefebvre	60	33. Mons. Noman	
5. Ulrich Brunner		33. Mme. Victor Verdier	
7. Gabriel Luizet	55	33. Senateur Vaisse	
8. Merveille de Lyon	48	40. Duchesse de Morny	
9. Baronne Rothschild	39	40. Marguerite de St. Amand	
10. Etienne Levet	37	40. Pride of Waltham	3
11. Louis van Houtte	36	40. Prince Arthur	
12. Duke of Edinburgh	27	40. Victor Hugo	
13. Marquise de Castellane	22	40. Victor Verdier	
14. Captain Christy	21	46. Annie Wood	
15. Lady Mary Fitzwilliam	20	46. Clara Cochet	
15. Mrs. John Laing		46. Comte de Raimbaud	
17. Horace Vernet	19	46. Duchesse de Vallombrosa	
18. François Michelon	18	46. John Hopper	2
19. Dupuy Jamain	15	46. Magna Charta	
20. Eugénie Verdier	12	46. Reynolds Hole	
20. Her Majesty		46. Violette Bouyer	
23. Heinrich Schultheis	10	46. Xavier Olibo	
24. Countess of Oxford	9	55. Elie Morel	
24. Duchess of Bedford		55. Mme. Hippolyte Jamain	
26. Prince Camille de Rohan	7	55. Eugene Furst	
27. Beauty of Waltham	6	55. Mme. Eugène Verdier	
27. Le Havre		55. Edouard Morren	
29. Camille Bernardin	5	55. Mons. Boncenne	
29. Earl of Dufferin		55. Glory of Cheshunt	1
29. E. Y. Teas		55. Duke of Teck	
29. Maurice Bernardin		55. Dr. Sewell	
		55. Star of Waltham	
		55. Countess Camondo	
		55. Princess Mary of Cambridge	
		55. Baronne Maynard	
		55. John Stuart Mill	

From this list it will at once be noticed that in selecting the best twelve Roses, seventy-nine growers have named no fewer than sixty-eight varieties; whilst at the same time the eleven best are very clearly notified, and Duke of Edinburgh makes a very fair fight for the remaining place in the best dozen. Newer sorts are manifestly at a disadvantage in such statistics as these, some growers possibly not having yet made trial of them; and from this point of view it is probable that, if the selection were repeated in a year or two's time, Mrs. J. Laing, Earl of Dufferin, and perhaps Victor Hugo and Clara Cochet, would stand relatively higher than they do at present.

THE NEXT BEST TWELVE H.P.'s.

Of these I have only given the names of those obtaining four or more votes, there being no less

than sixty-seven other varieties mentioned. Here it it is obvious that the higher ones in List I. will figure amongst the lower in List II., as they have already received almost as many votes as possible.

LIST II.

The Next Best Twelve H.P.'s for Show. (76 *Voters.*)

	Votes		Votes.
1. Dr. Andry ...	31	31. Senateur Vaisse ...	12
1. Eugènie Verdier ...		31. Countess of Rosebery ...	
3. Marquise de Castellane	27	31. Lady Mary Fitzwilliam	
4. François Michelon ...	25	34. Le Havre	10
5. Duke of Edinburgh ...	24	34. General Jacqueminot ...	
6. Camille Bernardin ...	23	34. Ulrich Brunner ...	
6. Dupuy Jamain ...		37. Marie Baumann ...	
8. Horace Vernet ...	22	37. Mons. Noman ...	
8. Countess of Oxford ...		37. Heinrich Schultheis	9
10. Louis van Houtte ...		37. Marguerite de St. Amand	
10. Duke of Wellington...		37. Abel Carrière ...	
10. Marie Verdier ...	20	42. Fisher Holmes ...	
10. Marie Rady		42. Victor Verdier ...	8
10. Baroness Rothschild...		42. Alfred Colomb ...	
15. Captain Christy ...	19	45. Charles Darwin ...	
15. Duchess of Bedford ...		45. Prince Camille ...	7
17. Maurice Bernardin ...		45. Mrs. J. Laing ...	
17. Merveille de Lyon ...	18	45. Magna Charta ...	
17. Etienne Levet		49. Violette Bouyer ...	
20. Prince Arthur... ...	17	49. Alphonse Soupert ...	6
21. Mme. Victor Verdier ...		49. Her Majesty	
21. Xavier Olibo	16	52. La France	
21. Reynolds Hole ...		52. Mdme. Eugène Verdier	5
24. Duchesse de Vallombrosa... ...	15	52. Comte de Raimbaud...	
24. Chas. Lefebvre ...		52. Magna Charta	
26. E. Y. Teas	14	56. Earl of Pembroke ...	
26. Beauty of Waltham ...		56. Victor Hugo	4
26. Gabriel Luizet ...		56. Rosenrute Jacobs ...	
29. Pride of Waltham ...	13	56. Mrs. Baker	
29. Star of Waltham ...		56. Duchess de Morny ...	
		56. Sultan of Zanzibar ...	

LIST III.

H.P.'s scoring Twenty or more Votes when Lists I. and II. are combined.

This list practically gives the opinion of the voters as to the best twenty-four H.P.'s for show purposes.

Charles Lefebvre...	60 + 15 = 75	Dupuy Jamain ...	15 + 23 = 38
La France... ...	64 + 5 = 74	Dr. Andry	14 + 31 = 45
Marie Baumann ...	65 + 9 = 74	Lady Mary Fitzwilliam	20 + 12 = 32
A. K. Williams ...	71 + 2 = 74	Marie Rady	12 + 20 = 32
Ulrich Brunner ...	60 + 10 = 70	Countess of Oxford	9 + 22 = 31
Alfred Colomb ...	61 + 8 = 69	Camille Bernardin	5 + 25 = 28
Gabriel Luizet ...	55 + 14 = 69	Duchess of Bedford	9 + 19 = 28
Merveille de Lyon	48 + 18 = 66	Mrs. J. Laing ...	20 + 7 = 27
Baroness Rothschild	39 + 20 = 59	Maurice Bernardin ...	5 + 18 = 23
Louis van Houtte...	36 + 20 = 56	Duke of Wellington ...	9 + 2 = 20
Etienne Levet ...	37 + 18 = 55	Marie Verdier ...	0 + 20 = 20
Duke of Edinburgh	27 + 24 = 51	Prince Arthur ...	3 + 17 = 20
Marquise de Castellane	22 + 27 = 49	Madame Victor Verdier	1 + 19 = 20
François Michelon	18 + 25 = 43	Beauty of Waltham	6 + 14 = 20
Eugènie Verdier ...	12 + 31 = 43		
Horace Vernet ...	19 + 22 = 41		
Captain Christy ...	21 + 19 = 40		

TWELVE MOST USEFUL H.P.'S AS CUT FLOWERS FOR DECORATION.

In this list I have omitted all receiving less than six votes, as their name was verily legion.

LIST IV.

Twelve Most Useful H.P.'s. (64 *Voters.*)

	Votes		Votes.
1. La France	53	22. Alfred Colomb ...	12
2. General Jacqueminot ...	36	23. Jules Margottin ...	11
3. Duke of Edinburgh ...	30	24. Duke of Wellington...	
4. Baroness Rothschild...	26	24. Duchess of Bedford ...	10
5. Fisher Holmes ...		24. Dr. Andry	
5. Gabriel Luizet ...	23	26. Prince Arthur ...	
5. Ulrich Brunner ...		26. Senateur Vaisse ...	9
8. Prince Camille ...	21	26. Duke of Connaught ...	
8. Boule de Neige ...		29. Hibrid Tyconnaise ...	8
10. Captain Christy ...	20	31. Earl of Pembroke ...	
10. Dupuy Jamain ...		31. Countess of Oxford ...	
12. Eugène Verdier ...	18	31. Maurice Bernardin ...	
13. A. K. Williams ...		31. Magna Charta	7
13. Heinrich Schultheis...	16	31. Duke of Teck	
13. Charles Lefebvre ...		31. Beauty of Waltham...	
16. Merveille de Lyon ...	15	38. Victor Verdier ...	6
16. Marie Baumann ...		38. Abel Carrière	
18. Marquise de Castellane	14	38. Camille de Bernardin ...	
19. John Hopper		38. Mrs. George Dickson ...	
19. Violette Bouyer ...	13		
19. Louis Van Houtte ...			

Here it will be noticed how *facile princeps* among useful Roses stands La France, the only wonder being that it did not receive the full number of sixty-four possible votes. In my own opinion, for cut Roses for house decoration La France is a perfect Saul, not only amongst H.P.'s, but amongst all Roses—a head and shoulders above all its brethren—and only approached by such as the Common Pink China Monthly Rose, Mrs. Bosanquet, Gloire de Dijon, and, if it had but a little scent, Souvenir de la Malmaison. And I cannot but think, if a little more stress had been put upon the word "useful," that Captain Christy, Charles Lefebvre, Marie Baumann, Marquise de Castellane, Alfred Colomb, Duke of Wellington, and certainly Earl of Pembroke, would have taken higher place than they do.

I have made no list of "Next Best H.P.'s for Cut Blooms," as there are comparatively few votes, and it would have had but slight influence (and that, perhaps, not quite a fair influence) in determining the position of the leading flowers, when combined with List IV.

With the "Garden Roses" I have not dealt at all, as the ideas of the voters as to what is meant by a "Garden Rose" seems to have been so very various that hardly any individual varieties have received any great preponderance of votes. I fancy Mr. Girdlestone's paper, on p. 194, will be of more use to the general reader than any list I could have compiled from the statistics. *W. Wilks, Sec. R.H.S.*

(To be continued.)

FOREIGN CORRESPONDENCE.

SAMBUCUS RACEMOSA.

This plant is indigenous in the higher parts of Belgium, about Spa and Stavelot, where it flourishes and fruits abundantly, much better than when cultivated in the low parts of the country. The best specimens are found on sunny slopes of schistaceous shingles. It is naturally perfectly hardy in such a very cold climate. In the lowlands we find it very useful for filling the not too dense first nine woods, where no other shrub would grow readily. There is a very similar species found in Yezo, North Japan, if not the same. *J. v. Volxem.*

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees. A "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or Below (—) the Mean for the week ending January 4.	Accumulated Temperature. Above 42° for the Week.	Accumulated Temperature. Below 42° for the Week.	Accumulated Temperature. Above 42°, difference from Mean since Jan. 1, 1890.	Accumulated Temperature. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths		Inch.		
1	3 +	12	23	+ 7	— 70	4 —	5	0.5	6	6
2	1 +	5	37	+ 1 —	4 2 —	3	0.5	7	7	
3	5 —	0	59	— 7 +	30 4 —	3	0.2	17	17	
4	7 —	0	78	— 10 +	48 3 —	3	0.2	21	21	
5	7 —	0	76	— 12 +	17 4 —	3	0.2	8	8	
6	5 —	0	50	— 13 +	32 4 —	2	0.3	23	23	
7	1 +	7	25	— 2 —	2 1 —	5	1.9	?	?	
8	3 —	1	39	— 10 +	16 1 —	4	0.7	18	18	
9	4	5	40	+ 15 +	30 5 —	3	0.6	21	21	
10	1 +	11	20	— 1 —	1 0 av.	5	0.8	23	23	
11	2 +	27	10	+ 4 —	1 2 +	5	1.1	20	20	
12	3 —	10	29	— 17 +	15 4 —	4	0.5	?	?	

The districts indicated by number in the first column are the following :—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending January 4, is furnished from the Meteorological Office :—

"The *weather* has been cloudy or dull generally in all parts of the kingdom. Over the greater part of England much fog or mist has prevailed. In Ireland and Scotland rain has fallen at rather frequent intervals, but the amounts were in most cases slight.

"The *temperature* has again been above the mean over Ireland and Scotland, but over England it has continued below; in 'England, N.E.,' and 'England, S.,' a deficit of 5° is shown, while in the 'Midland Counties' and 'England, E.,' there has been a deficit of 7°.

"The highest of the maxima, which were recorded on the 4th, varied from 46° in 'England, E.,' to 52° or 53° in most other districts. During the greater part of the period the daily maxima at many of the English stations were very little above the freezing point. At Bawtry, on the 3rd, the thermometer did not rise above 26. The lowest of the minima were registered during the earlier days of the week, and ranged from 18° in the 'Midland Counties,' and 19° in 'England, E.,' and to between 20° and 21° in the other English districts; in Scotland, they varied from 22° to 25°, and over Ireland, from 27° to 29°.

"The *rainfall* has been rather more than the mean in 'Ireland, S.,' and about equal to it in 'Ireland, N.,' but in all parts of Great Britain it has been less than the normal.

"*Bright sunshine* has again been very little prevalent, the percentage of the possible amount of duration having ranged from 6 in 'Scotland, N.,' 7 in 'Scotland, E.,' and 8 in the 'Midland Counties,' to 23 in 'England, S.,' and 'Ireland, N.'"

MARKETS.

COVENT GARDEN, January 9.

BUSINESS very dull, and prices of imported goods much lower. Grapes realising better values. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Evergreens, in var., per dozen ...	6 0–24 0
Aspidistra, doz. ...	18 0 42 0	Ferns, in var., per dozen ...	4 0–18 0
— specimen plants, each	7 6–10 6	Ficus elastica, each .	1 6– 7 0
Azaleas, various, each	2 6– 3 6	Foliage plants, various, each ...	2 0–10 0
Begonias, dozen ...	4 0–12 0	Hyacinths, p. doz ...	9 0–12 0
Christmas trees, doz.	4 0–24 0	Lily of the Valley, p. doz. pots ...	18 0–36 0
— extra size, each ...	5 0–21 0	Marguerites, doz. ...	6 0–12 0
Chrysanth , dozen ...	6 0–15 0	Palms in var., each	2 6–21 0
Cyclamen, dozen ...	15 0–24 0	Pelargoniums, scarlet, per dozen ...	6 0– 8 0
Cyperus, per dozen .	4 0–12 0	Roman Hyacinths, per dozen pots ...	9 0–12 0
Dracæna terminalis, per dozen	30 0–60 0	Solanums, per dozen	6 0–12 0
— viridis, per doz.	12 0–24 0	Tulips, doz. pots ...	8 0–10 0
Epiphyllum, per doz.	12 0–18 0		
Euonymus, in var., per dozen	6 0–18 0		
Ericas, various, doz.	8 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun. ...	2 0– 4 0	Narcissi, paper-white, French, doz. bun.	4 0– 8 0
Azaleas, doz. sprays	0 6– 1 6	— Eng., doz. sprays	1 0– 1 6
Bouvardias, per bun.	0 8– 1 0	Pelargoniums, 12 spr.	1 0– 2 0
Callas Ethiopian, 12 bl.	4 0– 8 0	— scarlet, 12 spr....	0 9– 1 6
Camellias, white, doz.	2 0– 4 0	Primulas, double, 12 sprays	1 0– 1 6
— various, per doz.	1 0– 2 0	Roman Hyacinths, Eng., doz. sprays..	0 9– 1 6
Carnations, 12 blms.	1 0– 2 0	Roses, Tea, per doz.	1 0– 3 0
Chrysanth., 12 bun.	4 0–12 0	— coloured, dozen.	2 0– 4 0
Chrysanth., 12 blms.	0 6– 3 0	— French, dozen ...	1 0– 2 0
Cyclamens, 12 blms.	0 4– 0 9	— red, per dozen ...	2 0– 3 0
Eucharis, per dozen	3 0– 5 0	— Safrano, dozen...	1 6– 2 6
Gardenias, 12 blooms	9 0–18 0	Spiræa, doz. sprays...	1 0– 1 6
Heliotropes, 12 spr.	0 6– 1 0	Stephanotis, 12 spr.	9 0–12 0
Lilac, white, Fr., bun.	6 0– 8 0	Tuberoses, 12 blms....	1 6– 2 0
Lilium, var., 12 bl....	2 0– 6 0	Tulips, doz. blooms...	1 0– 2 0
Lily of the Valley, doz. sprays ...	0 9– 1 6	Violets, 12 bun. ...	1 0– 2 0
Maiden Hair Fern, 12 bun.	4 0– 9 0	— French, bunch ...	1 6– 2 6
Mignonette, 12 bun.	2 0– 4 0	— Parma, bunch ...	4 6– 7 0
— French, per bun.	1 6– 2 0		
Marguerites, 12 bun.	3 0– 6 0		

ORCHID-BLOOM in variety.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Beans, French, lb. ...	0 9– ...	Mushrooms, punnet	1 6– ...
Beet, red, per dozen	1 0– 2 0	Onions, per bunch ...	0 5– ...
Carrots, per bunch...	0 6– ...	Parsley, per bunch...	0 6– ...
Cauliflowers, each ...	0 3– ...	Rhubarb, per bundle	0 6– ...
Celery, per bundle ...	1 6– 2 0	Seakale, punnet ...	2 6– ...
Cucumbers, each ...	1 0– 1 6	Shallots, per lb. ...	0 6– ...
Endive, per dozen ...	1 6– ...	Spinach, per bushel...	5 0– ...
Herbs, per bunch ...	0 4– ...	Sprue, per bundle ...	1 6– ...
Leeks, per bunch ...	0 3– ...	Brussel Sprouts, per lb.	0 3– ...
Lettuces, per dozen...	1 6– ...	Tomatos, per lb. ...	1 0– ...
Mustard and Cress, punnet	0 4– ...	Turnips, per bunch, new	0 5– ...

POTATOS: — Market firm. For best samples, 90s. to 100s.; medium, 60s. to 70s.; and ordinary to inferior, 40s. to 50s. per ton.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6-	7 0	Lemons, per case	12 0-	20 0
— Nova Scotia, brl.	12 0-	25 0	Pine-apples, Eng., lb.	1 0-	1 6
Cobs, per 100 lb.	140 0-	...	— St. Michael, each	2 0-	6 0
Grapes, per lb.	2 0-	4 0			

SEEDS.

LONDON: *Jan.* 8.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market ill attended, with almost a complete absence of business. Cloverseed of all kinds is still neglected, the great majority of the home-grown samples showing are of poor quality. In Rye-grasses there are but few transactions passing. Blue Peas keep steady. Rape seed is scarce, and still tends upwards. For Mustard values are firm. Bird seeds continue remarkably cheap.

CORN.

Averages.—Official statement of the prices of British corn, imperial measure (quarter) for the week ending January 4:—Wheat, 30*s.*; Barley, 30*s.* 5*d.*; Oats, 18*s.* 3*d.* For the corresponding period last year:—Wheat, 30*s.* 4*d.*; Barley, 26*s.* 9*d.*; Oats, 16*s.* 6*d.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *Jan.* 8. — Quotations: Savoys, 1*s.* 6*d.* to 3*s.* per tally; Cabbages, 1*s.* to 2*s.* do.; Cauliflowers, 7*s.* to 12*s.* do.; Sprouts, 9*d.* to 1*s.* 3*d.* per half-sieve; Turnip-tops, 1*s.* to 1*s.* 3*d.* per sack; Greens, 1*s.* 6*d.* to 2*s.* per dozen bunches; Turnips, 2*s.* to 3*s.* do.; Carrots, 18*s.* to 28*s.* per ton; Parsley, 1*s.* 6*d.* to 2*s.* per dozen bunches; Beetroots, 3*d.* to 4*d.* per dozen; Parsnips, 4*d.* to 6*d.* per score; Sea-kale, 1*s.* to 1*s.* 6*d.* per punnet; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Curley Kale, 1*s.* per bushel; Cabbage Lettuce, 1*s.* 6*d.* to 2*s.* per dozen; Mustard and Cress, 1*s.* to 1*s.* 6*d.* per dozen baskets; Celery, 4*d.* to 9*d.* per bundle; Horseradish, 1*s.* to 1*s.* 4*d.* do.; Spanish Onions, 6*s.* to 7*s.* per case; English do., 8*s.* per cwt.; Bordeaux do., 4*s.* 9*d.* to 5*s.* 3*d.* per case; Dutch do., 4*s.* 9*d.* to 5*s.* 3*d.* per bag of 110 lbs.; Belgian do., 4*s.* 9*d.* to 5*s.* 3*d.* do.; English Apples, 3*s.* 6*d.* to 6*s.* per bushel; American do., 13*s.* to 20*s.* per barrel.

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 7. — Quotations:—Regents, 40*s.* to 85*s.*; Hebrons, 45*s.* to 105*s.*; Magnums, 45*s.* to 90*s.*; Imperators, 40*s.* to 70*s.* per ton.

STRATFORD: *Jan.* 8.—Quotations:—Regents, 60*s.* to 70*s.*; Hebrons, 60*s.* to 80*s.*; Magnums, 55*s.* to 65*s.*; Imperators, 55*s.* to 70*s.* per ton.

SPITALFIELDS: *Jan.* 8.—Quotations: Early Rose, 40*s.* to 50*s.*; Hebrons, 50*s.* to 65*s.*; Imperators, 50*s.* to 60*s.*; Regents, 50*s.* to 65*s.*; Magnums, 45*s.* to 60*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the preceding week:—Prime Clover, 76*s.* to 98*s.*; inferior, 46*s.* to 75*s.*; Hay, best, 60*s.* to 92*s.*; inferior, 26*s.* to 50*s.*; and Straw, 28*s.* to 40*s.* per load.

NOTICES TO CORRESPONDENTS.

CATTLEYA CITRINA, STANHOPEAS, &C.: *D. C. D.* Employ blocks for the first, and baskets for the others; but if you have a great number of Cattleya citrina, these might be put thinly in baskets also. The interstices at the bottom should be numerous, and large enough to afford an easy egress for the flower-spikes.

CORRECTION: CATTLEYA GIGAS RANDERIANA.—I find that seven flowers is the most we have had on a spike of Cattleya gigas Randeriana, and not eight, as stated in my note at p. 716 of the last volume of the *Gardeners' Chronicle*, an error I hasten to correct. *S. Cooke, Rosefield, Sevenoaks.*

EUCALYPTUS: *N.* The first species described was E. obliqua. L'Heritier, a French botanist, described the species from a specimen he saw in cultivation at Kew in 1788. It is a native of New South Wales, Victoria, South Australia, and Tasmania, and is useful for its timber, while the bark is suitable for paper-making. See Mueller's *Eucalyptographia.*

FRUIT TREES: *F. Morris.* The foliage has been most probably stripped, and crop destroyed by the grubs of the winter moth in previous years. You must protect the trees by bands of brown paper smeared with cart-grease, the smearing being done several times between October 1 and end of January. Spraying in summer time with some of the arsenical mixtures in vogue will do much good, of course, it being washed off the trees before gathering the fruit. A useful implement for destroying the moths nests, which are fixed in the twigs, is a small torch or lamp to be used at this season.

GIGANTIC FLOWER IN THE PHILIPPINES: *H. G.* This time the story is correct. The plant is Rafflesia Schadenbergiana, figured in the *Gartenflora* for 1885. The colour is yellow and brown.

INSECTS: *G. Y.* Your Daffodil bulbs are attacked by the larvæ of a bee-like two-winged fly (Merodon Narcissi), described and figured by "Ruricola" in the *Gardeners' Chronicle*, 1842, p. 204. *I. O. W.*

LILAC FOR WINTER: *Hortus.* The Persian Lilac is mostly grown. It is forced in the dark, and is scentless. It is still called French Lilac, although it is not now solely French forced.

LONDON PURPLE AND PARIS GREEN: *R.* We believe both are preparations of arsenite of copper. The term London purple does not appear to be known in this country, but Paris green is known as "emerald green," and is a compound of arsenite and acetate of copper.

PLANTING HOLLIES: *G. H.* Undoubtedly the best time is in August and September, and the next, late in April and beginning of May. Always get as much soil and roots as possible; water the mass when the hole is half-filled, and again finally when the filling in is done—afterwards put on a mulch.

MEALYBUG ON VINES: *Young Scot.* Many different substances will kill the insect, but the difficulty with all is to get the remedy in contact with it. There are clay and gas-tar, brine, methylated spirits, Gishurst soap, at the rate of 4 oz. to the gallon, as a wash, afterwards coating the stems with an adhesive mixture of clay, cowdung, &c., to smother any insects which remain hidden in the crevices of the bark. This last "remedy" is one of the best; but the insect hides in the woodwork, brickwork, hot-water pipes, joints, and uppercrust of the border, and means must be taken to clear it out of these retreats, by painting sashes, shelves, rafters, staging, puttying up crevices, or washing woodwork and walls with carbolic soap, afterwards limewashing the latter. The surface soil should be carefully skimmed off and charred, new soil being brought in as a top-dressing. Keep a bottle of methylated spirits handy for summer use; it is sure to be required.

MISTLETO: *A. Y.* There is no certain method of getting this parasitic plant to take to any kind of tree. There is no doubt that seeds which have been eaten by birds, and expelled undigested, do become fixed on the branches of the Apple, Sallow, Aspen, Thorn, Maple, &c., and develop into plants; but artificial attachment is not often successful, however apparently careful it may be performed. The warmth of the bird's body, and perhaps the action of the juices of its stomach may have an effect on the ripe seed of the Mistleto in aiding germination after it is stuck on a branch. Mistleto is usually found to spring from the under-side of a branch, a spot where it is shaded from the sun, and kept moister by dew and rain, both of which run round the branch, and maintain it in a wet state longer than is the case with the upper portions. Obtain ripe seeds, clean them in warm water, make a hole or slit in the bark on the under side of a branch, insert the seed, and secure it by a piece of thread. By passing the seeds through the stomachs of fowls in confinement better results might be obtained.

NAMES OF FRUIT: *W. Compton.* Pear Beurré Diel.—*E. J. J. & Co:* Apple Gloria Mundi.

PERIODICALS: *G. M.* No such an one exists as *Land and Labour. Forest Flora of New Zealand*, 1 vol.; price not known to us. It is published at the expense of the New Zealand Government.

PLANTING: *G. W.* On the lawn a few well-grown solitary Conifers would be more effective, if the sites for them are well chosen, than fifty spotted over the grass. Groups of two or three closely planted, if of one species, look well. All these "spiky" trees should have foils from deciduous round-headed trees, and especially weeping trees in their neighbourhood. If many Conifers are planted about the garden, a gloomy effect will be given it in a few years. Plant more flowering trees and shrubs and deciduous trees of varied form, colour, and height and density of habit. Above all, if the soil be suitable, plant American Oaks in variety, Catalpas, Tulip tree, Sophora japonica and S. pendula, Celtis occidentalis, Pyrus, Sorbus, Gleditschias, Ailanthus, Gymnocladus canadensis, Planes, Tilia in variety, especially T. americana alba; Juglans americana nigra and J. a. cinerea, native trees being used as nurses, and in less dressed parts of the place, and for avenues, park groups. There is nothing to beat our Elms, Chestnuts, Oaks, common Lime, Beech, Maple, Birch, always much of this; a few Willows and Aspens—they make grand trees in a few years; and Alder, the latter being kept to one stem sometimes. You will get the best effects by keeping one genus of trees by itself, or nearly so; and surprises in landscape formed by enclosing certain areas by dense belts, and to be seen only on entering them, are more pleasing than what one sees all over a place, from, say, the platform round the mansion or a spot or two in the grounds.

TERMS OF AGREEMENT: *S. H. G.* You seem to have been cheated, but we do not think you can claim anything, or if you made the attempt to do so, that it would be worth your while.

NAMES OF PLANTS: *O. S. (Holland).* The envelope was duly received, but it contained no plant.—*T. M.* Saxifraga sarmentosa.—*G. R. T.* Barkeria elegans, a fine form. The type is given at fig. 11.—*F. Briggs.* 1, Adiantum hispidulum; 2, Peperomia argyrea; 3, Maranta bicolor; 4, Agapanthus minor variegatus; 5, Selaginella Wildenovi; 6, Aspidium falcatum.—*Wm. T. & S.* The flower sent appears to be almost the same as that illustrated in our issue for Feb. 26, 1887, p. 280, as Lælia anceps var. stella, but it may be the L. Schroderi of Reichenbach.—*R. H.* A good form of Cypripedium venustum.—*W. P.* Eupatorium gracile.—*Camjee.* 1, Odontoglossum Lindleyanum; 2, O. lanceans (poor form).—*G. A., Ventnor.* Ansellia africana lutea.—*D. K.* What you send is not a Lemon, but one of the cultivated Oranges, a variety of Citrus aurantium.



FIG. 11.—BARKERIA ELEGANS.

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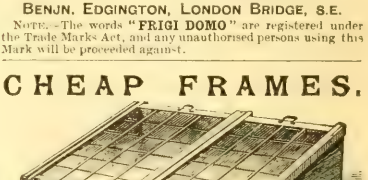
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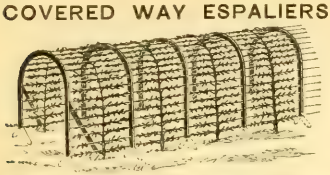
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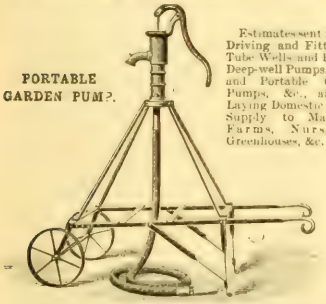
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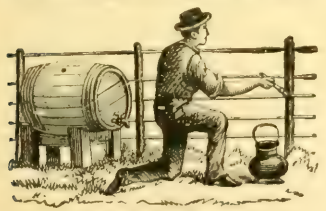
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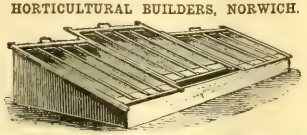
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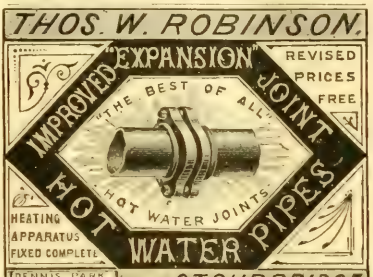
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4 ,, ,,	... 16 ft. by 6 ft.	CARRIAGE AND		5	10	0
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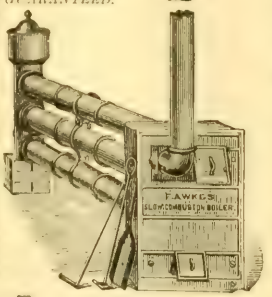
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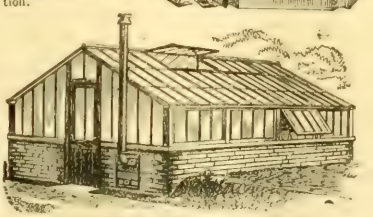
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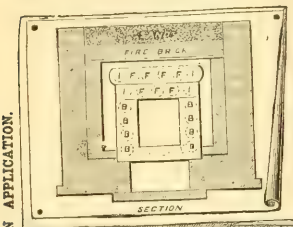
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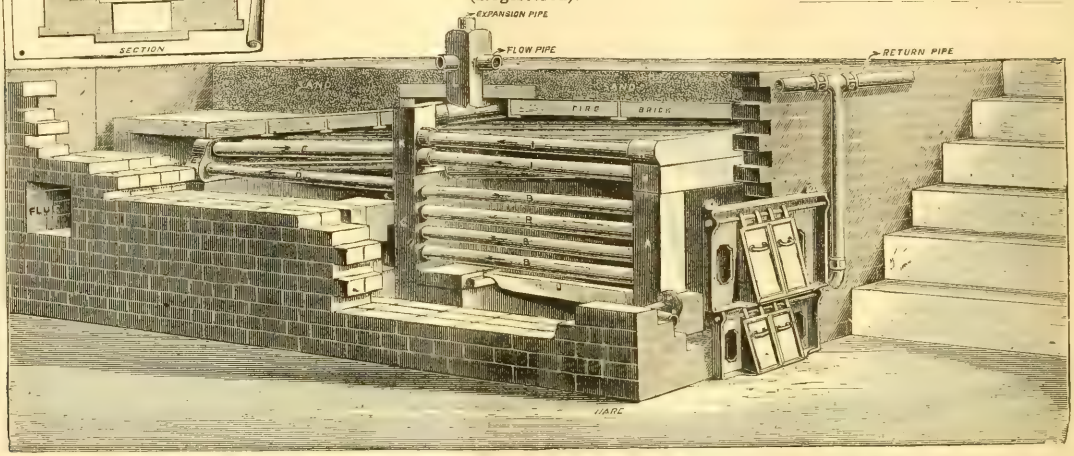


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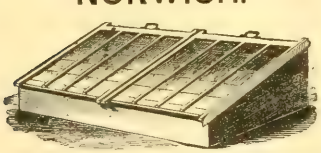
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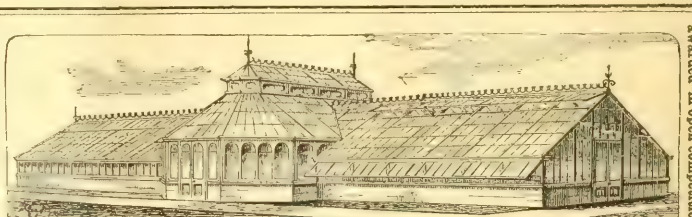
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To the Trade.
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SALES BY AUCTION.

Monday Next.

DUTCH BULBS, consisting of HYACINTHS, TULIPS, CROCUS, and NARCISSUS, including a large quantity of named TULIPS, about 300 lots of various English-grown LILIES, and Hardy BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 20, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

10,000 LILIUM AURATUM.

50 cases various assorted LILIES, just received from Japan, all in magnificent condition.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, January 22, at half-past 12 o'Clock precisely, 10,000 splendid Bulbs of LILIUM, a quantity of LILIUM MACRANTHUM RUBRUM and ALBUM. Also 50 cases of assorted LILIES, just received from Japan; a large number of various English-grown LILIES, hardy BULBS, TUBEROSES, 100 CAMELLIAS from Belgium, Dwarf ROSES, and a choice assortment of Stove and Greenhouse FERNS, PALMS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

NURSERY STOCK FROM SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, January 23, at half-past 12 o'Clock precisely, the following quantities of NURSERY STOCK from Sample:—

500 Primulas, double white	600 Carnations, Pinks, and
500 Adiantum cuneatum	Clove
600 Dwarf and Half-Standard Roses	4,000 Azaleas
	2,000 Gooseberries, fine sorts
1,500 Rhododendrons	500 Golden Euonymus
300 Hollies, Gold, Silver and Green	5,000 Berberis
	4,000 Laurels
1,000 Box	500 Retinospora
1,000 Common Laurels	6,000 Cupressus, 6 sorts
5,000 Lonicerus, 6 sorts	400 Pampas Grass
20,000 Ash	1,000 Ericas

Strawberries, &c.

Samples will be on view morning of Sale. Catalogues of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ODONTOGLOSSUM POLYXANTHUM.
NANODES MEDUSÆ.
MAXILLARIA SANDERIANA.
EPIDENDRUM SYRINGOTHYRSUS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, and 191, Park Road, Clapham, to SELL by AUCTION on FRIDAY NEXT, January 24, at half-past 12 o'Clock precisely, an extremely valuable consignment of ORCHIDS, consisting of Nanodes Medusæ, the beautiful Maxillaria Sanderiana, Odontoglossum polyxanthum, the large flowering type; Epidendrum syringothyrsus, Oncidium lamelligerum, O. Halli, a few specimen plants of Oncidium macranthum, &c. All the Orchids offered are in the best possible health and condition, and they are the finest lot ever imported. It is impossible to enumerate within the limits of an ordinary advertisement the size and condition of such a valuable importation. The special attention of intending purchasers is drawn to the fact that all the plants offered are not freshly imported, but have been in this country for some time, and are therefore quite ready to be potted without any fear of loss.

On view morning of Sale, and Catalogues had.

Friday Next.

ANGRÆCUM PALLIDUM.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, about 100 specimen plants of the above scarce Angræcum. The plants are in splendid condition, having been brought home under the permanent care of the collector.

On view morning of Sale, and Catalogues had.

Mount View, Sheffield.

Sale of the First Portion of the VALUABLE COLLECTION of upwards of 1600 ESTABLISHED ORCHIDS formed by the late David Ward, Esq., J.P. The plants are in the best possible condition. The collection is one of the finest in the district, and includes Specimens from several well-known Collections.

MESSRS. WILLIAM BUSH AND SON, respectfully give notice that they are favoured with instructions from the executors to SELL by AUCTION on the Premises as above, on WEDNESDAY and THURSDAY, January 22 and 23, 1890, at 11 A.M. precisely each day, the First Portion of the ABOVE VALUABLE COLLECTION, comprising 500 lots in Bloom and Bud.

For further particulars, see Catalogues. May be viewed (by order from the Auctioneers) six days preceding Sale, from 11 to 3 each day. Auctioneers' Offices and Sale Rooms, 2 and 3, East Parade, Sheffield.

N.B.—The SECOND PORTION of the COLLECTION WILL BE SOLD about the FIRST WEEK in MARCH; and the THIRD and LAST PORTION in MAY.

Wednesday and Saturday next

1000 Standard and Dwarf ROSES, including some of the best known varieties, Pyramid and Dwarf-trained FRUIT TREES, a fine collection of Home-grown LILIES, LILIUM AURATUM from Japan, 1000 LILY of the VALLEY Crowns, EVERGREENS, CONIFERS, and other Ornamental SHRUBS, HYACINTHS, TULIPS, CROCUSES, and other BULBS, &c.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY and SATURDAY NEXT, January 22 and 25, at half-past 12 o'Clock precisely.

On view mornings of Sale, and Catalogues had.

Thursday Next, January 23.

ENORMOUS IMPORTATIONS FROM JAPAN.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 23, at half-past 12 o'Clock precisely, enormous Importations, just received from Japan, comprising 30,000 Grand Bulbs of LILIUM AURATUM (a large number in cases as received), lotted for private Buyers and the Trade. Also L. SPECIOSUM ALBUM and RUBRUM, L. KRAMERI, L. LONGIFLORUM, L. FOLIS ALBIS MARGINATIS, &c.; 10,000 LILY OF THE VALLEY Crowns, 200 extra fine Bulbs of LILIUM HARRISII, 50 lots of choice DAFFODILS, Dutch BULBS in quantity, &c.

On view morning of Sale, and Catalogues had.

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LAURELS, Caucasica, 2 to 3 feet.
,, ROTUNDIFOLIA, 1½ to 2, and 2 to 3 feet.
,, Portugal, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
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MESSRS. DICKSON beg leave to intimate that their CATALOGUE (No. 370) of VEGETABLE and FLOWER SEEDS has been Posted to their Customers. If not received, Messrs. Dickson will be pleased to send another Copy. Their newly issued LIST of

HERBACEOUS PLANTS

will also be sent Gratis and Post-free on application.
ROYAL NURSERIES AND SEED ESTABLISHMENT, CHESTER.

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25, Old Jewry, E.C. F. C. GOODCHILD, Secretary.

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ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.

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CARNATION, GLOIRE DE NANCY.—We are sending out our own strain, the grandest white, clove-scented flower in cultivation; flowers from 6 to 9 inches round; for cutting, border, or conservatory decorations, it has no equal; good strong rooted layers, ready to pot up or plant out, 30*s.* for 100, 15*s.* for 50, 8*s.* for 25. We have also a grand lot of the true OLD RED CLOVE layers (we never had better) at 20*s.* for 100, 10*s.* for 50, 6*s.* for 25; also a fine lot of the COUNTESS, bright terra-cotta, and ROSY MORN, striped pink, at 20*s.* for 100. And a grand lot of double white PRIMULA, in 5-inch pots, in flower and bud, at 10*s.* per doz.—COLLINS AND SONS, Cumberland Park Nurseries, Willesden Junction, W.

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THE
Gardeners' Chronicle.
SATURDAY, JANUARY 18, 1890.

A GARDENERS' PROBLEM.

I THINK you could hardly have commenced the new year with a more important subject for discussion than that raised by Mr. Thiselton Dyer. For my own part I think that though a great deal of what he says is perfectly true, yet that such opinions, coming from such a source, are likely to do much more harm than good to the gardeners, who would naturally look for inspiration to the Director of the largest, the best cultivated, and the most liberally conducted botanic gardens in the world. It seems to me that a knowledge of the climatic conditions under which plants grow is of the greatest assistance in guiding the cultivator of any new or little known plant; and though it is too often the case that from imperfect knowledge of the locality and range of the plant, or of the climate of that locality during the whole year, such information leads to mistakes, which are corrected by the empirical knowledge of other cultivators ignorant of these facts, yet this seems to prove only that a little knowledge is a dangerous thing. Mr. Dyer says, "We grow Pleiones pretty successfully at Kew, yet we have Sir J. Hooker's testimony to the fact that our treatment is widely different from anything that the plants receive in the Himalayas." On this point I think further detail is necessary, because I have seen Pleiones at all seasons, both on the Himalayas and at Kew, and I cannot follow him. He goes on to say, "The real fact is, that the plant as it occurs in nature, tells us but little of its innate qualities. These it may, unaided, never be able to take advantage of, and they can only be revealed by experiment. The *constitution* of the individual species, I am disposed to consider singularly inelastic, and bounded by limits which are not readily broken down when reached. But it is evident in a state of nature they are very frequently not reached." I am

very glad to see that he makes use of the word "constitution," as applied to plants, because I have always contended that the word constitution may be applied with just as much propriety, and in exactly the same sense to plants, as it is applied to animals or men.

Professor Huxley, in a paper on the Gentians, published in the *Journal of the Linnean Society* in 1888, vol. xxiv., Botany, p. 123, says,—"We are very much in the habit of tacitly assuming that because certain plants and certain animals exist under certain climatal conditions, there is something in what we vaguely call the constitution of the plants or animals which binds them to these conditions, and renders it impossible for them to live elsewhere. I wish we could get rid of this word constitution, for I take it to be one of the many verbal anodynes by which the discomfort of ignorance is dulled. If it means anything definite, it means that there is some morphological or physiological impediment to the existence of the plant or animal outside the defined conditions, and our business is to find out what that impediment is."

At the time I read this remarkable sentence, I discussed it with three of the most eminent botanists and travellers whom I know—namely, Sir Joseph Hooker, the late Professor A. Gray, and Professor Sargent, of Boston, U. S. A., and found that they all agreed with me that no other word was so well suited as the word "constitution" to express the fact stated by Professor Huxley, and that it would be as difficult to find out what the impediment was, as it is for physicians to find out what is the reason why some members of a family, some families of a nation, and some nations of the human race are born with constitutions which enable them to resist, or to thrive under conditions which destroy or weaken other individuals, families, or races, not gifted by Nature with the same constitutions. As Mr. Dyer makes use of the word in the same sense as I do, I presume that he would not agree with Professor Huxley; but to say that the constitution of individual species generally is singularly inelastic, is to say what neither my horticultural experience nor my observations in other countries will allow me to concur in, the constitutions of many species being, I think, as elastic as those of many animals or men.

Mr. Dyer quotes the remarks of John Smith [primus], as follows:—"In our experience we have never found any plant thrive by retaining it in its native soil, or in soil too closely resembling it." Here is another half truth which I think would be most detrimental to horticulture if generally accepted and acted upon. I will give two instances to the contrary. I was informed by the late Mr. Leech, of Wandsworth, who was, I believe, the first, or one of the first, to cultivate successfully Disa grandiflora, that he had never succeeded with it until he grew it in the same black sandy peat as that in which it was imported, and until he imitated as nearly as possible, by placing it in an airy position and constantly syringing it, the damp atmosphere of the ravines in which it grows on its native Table Mountain. As long as he tried to grow it under the same conditions as other Cape bulbs and orchids which grow only a few miles away from the same spot, he utterly failed. I have never been able to grow Cypripedium spectabile and other N. American Orchids nearly so well as when I received them direct from Mr. Pringle, of Vermont, in large masses of their native decaying wood and sphagnum, and imitated as closely as possible the exact conditions under which they grow naturally. I distinctly remember handing over to the late Charles Green—who must be allowed to have been one of the most successful cultivators of difficult plants in England—some of the strongest specimens of these Orchids to grow as best he could by empirical knowledge, the result being that his plants flowered weakly and soon died, whilst mine remained, until their constitution was enfeebled by English summers, in a flourishing condition.

What gardeners have been too often compelled to put up with are at best imperfect, misleading, or incorrect accounts of the conditions under which plants grow naturally; and unsuccessful attempts to imitate natural conditions which cannot be imitated have no doubt led to many failures, and have caused skilful cultivators to rely rather on their empirical knowledge than on such information as they get from unscientific and inaccurate collectors or residents in foreign countries.

But I will maintain that, in this particular point of cultivation, the most success will be gained by a combination of botanical or scientific, and horticultural or practical knowledge. When I speak of botanical knowledge, I speak perhaps of something different from what is now in fashion, for it seems to me that the subordination of a knowledge of geographical distribution, variation, and systematic work, to a knowledge of physiological botany, which appears to be the tendency of modern botanical teachers; is calculated to disgust rather than to attract would-be students; and to check rather than to advance the spread of the most useful kind of botanical knowledge among gardeners. It may be possible for men like Professor Huxley or Mr. Dyer to study with advantage the morphological or physiological reasons for the existence of plants under certain conditions only, but I do not think it is possible for the working gardener, or even the botanical student of ordinary ability to do so. A really accurate knowledge of the climatal conditions and physical geography of all parts of the world, and of the distribution of families, genera, and species is much more easy to acquire and to apply, than a knowledge of the physiology and structure of plants; and is, when properly applied, likely to be of the greatest value to the gardener, not only in the mere details of cultivation, but by giving him a much greater interest in, and love of, the plants he grows. In conclusion, I can only hope that this subject may be discussed by gardeners who have travelled, as well as by those who have stayed at home. *H. J. Elwes, Preston, Cirencester.*

I have read Mr. Dyer's two very able papers on plant culture and the relations of botany to gardening with great interest, and in thanking him as a gardener for his observations, I should like to add a few words on a subject in which so many amateurs, as well as practical gardeners are now interested. Were I quite sure of the exact meaning of the words and phrases as used by Mr. Dyer, I feel certain we should be in entire unison on this subject. Mr. Dyer may be partly in the right when he tells us that—"Horticulture is essentially an empirical art," but is it true that—"Botanical science can afford but little *à priori* information as to the cultural conditions which any plant will require or will tolerate?" True in part it is undoubtedly, but that it is not wholly true will be acknowledged by any one who has studied, or will study, Lindley's *Theory and Practice of Horticulture*, a work nowadays obsolete in many matters of detail, no doubt, but one in which the very first principles of gardening are enshrined. I fully grant that, while gardening may be to some extent empirical, it has been aided most materially by botanical science, and is being aided by workers in almost all the other so-called natural sciences to-day. In a word, I think the Editor of the *Gardeners' Chronicle* was fully justified in considering Mr. Dyer's statements above given as being "too absolute." Granted that the gardener's art is empirical, and granted that he feels his way as described (on p. 16), in what way does the gardeners' problem differ from that of a doctor on a foreign shore who has to treat a sick native, when neither doctor nor native can understand a word of each other's conversation? Experience of similar or analogous cases is all that either doctor or gardener can fall back upon after all. As to the culture of Trichomanes of the T. crispum group, if their hairy rhizomes are covered up or buried in any earth whatever, they rarely do so well as if their rhizomes are placed on the surface of the soil and held in position by lumps of soft sandstone, so that I do not wonder at Mr. Backhouse's Trichomanes failing when planted in "an almost clay soil." Again, there is that well-known habit of the roots of Cattleyas and other Orchids which so often, even if not invariably, decay if replanted deeply in fresh compost, but which live and thrive if the fresh compost is placed so that the new roots naturally thrust themselves into it when they protrude from the base of their new growth. When we are told that "Nature is, at the best, a very poor gardener," we must remember, or at least not forget, that, as a rule, she carries matters far past the point at which the gardener stays his hand. Nature's main point and strong point, where she is most successful, is reproduction by seeds. She fights a hard battle, and on her own lines has to do far more than the cultivator is generally called upon to do. How often it occurs in the garden that the vegetative organs of the plants cultivated are those all essential to the gardener or his employer? How rarely in the case of hothouse plants, indeed, of garden plants generally, the complete cycle of a plant's existence as a sexual creation is fulfilled? In Nature, nearly all plants must either seed or die. They often must do many other things besides, but seeding is the most essential charter on which their existence is irrevocably staked. My own experience of Phalænopsis and other tropical Orchids is practically this: Their flowers are rarely, if ever, seen wild, so beautiful, so perfect, so floriferous as seen in British hothouses. But this does not imply that the plants are less robust and healthy, since the contrary is decidedly the case. The flowering Orchid of a tropical forest is buffeted by drenching rains or rude winds, and the native insects visit and fertilise a large proportion of their flowers as soon as ever they are perfectly developed, so that they often present a woebegone and bedraggled appearance to the eye of a glass-house cultivator. In the Orchid-house at home there is no wind, no rain, no fertilising insect, and every bloom on the spikes opens pure and spotless, and endures fresh and lovely for a long time in expectation of that little winged messenger of love, the fertilising insect that rarely or never comes! The Kew Pleiones, good as they were from a vegetative, or gardener's point of sight, and in this way surpassing native specimens, no doubt, failed at a point where Nature is most exacting. They did not seed at Kew as they do on the mossy tree trunks or rocks of the Himalayas! In a word, I so far agree that cultivation and Nature do sometimes deal with problems which have scarcely anything in common. As to the power of toleration or adaptation to climate possessed by plants, we know how small it often really is, and have only to remember the many failures that have attempted what has been mis-called acclimatisation. But if a plant is hardy enough to seed in the open air when brought to these islands, we may generally expect some of the seedlings to be hardier than their parent, just as some of them will or may be hardier than others, and so some progress in a given direction is often gained. Experience, observation, cross-fertilisation, and selection, have long since, and can after all, do wonders in the garden, "empirical" as such operations may be! Seeing the results attained by such empirical gardeners as Dominy, Court, Seden, Laxton, Kelway, Cannell, Laing, Swan, and many others, I think we may fairly take Mr. Dyer's advice, and "not be deterred by botanical prepossessions." The propagator who successfully grafted the Garrya on to the shoots of the Aucuba, evidently was not troubled by any botanical considerations of the kind referred to, and the same might be said of the raisers of the so-called bigeneric Orchids and other plants now in existence. I am anxious to mention these so-called bigeneric hybrids, because they show that inelastic as such genera may be in nature they are less so in the cultivators' hands. Of course the cultivator can never create, he can merely give plants in a garden more variety—more

chances of development, than they have had in the forest or the field. I cannot agree that the constitutions of individual species are singularly inelastic, since we know that even in Nature they often overstep their bounds, a fact the botanist disguises by giving different specific names to groups of individuals which biologically are merely developments or phases of the same plant. Wide as may be the meaning of the word "species" as used by the lumpers of to-day, it will assume a much more comprehensive character if read by the light of a biological lamp lit in a good experimental garden. Instinct is after all a great gift; and one of almost prophetic importance, in those gardeners who, like some poets "are born" and "not made." I mean men like Knight, the late Dean Herbert, and many others who, like Darwin, were fond of experimenting with the living forces of Nature in the garden. After reading Mr. Dyer's two papers with great delight, I must say the moral to be drawn from them is a good one, and one that will recommend itself to all gardeners, instinctive, "empirical," or otherwise. It is this: If botanical science cannot assist the gardener as to the *à priori* cultural conditions necessary for him to employ in particular case or cases, it seems quite natural that the gardeners should be left to carry on their own work in their own way! Personally, I have received much assistance from botanists of all grades, and from the published works of Lindley, Masters, Moore, Knight, Herbert, not to mention many others all men of the *jardinier botaniste* type, even if not botanists proper; and I do not like the idea of kicking down the ladder up which I have climbed. In conclusion, I feel sure I am right in saying that all the more intelligent of gardeners will always welcome the brightest and best of light and leading, come from whom or whence it may. *F. W. Burbidge.*

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM BUCHANANIANUM ×.

Hort. Measures.

THIS is a hybrid raised in the collection of R. H. Measures, Esq., of Streatham, from C. Druryi, crossed with C. Spicerianum, and of which a flower and leaf have just been received at Kew. I am not aware that its characters have been before placed on record. The upper sepal is very broadly orbicular, the colours white, suffused with light yellow, a few purple splashes near the base, and a narrow dark purple median band. Petals light yellowish-grey, the upper margin undulate, and the same half of each petal bears several narrow purple-brown stripes; towards the base, on both upper and lower halves, are numerous purple spots. The lip is yellowish-grey behind, and has the same colour suffused with purple-brown in front, and it is densely spotted with purple inside. It has generally much of the shape of C. Spicerianum. The staminode, too, much resembles that of the same parent, although it is rather flatter; the colour is light purple, with a yellow centre. The characters of the pollen-parent preponderate everywhere, the most obvious character derived from C. Druryi being a decided trace of the yellow colour peculiar to that plant. It is certainly an attractive plant, and Mr. Measures writes me that he considers it, together with C. Cytherax and C. Herax (also received about the same time), as three of the best he has yet raised. *R. A. Rolfe.*

CYPRIPEDIUM CYTHERA , *n. hyb.*

A very pretty little plant, raised in the collection of R. H. Measures, Esq., of Streatham, between C. Spicerianum and C. purpuratum, the latter being the pollen parent. In general character it most resembles the mother plant, but in size it more nearly approaches the pollen parent. Singularly enough, the leaves are quite green, without any trace of tesselation—quite the reverse of what usually takes place when one parent belongs to the tesselated group; yet I believe the parentage is correctly given. The flower, like the whole plant beside, is small and neat, being only 3 inches in expanse. The upper sepal is very broadly ovate, with a broad dark purple median band, the base purple-brown, running into a clear purple suffusion above, and finally into a broad white margin. The petals are light purple-brown above, and pale green near the base, with numerous small purple-brown spots; there is also a narrow median band of the same colour. The lip is small, pallid behind, and a little suffused with light purple in front; the interior is suffused with purple in front, and much spotted with the same colour behind. The staminode is much like that of C. Spicerianum, pale purplish, with a yellow centre, and a few green markings on the same. It is a very neat little plant, with bright and attractive colours. It would perhaps be desirable to infuse the dwarf habit of C. purpuratum into other hybrid Cypripedia, if this could be done without sacrificing other characters. *R. A. Rolfe.*

HYBRID CALANTHES.

The raising of Calanthe Veitchii ×, from C. vestita and C. rosea, was a veritable horticultural triumph, and the forerunner of a race of very handsome and useful autumn-flowering plants. We have now a white-flowered form, though I do not know exactly in what way it was obtained. C. labrosa is another species of the same section which has been utilised for hybridisation purposes, and which has given rise to two or three handsome hybrids. These have been again recrossed, in various ways, with each other and with C. Regnierii, which perhaps is little more than a distinct variety of C. vestita, the result being a series of closely allied, but very handsome garden plants. I fear that the origin of some of these has not been carefully recorded, which is unfortunate, but in any case it is clear that they will have to be considered as florists' flowers in the near future. Four very handsome forms have just been sent to Kew by C. Winn, Esq., Selby Hill, near Birmingham, though I am not sure how far they differ from pre-existing forms. The first is said to be from C. Regnieri crossed with C. rosea, and thus should be very near C. Veitchii × (C. Regnieri taking the place of C. vestita), yet it is much more like one of the forms of C. vestita, both in shape and colour—perhaps, because the characters of C. rosea are nearly obliterated. The three others were raised from C. Regnieri crossed with C. Veitchii superba, and all from the same seed-pod, the seed being sown in May, 1886. No. 1 is of a bright rose colour, the segments shading off a little towards the apex, and the throat of a darker shade. No. 2 is paler, and the segments shade off more distinctly towards the apex into pale blush. No. 3 is nearly white, the lip being faint blush, with a rosy throat and column. All of them are large-flowered and beautiful, but it is clear that if each must receive a distinctive name it should only be a fancy one, for they are as surely becoming florists' flowers as are tuberous-rooted Begonias, and some other plants which have only been taken in hand by the hybridist during recent years. Perhaps the nomenclature committee of the Royal Horticultural Society will recognise this fact, and shape its recommendations accordingly. Nothing but confusion can result from a contrary course. Already we have a Calanthe rosea (a wild species) and a C. rosea × (a hybrid—at least so we are informed in these columns at p. 43), and it is quite time something was done to prevent such confusion occurring too frequently. Returning for a moment to Mr. Winn's hybrids, it is very interesting to note how different are the three forms from the same seed-pod, and it appears there are three others whose flowers are not yet expanded. I am also informed that one of the plants flowered in the winter of 1888—9, which is a remarkably short period, from the time of sowing the seed. *R. A. Rolfe.*

PLANT NOTES.

NYMPHÆA VERSICOLOR or N. DAUBENYANA.

THIS, no doubt, is a form of N. stellata, and which is as far as I am acquainted with the genus, the most floriferous of all. With us it was the first of the season to open its flowers, which are delightfully fragrant, and it has been flowering without intermission from that time to the present time of writing.

It is a readily distinguished variety, from its habit of bearing young plants from the centre of each, and while visiting last autumn the garden of Chatsworth, I noticed amongst their very effective collection, plants bearing young ones upon their leaves which were bearing flowers, while still attached to the parent plant, making a very striking effect, the flowers averaging about the size of a two shilling or half-crown piece. The flowers are of a lightish blue with a tinge of red, leaves detached from the plant and pegged on to a pot of soil, soon become established and commence to flower, and in this stage of growth they make neat specimens for small aquariums, or may even be grown in inverted bell glasses. *W. Harrow.*

JACOBINIA COCCINEA.

This plant is seldom seen in cultivation, although it was introduced as long ago as 1770 from South America, and received at one time a good share of attention. For a long time it went in gardens under the name of Aphelandra cristata, though upon examining the structure of the flower this mistake became evident, for while Aphelandra has four stamens and one-celled anthers, the plant in question has but two stamens, with two-celled anthers. It is a beautiful flowering stove plant for the winter. The scarlet flowers are produced in terminal spikes, and the plant varies in height at the time of flowering according to the time of year when the plants were propagated. It is a good plan to take cuttings at three or four different times, from March onwards, and by so doing a double purpose is served, the plants being of different heights, and the blooming period much extended. Cuttings root freely in a gentle bottom-heat under a bell-glass in about ten days to a fortnight. When rooted they should be potted into a loamy mixture, and placed near to the glass to prevent drawing, giving them an occasional syringing during the day. From these pots they may be put into their flowering pots, viz, 48's, or 32's, using the loam in a more turfy condition growing them on in a warm pit or frame, and as they advance in growth a dose of weak liquid manure may occasionally be given, or some Clay's fertiliser and guano mixed together scattered over the surface of the soil. They should not by any means be stopped, or the heads of flowers will be weak and unsatisfactory. The insects which infest the plant, scale and mealy bug, should be removed before the plants come into bloom. *W. Harrow.*

BEGONIA SOCOTRANA.

It is impossible for this winter-flowering species to become too widely known and grown in gardens. It is very distinct in habit, and beautiful in aspect, bearing numerous bright rose-coloured flowers, which last a long time in perfection. The male flowers measure some 2 inches in diameter, and the females are smaller. A full-grown leaf averages some 7 inches in diameter, is of a thickish texture dark green, with a funnel-shaped depression in the centre; the veins are prominent below, and hairy, as are the petioles, which are stout. At the base of the stems numerous bulbils are formed, from which the plant is readily propagated. The height of the plants at the time of flowering measures some 12 inches. Unlike the majority of Begonias, this requires resting during the summer, which is best done by keeping the plants dry. During the month of September or October the plants should be examined, repotted, if the soil is exhausted, in a mixture of good yellow loam and sand and leaf-soil starting them in a warm-house, keeping them while growing as near the glass as possible, and shading, them from bright sunshine, giving an occasional syringe overhead during the day. *W. Harrow, Botanic Garden, Cambridge.*

*

A HISTORY OF ENGLISH GARDENING.

(*Continued from p. 687, vol. vi.*)

NEAR the end of Henry VIII's reign, the royal palace of Nonsuch, near Ewell, in Surrey, was built, and the gardens, which were justly celebrated in later times, laid out. "The palace," writes an old chronicler describing Nonsuch, "is so encompassed with parkes full of deer, delicious gardens, groves ornamented with trellis-work, cabinets of verdure, and walks so embowered by trees, that it seems to be a place pitched upon by Pleasure herself to dwell in along with Health." The residence was designed by an Italian architect, and the gardens were in all probability laid out under the direction of the same individual. They do not, however, appear to have been designed in the purely Italian style, but they decidedly show traces of Italian influence. They may be described as a combination of that style with the old English; the ground plan was essentially English, the ornaments, statues, vases, and pyramids of marble, Italian. No vestige of the original palace or of the gardens now remain, but two contemporary descriptions * have been preserved, from which a fairly accurate idea of what the gardens were like can be formed. "The house," we read in one of these descriptions, was "one fayre, stronge, and large structure or building of freestone of two large stories high, well wrought and battled with stone, and covered with slate." The terrace in front of the palace was "rayled with stronge and handsome rayles, and ballasters of freestone," which "added much to the beauty of the house." Before this terrace, and "about eighty yards distance from the same, was a neate and handsome bowling-green, lying muchwhat upon a square, and rayled with good postes, railes and lattices of wood." The Privy Gardens were situated at the back of the palace, and were "compassed round with a brick wall of fourteen foot highe, and cut and divided into several alleys, quarters, and rounds, set about with thorne hedges." They also contained "many columns and pyramids of marble, two fountains that spurt water one round the other like a pyramid, upon which are perched small birds that stream water out of their bills." The "Grove of Diana," mentioned so frequently in after times, was also planted in Henry VIII.'s reign; it was situated to the west of the Privy Gardens, and formed one of the favourite resorts of the "bluff monarch" in his latter years. It contained "a very agreeable fountain with Actæon turned into a stag, as he was sprinkled by the goddess and her nymphs." There was also in this grove "a pyramid of marble full of concealed pipes which spurt upon all that come near."

During Henry VIII's reign, several other fine gardens were laid out in this country by the great monarch's subjects. Indeed, it was but natural that the courtiers of such a king should vie with each other in erecting sumptuous houses and laying out beautiful gardens in the provinces where they were seated. Wolsey laid out the gardens at Hampton Court, at Battersea,† and at York House (afterwards Whitehall); Edward Stafford, Duke of Buckingham, in his palace and gardens at Thornbury, in Gloucestershire, almost rivalled the cardinal, and perhaps might have done so entirely if he had not been hurried to the scaffold before they were fully completed. The gardens adjoining the castle at Grimsthorpe, in Lincolnshire, were laid out under the direction of the Duke of Suffolk, and those at Kenninghall, Norfolk, and at Mount Surrey, near Norwich, by the Earl of Surrey.‡ Numbers of gardeners were necessarily employed to keep in order these old Tudor gardens, and the accounts of this period which have been preserved show that they were not ill-paid. A head-gardener's salary at this time averaged between £8 and £10 per annum. Under-gardeners received generally about 3*s.* the week, and common labourers 3*d.* or 4*d.* the day.*

Numbers of the rural community were also employed in market gardening. Extensive gardens for the cultivation of vegetables and fruits for the market were very common, and if we may judge from some of the accounts which have been handed down to us, this branch of gardening was exceedingly profitable. There is an account, for instance, of a cherry-orchard of thirty-two acres, situated at Teyham, in Kent, which in the year 1540 produced fruit that sold for £1000—an immense sum in those early days.† This orchard belonged to a certain "Harris, gardener," and it was also celebrated for its produce in later times, for Drayton thus alludes to it in his *Polyolbion* :—

"Rich Teyham undertakes thy closet to suffice
With cherries." *Song* xviii.

Market gardens for the supply of vegetables for town consumption were usually situated a little distance out of London; some, however, were planted out in the heart of the city itself. Thus Stowe, in his *Survey of London*,‡ tells us that "about the latter part of the reign of Henry VIII., the poor people of Portsoken Ward, East Smithfield, were hedged out, and in place of their homely cottages, such houses builded as do rather want room than rent, and the residue was made into a garden by a gardener named Cawsway, one that serveth the market with herbs and roots."

Nursery gardens also appear to have been in existence in this country in the earlier half of the sixteenth century. Large quantities of garden plants were cultivated for stocking the newly laid-out gardens. We read, for instance, in the Chapter House Accounts for 1533, of some 500 Rose trees, and 3½ bushels of Primrose, Violet, and Strawberry roots, besides large quantities of Quicksets and Rosemary bushes being bought for planting in the gardens of Hampton Court. Such quantities as these could hardly have been grown in private gardens, but were, in all probability, cultivated for the market. Orchard trees were also reared in nurseries, and one of these is mentioned in the Chapter House accounts as belonging to "a gardener of S. Jones' Street, London." §

It is interesting to note that in Henry VIII.'s reign the first Herbals written in the English language were published. The first was the *Grete Herbal*, and this was printed in 1526. Two years later appeared a translation of Macer's well-known *Herbal*. In 1548, Turner published his interesting little volume, *The Names of Herbes*, and this he followed up nine years later by *A New Herbal*, printed in black letter, and profusely illustrated with woodcuts. These works, though written for the use of herbalists and apothecaries, nevertheless throw some light on the gardening of the period immediately preceding Elizabethan times, but the only work on practical gardening, published prior to the accession of Elizabeth, was that written by Thomas Tusser, and entitled, *Five Hundred Points of Good Husbandry*.‖

This little work is full of valuable hints on gardening matters, and the quaint way in which it is written makes it very interesting reading. It is written in verse, and is divided into twelve parts, each part containing directions for the use of the practical gardener for a month. The first section is headed September, and the author directs that Barberries, Raspberries, Gooseberries, and Roses "and such as those" should now be planted out. The best time for trenching the garden was November:—

"If garden require it now trench it ye may,
One trench not a yard from another go lay."

If, in December, the frost was exceptionally severe, Tusser says that you should—

"Take this for a law,
The Strawberry look to be covered with straw,
Laid overly trim upon crotchis and bows,
And after uncovered as weather allows.

The gileflower also, the skillful do knowe,
Do look to be covered, in froste and in snowe,
The knot and the border, and Rosemary gaie,
Do crave the like succour for dyeing awaie."

January was the month for digging the garden, and pruning the fruit and Rose trees. One might also "set (as a daintie) the Runciall Pease." In February these latter were to be carefully attended to, and, says Tusser—

"Sticke plentie of bows among runciall Pease
To climber thereon and branch at their ease."

March was the month for grafting fruit trees, and also for making "readie the plots for seeds and for the pots." April was the time for sowing garden seeds, and Tusser recommends the gardener to "frequently dig and weed," for this, says he, "makes herbs the more holesome and greater to be." Tusser also gives minute directions for gathering garden beans:—

"Not rent off, but cut off ripe beane with a knife,
For hindering stalke of hir vegetive life,
So gather the lowest and leaving the top
Shall teach thee a trick, for to double thy crop."

P. E. N.

(*To be continued.*)

ARABIAN COFFEE.

THERE is nowadays no question that Coffea arabica is of African origin. Its natural habitat seems to be the country of Gallas and Harrar. The plant was introduced into Yemen at the date of the Abyssinian conquest, and the downfall of the Himyarite Empire, about a century before the era of the Hegira. The culture of Coffee rapidly spread in all the western parts of Arabia Felix—that is to say, in the regions subject to tropical rains.

The system of cultivation has not altered for centuries, and the plantations of Coffee-shrubs on horizontal terraces on the mountain sides are to-day still like those of which Niebühr wrote, more than a century ago. The natural slope of the ground is sometimes very steep, consequently the walls of rough stones which sustain the terraces are built up to a height of from 20 to 26 feet, which is equal to, or even more than, the width of the terrace itself. This arrangement ensures perfect drainage, which is very salutary for such plantations. The soil is carefully prepared, and almost always shaded by large trees (Ficus, Tamarindus, Ehretia, Dobera, &c.), planted in a row. Many plantations are irrigated during the dry season by means of reservoirs placed on a level with the highest terrace, and fed by the deviation of a spring or neighbouring stream. The plants are generally supplied from nurseries, and are obtained from seed. The seeds, before being used, receive a certain preparation which consists in the removal of the pulp, and the submission of the seeds to a slight drying in a layer of ashes. They are sown from October to December, in borders of good soil, enriched by cow or sheep dung. The seedlings are shaded from the extreme heat of the sun by a covering of boughs, and are watered at least once a week. At the end of six or seven weeks the young plants are carefully picked out and removed, wrapped in mats, to the prepared plateaux. The Coffee shrubs are planted in lines about 30 to 40 inches apart, they are watered once a fortnight, and the soil is manured when necessary. From two to four years must elapse before the shrubs begin to bear. In Haráz, some growers consider that plants obtained from natural seed-plots are more vigorous than those germinating from seeds submitted to the process above described,

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* See Heutzner's *Travels*, published 1598, p. 277, and *Archæologia*, vol. v., p. 4-9.

† Brewer's *Letters and Papers of the reign of Henry VIII.*, vol. ii., No. 1553.

‡ I omitted to mention whilst enumerating the royal gardens belonging to Henry VIII. that situated within the walls of the Tower of London. The "keeper" of this garden received 6*d.* a day in wages (Brewer's *Letters and Papers, &c.*, vol. i., No. 1688. Another royal garden is mentioned in the *Book of Payments* of Henry VIII. for 1518. It was situated at Wood tork.

* See Brewer's Letters and Papers, &c., vol. i., p. cxiii.

† Phillips, *The Companion of the Orchard*, p. 79, Ed. 1821.

‡ Ed. 1598, p. 139.

§ Chapter House Accounts, 1533, C ¾, f. 41.

‖ The first edition of this work was issued in 1557. It has since gone through a large number of editions, and has only quite recently been reprinted.

The natural seed-plot is managed thus:—Many of the berries, when fully ripe, are attacked by birds, which eat the fleshy part of the pericarp (the pulp). The stone covering the seeds is thus laid bare, becomes detached from the plant, and falls to the ground. The cultivator examines the plantations every day, and hastens to lightly cover over these seeds on the place where they have fallen. They do not germinate for two or three months, but the young plants are said to grow to a height of from 12 to 15 inches in the first year, and to continue to develop rapidly. It is known that the pulpy portions of the fruits, dried in the sun and pounded, constitute a material used for the preparation of a stimulating beverage, possessing analogous properties to an infusion of tea. This warm draught has a very pleasant flavour when it is properly prepared. Scented with ginger or some other spice it is, with "Qât" (leaves of Catha edulis), a favourite stimulant with the Arabs of Yemen, who do not use Coffee, as do the Turks and Europeans. Everywhere, in the sandy solitudes of Tehâma as well as on the steep summits in the Gebeli district, is raised the "Mikaye;" this is a hut made of branches, or a shanty of rough stones, often far away from any populated centre, where is sold, in default of any more substantial fare, the decoction of gische, known as "gafal," which is always to be had fresh, from earthen jars with long necks and large rounded bases.

The fruits of the Coffee trees, dried in the sun, arrive from the interior in their natural condition, in bags of matting. In the centres of exportation, the most important of which is the port of Hodeidah, the gafal is submitted to a process which is intended to separate the seed from the pulp. The operation is conducted by means of millstones moved by hand, which is very fatigueing work, and must necessarily be replaced by perfected machinery as soon as ever hand labour becomes dear. For some time past, mortars of English manufacture have been used at Aden. The material thus pounded is estimated to consist of 50 per cent. of the seeds proper, 35 per cent. of pounded pulp, 12½ per cent. of powder yielded by the stones, and 12½ per cent. of waste produce. The commercial value of the prepared seed is at the quay of Hodeidah from about £7 to £8 for 220 lb. *Translated from "Voyage en Yemen," by A. Deflers.*

SACRED TREES OF THE HINDUS.*

During the marriage ceremonies of a Hindu, the branch of a tree is brought into the house, and placed in a *sup*, or winnowing fan, and this branch is the first object of worship. The tree used for this purpose varies in different castes. The Ficus glomerata, or Udumbara, is also called in Sanskrit *Yajniya*, or sacrificial *Pavitraka*, or purifier. The baton or staff of the warrior or king is, according to the Brahmanic faith, obtained from it. It is a cosmogonic and anthropogonic tree typical of the heavens and of the Supreme Intelligence, the true Bramavriksha, or tree of the Brahmin. The Ficus Bengalensis or Vata, is also a cosmogonic and anthropogonic tree; it is named Upasthapatra. This is the tree of the Roas, who consider themselves, rightly or wrongly to be of Kshatri origin. They pay great reverence to the tree, and will not eat from plates made of its leaves. The staff of the Brahmin is obtained from it. Thus the two highest castes of Hindus make use of Fig trees as their anthrogonic trees, and in all Aryan countries the Fig tree has, at all times, been considered as pre-eminently the cosmogonic and anthropogonic tree. It is only in countries where no species of Fig is found that another tree has been originally substituted for it. The reason of this appears to lie in the peculiar structure of the fructification of the genus, which was thought to produce a fruit without flowers.

The Vaishya caste use the Ashoka or Ashapala (Saraca indica) sacred to Vishnu, and worshipped on the Ashokashtami or 8th day of the light-fortnight of Chait (March-April), when it is in flower. Part of the ceremony of that day consists in drinking water in which Ashoka buds have been placed. The Boi caste of Behar, and the Sonar caste use the Palasha (Butea frondosa); the first are devotees of Kali; the wife of Shiva, also known as Parvati, Bhawani, Durga or Devi. They offer a he-goat to the goddess along with the flowers of Palasha, the bunches of which are likened to the bloody hands of Kalis girdle. The goldsmiths are worshippers of Shiva and Parvati, and associate its bright-coloured flowers with red gold. Palasha is addressed as "glorious," "treasurer of the gods and of sacrifice."

The Powars, a tribe of Rajput origin, a fire born race, use the Khadira (Acacia catechu), a tree remarkable for the hardness of its wood. In Rigveda III., 35, Indra is told to obtain strength by covering himself with Khadira wood. The tree is sacred to Bhawani, the wife of Shiva. The Marathas (that is the caste of this name) use the Kadamba (Anthocephalus cadamba), as a Medh. It is a Buddhic and cosmogonic tree especially sacred to the wife of Shiva (in her form of Durga), and the leaves are offered to her at the Durga-puja or Dassera. It has orange-coloured flowers in the shape of a ball. The Arka (Calotropis gigantea) is the Medh of the Wadwals and Bhandaris, the first are gardeners, who water and take care of the Palm plantations, the second are those who extract the Palm juice. Arka or Arkapatra having leaves like lightning, *i.e.*, cuneiform, is sacred to Indra, the Indian Jupiter, the god of winds and showers. He is described as strong and drunk with wine, and is attended by the Maruts or winds, who roar amongst the forests, and drink intoxicating drinks. The Wadwals and Bhandaris specially worship Maruti, as the well-being of their Palm plantations depends to a great extent upon the absence of high winds, and the abundance of water. In the towns of late years many of the Wadwals have become educated, and have abandoned Maruti for the fashionable god, Shiva; they have consequently taken the Mango for their Kulpalak, and follow the customs of the Panchkalshas, Sutars of Bombay.

To explain the reasons for the use of different trees by all the numerous castes of India would fill a volume. . . . To sum up, it appears that in every Aryan country at least, owing to the analogy between trees and men, popular superstition supposes the first men to have sprung up from trees. Children are told in Europe that they were found in a garden or under a Gooseberry bush, in the Bundelhesh the first man and woman are said to have sprung from a Gooseberry bush. The tree, Ashvattha (Ficus religiosa) is the earthly emblem of the celestial tree, the heavens, or source of Universal Life, the real Baddhidruma. In India, the two higher castes have adhered to the genus Ficus as representing the generative powers of nature; other castes have selected different trees sacred to the particular Deva, or Devi worshipped by them. In Europe the Fig formerly, and the May and Myrtle now, are the favourite anthropogonic trees, and though not now worshipped they still retain a symbolic importance.

* *Journal of the Anthropological Society of Bombay.* By Brigade Surgeon W. Dymock.

A TREE SOLANUM.

About thirty years ago the late Mr. Bentham described specimens of a Solanum, received from the island of Hongkong, under the name of S. Wrightii, after Mr. C. Wright, botanist to the United States North Pacific Exploring Expedition, who collected the specimens in question. Mr. Bentham (*Flora Hongkongensis*, p. 244) states that it was with much hesitation that he published a new species of a genus so vast and confused as Solanum, but he had failed to match it with any other specimens in herbaria, and it did not answer to the description of any species in Dunal's monograph of the genus.

Ten years later the late Dr. Hance, to whom we are so greatly indebted for advancing our knowledge of the flora of China generally, published (*Journal of the Linnean Society*, xiii., pp. 95—144) a supplement to Bentham's *Flora Hongkongensis*, wherein he says that "this very fine species of Solanum, which forms an erect tree about 15 feet high, is certainly not a native of Hongkong." Subsequent travellers have verified this statement, and the only other specimens received at Kew thence were taken from the garden of the Murray Barracks by Colonel Urquhart, who notes that it was called the Potato-tree, and flowered all the year round.

Having reached the Solanaceæ for the *Index Floræ Sinensis*, I had to deal with this highly ornamental Solanum, whose native country was till now unknown, and I have succeeded in tracing it to South America.

Meanwhile, it appeared in French gardens, and Mr. Carrière published a description of it, accompanied by a coloured plate (*Revue Horticole*, 1867, p. 132), under the name of Solanum macranthum, a name, he was careful to point out, it bore in gardens. Concerning its origin, he knew nothing, but suspected it might be Asiatic, because it was cultivated by a friend at Cairo, where it succeeded admirably, forming an ornamental tree of the first order.

Although a native of a subtropical region, I thought it might be worth while directing attention to this plant, which I do not remember to have seen in English gardens, where, however, it might succeed in summer. Furthermore, there are many readers of the *Gardeners' Chronicle* who reside in countries where it would flourish in the open air all the year round.

It is one of those species having very large, lobed leaves, armed with a few scattered prickles, and the flowers, which are about 3 inches in diameter, and borne in clusters, vary in colour from white to an intense violet-blue, with large bright yellow anthers, much like those of the Potato, suggesting the name of Potato tree, by which it was known in Hongkong.

Mr. Carrière describes it as a small tree, from 4 to 6 metres high, very ornamental, both in foliage and flowers, and easily propagated from cuttings in summer and winter, though preferably from seed when obtainable. Plants thus raised in heat in the winter may be put out in the open ground as soon as there is no longer danger of frost. Placed in highly manured ground, and copiously watered in summer, this Solanum succeeds well in France, and is a very effective plant in the subtropical garden. Including the stout stalk, the leaves attain a length of 3 feet, and are proportionately broad, and even in the absence of flowers the plant is sufficiently ornamental to deserve a place where the conditions are favourable.

In a genus of between 700 and 800 species, it was difficult to decide where to turn for our plant; but, guessing from its general character that it was South American, I looked through the 500 or so species from that country, and found its exact counterpart in some specimens collected by Mr. Pearce in woods on the banks of the Amatala river, at an elevation of 4000 to 5000 feet. The exact position of the locality I have not yet ascertained; but Messrs. Veitch, for whom Pearce collected, and to whom I applied, kindly informed me through Mr. Kent, that there is an Indian village of the same name about two days' journey from Santa Cruz in Bolivia.

This species is readily distinguished from its nearest relatives by the tail-like prolongations of the bristly sepals. Another remarkable character, though not peculiar to this species, is found in the hairs of the leaves, which on the upper surface are coarse, and mostly simple, while on the under surface they are softer, shorter, denser, and stellate.

I may add, that the plant figured in the *Botanical Magazine* (plate 4138) as S. macranthum is not the same species, nor is it the true S. macranthum of Dunal, but S. maroniense of Poiteau. All these species are, however, somewhat closely allied, and belong to a section of the genus numbering about 100, chiefly American.

Dr. Trail collected specimens of a Solanum in the

upper Amazon region, so like the present in foliage, that it might be taken for the same in the absence of flowers, which are, however, much smaller, with a totally different calyx.

Mr. Pearce describes the wild plant as a tree 30 to 40 feet high, with violet-blue flowers.

So far as I can ascertain the species was not described by Dunal, therefore Bentham's name, S. Wrightii, will stand, though given to specimens cultivated on the other side of the world. *W. Botting Hemsley.* [Our illustration, fig. 13, is copied partly from the representation in the *Revue Horticole*. The outline of the leaf in the background is taken from a native specimen. ED.]

GROUPS OF CHRYSANTHEMUMS.

I WILL say at once that I am not an exhibitor of Chrysanthemums, and have never felt the hopes and fears of the exhibitor of that flower; still the layman may have his likes and dislikes, and my pet dislike is the group as one sees it at every show in every part of the country. What meaning is conveyed by a heap of lanky plants with a few big or little flowers at the top, and which may cover a space of 50 or 100 square feet? Not good culture, for hardly one of the plants composing a group is capable of standing alone, in spite of the sticks to which it is fastened by numbers of ties; certainly not the production of forms of beauty in the way of many fine blooms and plenty of healthy leaves, for of the former there are but few to be found on a plant, and the latter are conspicuously absent. We are notoriously lacking in ideas, and I wish we could import some Japanese gardeners, they at least would bring new ideas as to culture, training, propagation, and other matters. Now having had my growl, it is proper that I should endeavour to mollify the enraged grower, by showing to him the road he might, with advantage, take. Many will think it is sadly wanting in appropriateness, but still the truth must be said, that the curators of the botanic garden at Kew have pointed out the route to be taken by all those who would try to meet the improving taste of the day in these matters. At the Chrysanthemum Centenary Conference at Chiswick, groups of plants were solicited, and a good number were put together in response to this, but the best of them in the opinion of myself and others was that furnished from Kew. The number of the plants was not large, and they were mostly of one height; they were loaded with flowers and leaves, might have been thinned in the bloom slightly with advantage to their general effectiveness, and they were not much fettered by ties and stakes; in fact, some were most heretically lopsided—what of that, when they looked all the better for it, and were more satisfactory objects for admiration than the ghosts of plants in the remaining groups.

The amount of space for a group was a fixed quantity at Chiswick, as it is elsewhere, but Kew did not seek to place as many as it could within that space, but to see how few it could comfortably fill it with without crowding; and it succeeded admirably, one being enabled to see almost all round the plants. That was the *beau ideal* of a group, and a few more such would be welcome innovations at future shows, the only improvement required being in the direction of a lesser degree of looseness in the training; and there need be no fear that such a group would be considered ineffective because of the fewness of the plants of which it consisted, if varieties which contrasted well with each other were skilfully chosen. A group-space of 10 feet by 10 feet gives 100 square feet; and allowing two-thirds of a square yard =6 feet to one plant, sixteen well-grown, bushy plants would very well furnish such an amount of space without undue sparseness.

What exhibitors of groups are doing now is, employing their plants, grown to one or two stems for supplying cut flowers for the exhibition stands, as fitting subjects wherewith to form a group. This is an error, and defeats its intention by so doing. A *melange* of colour only is obtained, but no striking feature, and worse than nothing, if excellence of plant cultivation is the aim of show managers. Do away, therefore, with the group as at present set up, and confine exhibitors to a given number of plants for a fixed area, and we shall see great improvement in groups. *A. Y. E.* [Excellent advice! ED.]

A PLAN OF GARDEN AND GROUNDS. (Fig. 12.)

THIS plan represents the grounds of a gentleman's residence, situated at a few miles distant from the metropolis, and laid out recently by Mr. T. Baines. The house stands on an eminence, from whence extended views to the west and south-west, over a wide tract of rich grass-land, interspersed with fine old timber, are obtained. The ground falls away gently on the eastern side, and a little more so on the west, where, at the road shown, it is about fifteen feet lower than the mansion. The wood abutting on the lawn on the eastern side, with the walk winding through it was already in existence, and consists of Scotch Firs and Spruce, intermixed with common deciduous trees, and is alike useful in winter in breaking the cutting winds, and as giving an agreeable shade in summer.

There are a good many old trees, consisting of Elms, Chestnuts, Limes, and Scotch Firs, scattered about the grounds. These may be easily distinguished in the plan by their larger proportions. It would be difficult to over-rate the advantage which the presence of a sufficient number of big trees is to the appearance of a newly-made place, where of necessity those that are usually planted require many years before they have the desired effect.

In speaking of effective planting of grounds adjacent to a dwelling, be it a villa with a few acres of land attached, or those surrounding a mansion of an imposing character, it is often, and justly said, that the planters of the present time have a great advantage over those of former days, inasmuch as there is now an all but unlimited number of species of trees and shrubs from which to choose. Yet this multiplicity of subjects has not always been turned to advantage by the landscape gardener. With trees and shrubs, as with other plants, the temptation to use new kinds, whose ability to preserve a good appearance after the lapse of years was uncertain, has often been strong enough to cause the older, well-proved kinds of trees to be neglected. The result of this mistake may be seen in many places, especially as regards the numbers of newer Conifers planted, not a few of which have turned out unsatisfactory, or not to be depended upon. Still, the partial failure of Conifers has not in all cases been an unmixed affliction, for they have frequently been used to the exclusion of a fine deciduous species, the outcome of which was a want of diversity in light and shade, of form and colour; a monotonous gloom prevailing instead. This gloomy appearance where the evergreen kinds are too numerous, is most apparent in winter, at which season if the are used with judgment, their presence is most needed.

IRIS BAKERIANA.

ONE has to put a break on one's garrulity when one writes for the *Botanical Magazine*, otherwise, in describing this Iris, I might have said many things which I did not say.

I might, for instance, have pointed out that it varies a good deal. The yellow median streak on the fall, is conspicuous in some, slight or absent in other specimens; the yellow tinge on the basal portion of the claw of the fall seems more constant. The size and number of the violet spots, the amount of the violet edging, and the evenness of the inner margin of this also vary. Further, the plants vary much as to the size of the bloom and the pointedness of—indeed, the general shape of the lamina of the fall, and in tint as well as in brilliancy of colour. I would not say, as Mr. Lynch suggests, that there are two forms, but rather that there are several; these, however, do not merit distinct names, even for garden purposes.

I received bulbs from the Rev. Mr. Gates in 1887; these flowered in 1889, not earlier than February and March, though protected by a frame, and bulbs received from my friend, Mr. Max Leichtlin, at the end of 1888, flowered at about the same time. I forget which lot furnished the plant I sent to Kew. This season it must be remembered is wholly abnormal as regards the time of flowering of spring bulbs; and the bulbs of I. Bakeriana, which came to England from Mr. Max Leichtlin last summer and autumn, after having been thoroughly ripened, met, soon after being planted, with heavy rain, were early started into growth, and rapidly pushed on to flowering by a mild winter.

I hope in future years this Iris will not bloom so early, for its beauty needs bright sunshine, and the other glad accompaniments of spring; and I venture to think that those who have only seen the flower at Christmas cannot fully appreciate its worth. Those who have seen a fully expanded clump in calm, bright sunshine, will, I feel sure, be of opinion that I have done well in choosing the name which I have given to it.

I ought to have found room, even in the *Botanical Magazine*, for one statement. The plant first became known to me through the kindness of Mr. Gates; but it has become known to others through the energy and enterprise of Mr. Max Leichtlin. It is he who has really introduced the plant. *M. Foster, Shelford, Cambs, January* 11.

ONION EXPERIMENTS.

AMONG the many interesting and most valuable horticultural experiments initiated by the Directors of the New York Agricultural Station, with which we have been favoured, not the least is the report of that upon Onions.

The following selected list of ten varieties of Onions were planted on April 14, two rows of each name, 12 feet long, the rows being 21 inches apart. The bulbs of one row of each name were thinned when they began to crowd, to 1 inch apart from bulb to bulb; the other row was left without thinning.

The number of bulbs, weight of Onions per row and weight per 100 bulbs, with the average of all are given in the following Table:—

Variety of Onions.	Thinned Row.			Unthinned Row.		
	Number of Bulbs.	Weight of Row.	Calculated per 100 Bulbs.	Number of Bulbs.	Weight of Row.	Calculated per 100 Bulbs.
		Oz.	Oz.		Oz.	Oz.
Early Red Flat	66	154	233	145	293	140
Early Red Globe	78	157	201	142	233	109
Flat Madeira	80	240	300	184	398	216
Giant Rocco	65	374	575	97	407	420
Nastey's Mammoth	79	169	214	144	271	190
Late Red Globe	94	155	168	134	189	141
White Flat Italian	95	193	203	110	210	191
White Portugal	84	135	161	161	212	130
Yellow Globe Danvers	74	149	201	184	266	145
Strasburg	73	186	118	111	156	141
Average	79	191	237	141	255	182

Summary of the foregoing Experiments.

	Number of Bulbs.	Weight of Row.	Calculated per 100 Bulbs.
		Oz.	Oz.
Thinned rows	79	191	237
Unthinned rows	141	255	182

From these results we learn, that on the average of all the varieties of Onions treated, the unthinned rows contained sixty-two more bulbs than those that were submitted to the thinning process, and that the total weight of Onions obtained by the unthinned method was an average of 64 oz.—equal to 4 lb. per row in excess of those that had been thinned. On the other hand, the thinned rows, as might be expected, contained much the largest bulbs. One hundred Onions from the thinned rows weighed on

the average 237 oz., while a similar number from the unthinned rows weighed on the average but 182 oz.—a difference of 55 oz., equal to 3 lb. 7 oz. per one hundred bulbs in favour of those thinned.

These figures undoubtedly show that excessive thinning of the Onion bed in the average of seasons is not required in growing the main crop; but when large bulbs are required, the matter is different, or even in very wet seasons too great a crowding of the bulbs is not desirable, as the matting of the "flags" would impede the ripening process. *J. J. Willis, Harpenden.*

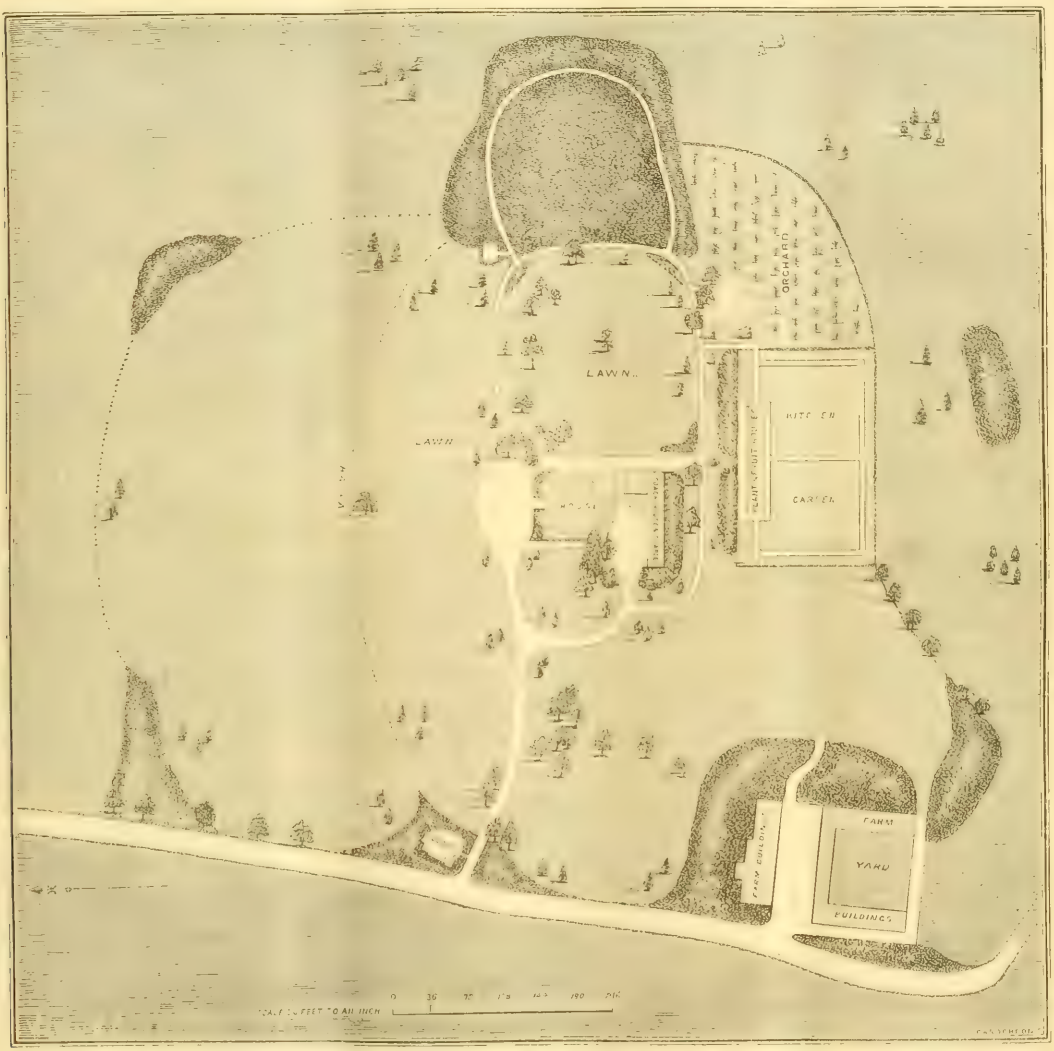


FIG. 12.—PLAN OF GARDEN AND GROUNDS, FOR A NEW RESIDENCE IN HERTFORDSHIRE, DESIGNED BY MR. T. BAINES. (SEE P. 76.)

BERLIN.

YOUR readers may be interested by an account of some of the plants and flowers used here for decorative purposes at the Christmas season. Those most popular were Hyacinths, Lilies of the Valley, Pinks, and Violets, also Cyclamen, Tulips, Chinese Primulas, Syringa (Lilac), and Camellias. Nor were these the only flowers to be found. There were Roses from the Riviera, large yellow Chrysanthemums of the Leucanthemum group, bright scarlet Poinsettias, and many other kinds. The mild winter of this year has been a great advantage to gardeners, and I never before saw such fine well-grown Hyacinths as we have had this season. The best and favourite variety was Norma, which, in former years, did not flower until a week or so later. Lilies of the Valley were sold as early as December 15, and are now vended in the streets by the flowerwomen, who also offer Violets, Mignonette, and Roses from Italy. Besides the ordinary Tea Roses from the Riviera, we had also numerous buds from one of the Noisette group, which were much liked. This variety, so far as I was able to identify it, was Fellenberg, and there was also another rather pale kind, which perhaps was "Hermosa." Red Roses are worth their weight in gold, and the gardener who could bring red, scented Roses into the market at Christmas time would be sure of a handsome profit, as he could name his own price for them. In January, when our home-grown red Roses first come in, a single flower will sometimes fetch 3s. At Christmas time, when every one's purse is open, they would fetch still more. It is a curious thing that no gardeners profit by this fact. They say that it is impossible to force Roses into bloom by Christmas, but this, I think, cannot be correct. Under proper treatment, and by using the right materials (the latter is most essential), it surely would be possible to do so. German gardeners force only Roses grafted on root-stocks (dwarfs). But experience has shown that Roses grafted on stems about 1 foot high (half-standards), can be forced more easily, earlier, and better, and that they produce better flowers. The difference in time would be about a fortnight. Half-standards such as these would bear flower, but better flowers, than the dwarfs, but that, I think, is no reason for using only

the latter method. It is a curious thing that, although German gardeners are aware of these facts, they do not obtain the proper materials. To return to Christmas horticulture. The last few years the flower shops have displayed much coloured paper and ribbon. Of the paper they make pot-covers, which form an effective background to the flowers put into them. If the right colours are chosen, the effect is very artistic. Lilac and Camellias (especially the former) look well when thus arranged. Cut flowers are displayed in an infinite variety of ways, some of the effects obtained are worthy to be reproduced by the pencil of an artist; but to describe them in words is impossible. I can give you some little idea perhaps, by telling you that single flowers are frequently so arranged that each blossom is seen in its full beauty. Christmas has, indeed, been an unusually gay time this year. *From our Special Correspondent.*

ORCHID NOTES AND GLEANINGS.

VANDA AMESIANA, *white form.*

As novelties, most white-flowered Orchids are pleasing, and particularly when they are varieties of an admired species. In Vandas, we have not hitherto acquired a pure white one. I recollect well many years ago, in the company of the late Mr. J. Veitch, seeing the first flower of what was sent home as a white Vanda, flowering in the private Orchid-houses of the Chelsea firm, which was eventually called Denisoni, but the flower did not excite the admiration of either of us, because although it was of good size, it was more ochraceous than white, and age did not even correct the want of purity. Now, however, among Mr. Statter's plants at Stand Hall, a pure white form of Amesiana—as white as a tuberose, as remarkable in substance, and, moreover, of high decorative importance—has been found. Individually, a flower of Vanda Amesiana does not go for much, but when a scape with eighteen flowers is obtained, the full number of a well-grown spike of V. suavis, then there is something to admire. Doubtless others will crop up in collections, as it would be singular, indeed, if there was only one white Amesiana among the many Vandas that are imported. In so far as one plant and another is concerned, there is not much dissimilarity. The one we are about to speak of is a largish clump, with branches crowded together, with no appearance of one or other of the growths taking a lead. Altogether, however, it makes a handsome clump grown suspended from the roof in a Teak basket, alongside of the Lælia Gouldianas, which we have already described. *J. A.*

VANDA AMESIANA, &c.

Not the least of the charms of this pretty winter flower is its tuberose fragrance, and a houseful of it in flower at Messrs. Hugh Low & Co.'s Nursery exhibits this characteristic well. The house of Angræcum citratum at the above nursery will soon be as beautiful a sight as the Angræcum sesquipedale is at present. The Cattleya Trianæ are also fast coming into bloom at Clapton. *J. O'B.*

PHALÆNOPSIS SANDERIANA VAR. PUNCTATA.

This distinct form is now in flower in the large collection of Phalænopsis at Messrs. Hugh Low & Co., Clapton, Nursery. The flowers in forms are typical of P. Sanderiana, but the sepals and petals are pink of a more lilac hue. The chief peculiarity is, that the lower half of the lower sepals is spotted much in the same way as in P. Stuartiana; the front lobe of the labellum and the bases of the side-lobes are also prettily spotted with crimson. The plant is very distinct, its leaves being ascending and acuminate, much as in the large forms of P. Esmeralda, but they are silvery-grey, spotted with green, as in some other forms of P. Sanderiana. It is a natural hybrid probably of P. Schilleriana, and a form of P. amabilis, as indeed we may readily suppose the typical P. Sanderiana to be. *J. O'B.*

CATTLEYA PERCIVALIANA.

There are so many bad forms of this in gardens that the beauties of fine forms are the more valued. A magnificent variety is in flower in the collection of Edward Moon, Esq., at Cassiobridge, Watford. Its blooms are large and well formed, the sepals and petals rich bright rose. The finely expanded labellum has a narrow margin of lilac, then a broad area of violet-crimson, which passes into blood-red as it spreads over the orange colour of the throat. Its history is curious, Mr. Moon purchased a large mass of C. Percivaliana which, however, proved an indifferent form; the vendor, however, seeing a gap in the large mass had made it up with the plant under notice, thus giving gold as a makeweight with copper. *J. O'B.*

ORCHIDS IN BELGIUM.

In the collection of M. Jules Hye, of Ghent, one of our most successful Orchid-growers, a beautiful plant has just flowered of Cypripedium orphanum ×, which is one of the finest hybrids obtained by Messrs. Veitch. It will be figured in *Lindenia*. The same amateur has also in bud a magnificent specimen of the rare Cypripedium macropterum × raised by M. Seden. Odontoglossum Pescatorei album is still a very rare plant, and is also in bloom in the collection of the same Orchid grower. The flowers are most distinct, the sepals, petals, and lip are pure white, and very large and beautiful in form. At the top of the lip, just under the column, which is also pure white, there is a large spot of lovely bright yellow. In no part of this exquisite variety is there any trace of red or purple, which colours are found in all the O. Pescatorei; at least, on their sepals, at the top of the lip, in spots in the centre, or on the edge of the lip. M. Hye, when he saw this variety in bloom in the famous collection of Baron Schroder, was much struck with it, and did not rest until he also had obtained a specimen of it. He has discovered the treasure in the establishment of a horticulturist in the neighbourhood of Ghent.

In the establishment of M. Vervaet et Cie, there have flowered in three successive years, and each season about the same time (the end of November or beginning of December), half a dozen plants of Cattleya imported four years ago from the neighbourhood of a village called Fussagasuga, near Bogota (Colombia). These Cattleyas are something like Cattleya Trianæ of Ibague, only those from Fussagasuga, as comparisons made on three successive years with the old Cattleya Trianæ have proved, have always the two petals rounded, and much wider; they are firmer in texture, and the lip is more coloured than in the Cattleya from Ibague or from Popayan. The petals are in shape like those of Cattleya chocoensis, only instead of remaining half closed, as do those of the latter variety, they open more widely than those of any other Cattleya; they are very showy and thick in texture, the flowers last three or four weeks, and this, in the dull month of December, is a great advantage. Three of these plants were shown at a meeting of the "Orchidéene" in the beginning of December. *From our Special Correspondent.*

LÆLIA CRAWSHAYANA (*Reich. fil*) AND L. GOULDIANA (*Reich. fil*).

In reference to Mr. Rolfe's letter at p. 42, January 11, 1890, I have also had a three-flowered spike from Mr. Statter of Stand Hall, Manchester, of his fine variety of L. Gouldiana. In comparing it with my Lælia Crawshayana (the original plant named by the late Professor Reichenbach), I find that they are amply distinct in that all important point, in the former, namely, the lip. L. Gouldiana has not the spoon-handled lip that L. Crawshayana has, but it has a lip of an L. autumnalis form slightly less rounded, and less deflexed at the apex. Those plants of L. Gouldiana that I have seen, are widely different from those of "ordinary L. autumnalis," being greener in the bulb and leaf, and longer in proportion to the diameter of the bulb. I cannot agree either with the late Professor Reichenbach that L. Gouldiana may be a variety of L. Crawshayana, as the latter's lip has lost the form of the former entirely; and a "variety" pure and simple can hardly lose the form of that all important segment. Neither can I agree to Mr. Rolfe's "conclusion" that it is a natural hybrid between L. autumnalis and L. anceps, because the "pencilling on the lip" is identical in my L. Crawshayana, Mr. Statter's L. Gouldiana and also in L. albida; but in L. anceps the "pencilling" is quite different as to its arrangement, it being in larger lines and fewer too.

Mr. B. S. Williams has not a drawing of the "original" as no Orchidist has ever seen a drawing of my flower, for I have not shown the only drawing of a single flower that I possess to any Orchidist. I fancy the drawing referred to was of a plant that Mr. Adams bloomed, but having never seen this, I cannot say if it is really L. Crawshayana, and of the fact that many people are yet undecided as to it, there is ample evidence, for even Mr. Rolfe has apparently not seen an "original" flower, although when he wrote last January he thought he had the "real thing." Were I to surmise any parents for L. Gouldiana, I should say it was result of L. autumnalis atrorubens being crossed by L. Crawshayana. The powerful nature of the former has altered the natural hybrid's lip back to almost its original form as seen in L. albida. The short spikes betray no evidence of L. anceps.

In the same mass of plants, from which came the two plants of Lælia Crawshayana which I bloomed, I also bloomed L. albida Stobartiana, a broader variety than the common L. albida. They were all three seedlings of about the same age, and, in my opinion, are quite likely to have dropped from the same fruit. I hardly think it advisable for Mr. Rolfe to name the plant he has before received L. leucoptera×, till he has seen Reichenbach's named L. C. a. leucoptera, or we shall be in a far worse mess as to origin than we are now. Such naming and altering is only confusing in such rare things, that possibly, on the other hand, it is not of general interest, as so few have L. Crawshayana, and its variety leucoptera; therefore, the remainder of Orchidists unconcerned in the matter may term it "a storm in the coffee-cup," but it will form a bad precedent.

By the time this is in print, I hope the original will have been seen at the Royal Horticultural Society, and been identified by all who care about these slightly advanced forms of indistinctness, and yet distinctness. *De B. Crawshay, January* 12.

THE HARDY FRUIT GARDEN.

WE have entered on a new year, and a few weeks hence the buds will be swelling on many of the earliest fruit trees, and planting and pruning are the most important operations during the present month. Autumn planting is always preferable, but not always possible, by reason of pressure of other work that will not be delayed. Those who are still behindhand with this kind of work should try their utmost to forward it during January, putting off nothing till the morrow. The first thing to be considered in planting trees is the due preparation of the ground, bearing in mind that if the ground is not put into good condition by stirring it to a good depth, it is a waste of time and money to plant trees; and where the ground is heavy and unduly full of moisture, measures should be taken to drain it thoroughly, the drains being put in not more than 3 feet deep; and, if brick rubble in quantity is at command, a thick layer over the pipes adds greatly to the efficacy of the drains; failing this kind of material, the common Heather is a good substitute for it, and lasts for many years. Where soils are light and shallow, it will generally be found that draining is not required. The borders for fruits should be made of good depth, and the soil well rammed to make it firm, and the benefits derived from using old lime rubble and soft brickbats cannot be too often impressed on young men in the making of all fruit borders, and whether the soil is heavy or

light, the former will help to aërate and sweeten after all the fibre in the loam is decayed, and long before the roots have taken possession of the whole border; and the latter may be made very firm by treading or beating, which will help to bring the material into a properly consolidated condition, and the rubble will prevent injurious consolidation of the new soil. In making borders always allow from 6 to 9 inches of soil above the future surface-level to allow for the sinking of the border, and when this is overlooked, the trees have to be earthed up—a fruitful cause of disease.

Apricots.—The earliest tree we have to deal with at this season is the Apricot, and it is one that well repays proper attention. When Apricot trees have stood undisturbed for a number of years, and the roots have gone deeply into the subsoil, that is dry, mildew becomes troublesome, many of the flower-buds drop immediately they begin to swell, and those that are left do not set kindly. It is usual to apply sulphur, which somewhat checks the mildew, but the crop is either a partial one or a total failure. Copious watering will sometimes prevent this kind of loss. If the pruning and tying or nailing of Apricot trees is finished, a mulching should be applied to all the healthy trees, and the hose turned on, so as to give the border a thorough soaking.

Plums, Cherries, and Pears which have been pruned, tied, or nailed in, should be well washed with a cheap insecticide, and if this be followed by a strong shower from the garden-engine, only good will be done. Green and blackfly were unusually troublesome last season, and many trees were seriously injured by the consequent loss of foliage and young wood. In cold gardens, where dessert Cherries are subject to gumming, many of the varieties succeed better under the extension method of training, which involves the annual laying in of a quantity of young growths from the base of the bearing shoots; and by training the main branches widely apart, and practising summer pinching of shoots not needed for development, the trees soon become thickly studded with spurs, and very little pruning is required in winter. *A. Evans, Lydhe Hill, Hasbmere.*

THE ORCHID HOUSES.

POTTING, &c.—No delay should take place in the repotting, rebasketing, and surface-dressing of all sorts of Orchids. And where a large number of plants are grown, it will tax the grower's abilities to get this all done, as I consider it should be, by the first day of May. Peat, potsherds, and "where possible" new pots should have been prepared, good fresh sphagnum moss picked over and if it is in lumps, carefully looked over without pulling it to pieces, as it then is very much better to handle when using it. Those plants which should be first done, I will show in their proper section.

East Indian House.—All the plants of Cypripedium barbatum section, which have not been repotted during the past year, should be at once examined; and as it would take up too much space to enumerate each variety, I will mention Laurenceanum, Morganiæ, vexillarium, euryandrum, ciliolare, &c. For potting, peat and sphagnum moss are the only materials that are required to grow them to perfection. Then should come nearly all the different varieties of Aerides, as Sanderianum, Lawrenceanum, Godefroyei, odoratum, and its varieties, which should all be turned out of their pots it seeming to require it; and plants which have lost their lower leaves should be cut down; a few of the roots should be placed inside the pot, and the potsherds carefully placed in afterwards. It is not good practice to cover up too many of the roots of Aerides, and if it be done the plants will in most cases suffer. Many of the Saccolabiums, S. Blumei majus, curvifolium, cœleste, guttatum, and its varieties, are now ready to be repotted. The Phalænopsids now flowering must not be allowed to suffer from want of water, as no plants are more affected by flowering than these if allowed to get dry; too much moisture in the air of the house being carefully guarded against. In our houses we give one good damping with the syringe in the morning, and water the floors at night; but no hard and fast line may be laid down in this matter, there being hardly two houses whose conditions are just equal. Such plants as Cattleya Dowiana, C. aurea, C. Hardyana, which are resting in this house must not be allowed to get too dry, and it should be remembered that to let these plants shrivel is injurious, and a serious loss of strength. Temperature, 65° at night, 70° by day.

Cattleya-house.—In this house we are beginning to look gay with flowers of Cattleya Trianæ, and with those of the new white varieties of Lælia anceps; one plant of L. a. Sanderiana is now carrying over fifty flowers. I find that these plants like the lighest possible place that can be given them in the Cattleya-house, and in our house they are hung up close to the glass, and supplied plentifully with water whilst growing. Hardly any Cattleya at present requires more water than is just sufficient to keep its pseudobulbs from shrivelling. C. Percivaliana now in flower is in colour a beautiful little Cattleya, but the pity is, it is too shy in flowering. In most cases only one flower comes on the fat pseudobulbs: it is rather disappointing. Plants of Lælia autumnalis and L. Gouldiana, which are past flowering should be kept dry, and placed as closely as possible to the light, and where a small amount of air is admitted, so that thorough ripening may accrue. Temperature 60° at night, 65° by day. *A. G. Catt, Parkfield, Hallow.*

FRUITS UNDER GLASS.

In writing my Calendarial notes, it is my intention to adhere strictly to the teachings of my own experience, being fully assured of their soundness, and I nurse the hope that my efforts will be received in as kindly a spirit as they are offered.

Vines.—These plants should be kept quiet, and in a state of semi-rest all round, until the middle of the month of February, unless there are a few advanced fruits which are wanted for particular purposes; if so, it would be wise to get these put together, plunging them rather deeply into the hotbed materials, and at the warmer part of the house. Meanwhile, take care of all well-rooted, healthy stools, as the ripe fruit is cut, and, if possible, give them a frame or pit to themselves. Aim at keeping a genial temperature of about 60°, where they will lay the foundations for strong plants, by developing slowly stout and sturdy suckers, which alone produce those large luscious fruit, so much desired. The more slowly these stools grow in the winter, the more sturdy will be the suckers; once become drawn, they never make fine fruits, and which is often the case with those grown on the plant during its fruiting stage, hence my preference for suckers grown on the old stools. Much of the secret of success lies in the sturdy development of the plant; given such, any tyro can grow good Vines. We always allow the suckers to become of a large size before detaching them from the parent plant. These are potted into 8-inch pots, and grown on the one-shift system, and February and August are the best months to put in suckers, but some are put in at other dates intermediate to these. Smooth Cayenne, Moscow Queen, and Charlotte Rothschild, are our favourites, but to those who enjoy a sweet, luscious Vine, I can commend Lord Carrington.

Use every means to husband fire heat, highly heated pipes being a great evil; and endeavour to avoid extremes, the effect of cold being quite as injurious. Hard and fast temperatures cannot always be followed safely, and even a stoker is expected to use some amount of common sense in his duties. At this time of year, the atmosphere is frequently at saturation point, and little syringing is requisite, but the floors, walls and surface of the beds should be once, twice or more, damped according to the heat maintained in the pipes. I have condemned evaporating troughs and steaming pans long ago, these are as obsolete as the three years' fruiting system. Fruit may be grown in half that time of from 5 to 10 lb. in weight, and of the best quality. Watering the Vine plants at this time of year requires much judgment, and in doing so, the surroundings and the position of the respective plants must be observed; for those at the outside of the beds being usually nearer to the hot-water pipes lose moisture faster, and necessarily a larger supply of tepid water is needed by these.

The Early Vinery.—This house, if it was closed in November, will now have bunches on the point of flowering, and the vines will need much attention to build up the substance of the leaves. Maintain a gentle circulation of fresh air, free from draughts, and passed over the pipes if that be possible, and endeavour to do most of the forcing by daylight, withdrawing much of the heat in the pipes at night, 55° to 60°, more or less, will do no hurt according to the temperature outside. Stop the laterals at one, two or more leaves beyond the bunch, the number being decided by the space at command for the proper development of the foliage; disbud and rub off all superfluous shoots, and allow a moderate quantity of healthy robust shoots and leaves, which are better than a greater number more crowded. Beware of a close steamy atmosphere, which may make the foliage pleasanter to look upon for a time, but is certain to cause it to suffer when the dry north-easters of March come with bright sun. This tender foliage is then sure to "burn" and flag severely, no matter how good the ventilation may then be. I find that the Madresfield Court Grape stands forcing nearly or quite as well as the Black Hamburgh, and taking just about the same time. It is in my opinion always superior in quality to that variety, but it is always a good plan to grow a few Black Hamburghs in the same house as Madresfield Court; the pollen of the former vine being more abundant than the latter, and consequently useful to impregnate the Madresfield with.

Strawberries.—The earliest plants are now in flower, or on the point of flowering, and the camel-hair brush should be used on the blooms, a nice buoyant atmosphere being maintained. Strive to force the plants by daylight, although that be but a little. Keep a general warmth in the pipes by abundant ventilation, free from draught, and if the plants are kept near the glass they will not become drawn, or liable to attacks from insects. Rest the plants somewhat at night-time, by partly shutting off the heat, and reduce the ventilation. During frosty weather the above directions should be modified. The favourite variety hereat present is La Grosse Sucrée, I having reluctantly given up Vicomtesse Héricart de Thury in its favour. Introduce fresh batches to the houses according to the requirements of the family. Maintain a temperature of 45° by night, and 55°, a little more or less, by day. *W. Crump, Madresfield Court.*

THE KITCHEN GARDEN.

SEEDS, &c.—In the new catalogues which have come to hand, are many novelties; but before attempting to grow any of them largely, it would be well to try them, whilst beginners will do well to keep closely to the known and long-tested varieties for the main crops. The stock of seeds left from last year should be tested in mild heat, and the fresh also, before sowing any of them outside. If fifty or one hundred seeds be placed in small pots, and well looked to as regards watering, the germinating percentage will readily be observed, but this will be rather higher than will obtain out-of-doors. The proper varieties to grow will depend much on the quality and nature of the soil and the locality, and therefore a list of them given, will not be of much value.

Broccoli.—Veitch's Self-protecting will now have been consumed, and Snow's Winter White Broccoli being the next to become fit for use, the stock should be frequently examined, and any heads that are formed should be lifted carefully, and heeled in in frames or on a sheltered border, so that some kind of protection may be afforded them in frosty weather.

Tomatos.—Plants to fruit early should have been raised in the early part of November, and should be in 6's by this time. If these are well rooted, they may be shifted into 32's, giving them a thorough watering before repotting them. The best kind of compost to employ is a moderately light fibrous loam, with sweet and rough leaf-mould, or spent Mushroom manure, not in too wet a state, and free of worms. Drain the pots moderately well, and press the new soil firmly about the roots; fasten the stem loosely to a stick, and place them where they may enjoy full sunlight, no water being afforded them for some time, and when the plants have recovered from the root disturbance, pinch out all side shoots. Maintain a temperature of 55° by night, with a rise of 10° or less by day, accordingly as the weather is mild or otherwise. Plants for succession should be reared as the supply may demand. Sow thinly in pans or pots in light sandy soil made firm, and give no water for a few days, unless the soil should get very dry. Place a sheet of glass or tile over the pans, and plunge them near to the pipes. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY, JAN. 20 — Dutch Bulbs and Lilies, at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 22 — Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms. Lilium auratum, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, JAN. 23 — 20,000 Lilium auratum, and others, from Japan, at Stevens' Rooms. Nursery Stock, from Sample, at Protheroe & Morris' Rooms.

FRIDAY, JAN. 24 — Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, JAN. 25 — Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—37°.8.

The Royal Horticultural Society.

THE work of the year began on Tuesday last in the Drill Hall, where, after Sir TREVOR LAWRENCE, the President, had welcomed the new committees, and thanked the old ones, the work began in earnest. The exhibits were naturally not very numerous, but, as usual, they were interesting, the beautiful series of Pitchers (Nepenthes) exhibited by Messrs. VEITCH particularly so. The members of the several committees mustered in good force, the Orchid Committee, if we mistake not, being more numerously attended than usual, and certainly affording some ground for the complaint that the Floral Committee is proportionately weakened, some of the "all-round men" being drafted off on to the Orchid Committee.

We can see no special reason why the Orchid Committee should not sit after the meeting of the general committees, and thus practically revert to an old practice which worked well, and in which, after the transaction of the general business, the Chairman of the Floral requested certain members to deal with specialties, whether they were Orchids, or florists' flowers, or what not. But if a special amount of autonomy he demanded nowadays by the Orchidists, there is no reason why they should not have it, without in any way interfering with the composition of the other committees. There is still, even under the new arrangements, whereby the principal committees sit at noon instead of at 11 A.M., an awkward pause between the close of the committee work and the afternoon meeting at 3—a pause longer than is required for the exigencies of luncheon.

The first afternoon meeting of the year was fairly attended, and, all things considered, even more numerously than could be expected. The lecture was bright, genial, well-delivered, and practical. The Rev. Mr. WILKS, the energetic and admirable Secretary, did well to call attention to the deplorable condition of many gardens during the winter season. Of course, he had not in view the larger gardens attached to country mansions, where neither space nor cost are primary considerations. He was dealing rather with the smaller gardens, which form the great majority, whether in the vicinity of our towns or in the country. Naturally, he based his observations on his own garden, which he aptly described as a garden of borders—borders, we may add, filled with a most varied assortment of beautiful and interesting hardy plants, surrounding a wide lawn dotted with striking specimen plants, and the whole surrounded by a thick shrubbery with lofty trees interspersed. The ordinary herbaceous border, when cleared for winter, presents too generally a monotonous appearance of bare ground, dotted with tufts of dead leaves and stumps of plants, once beautiful and variegated, with labels which show of what has been, and, with less certainty, of what may be expected in future. Deciduous trees and bushes are not without their beauty in winter, the bark, the buds, the spray, all contain elements of beauty for those who look for it; and, as for colour, what more glowing than the red bark of some of the Cornels and the clear yellow of some of the Willows? Mr. WILKS even finds beauty in the rugged, gnarled boughs of an old Apple tree. To relieve the desolate appearance of bare borders, the lecturer recommended the plan of growing evergreen shrubs in small pots, and sinking them in the borders between the herbaceous plants. For those to whom expense is an object, small stuff may be employed, or seedlings or cuttings may be grown on, for the purpose, thus affording the gardener the pleasure of seeing the plants gradually increase in size and beauty. Retinosporas were recommended for the purpose, as well as Hollies of all kinds, Aucubas, Mahonia, Euonymus radicans and E. japonicus, the variegated forms of Elæagnus, Cupressus Lawsoniana in all its forms, Gaultheria shallon, Laurel-Cherries, Portugal Laurels, Cotoneasters, Sea Buckthorn, Furze, single and double Helianthemums, Daphnes, and Ivies. Mediterranean Heaths in the foreground have the advantage of flowering in the dull season along with the Hellebores.

It is obvious from this list that great variety of size, form, and colour may be gained at little cost, and no more trouble than is necessitated by the pleasant task of assorting the plants according to position, size, colour, and other circumstances.

The routine followed is to place the plants as procured in September or October in as small pots as possible, and to plunge them in the borders according to their size and other circumstances. About the middle or end of April the plants are removed from the borders and taken to the potting-shed, where they are repotted in pots of about the same size, making use, for the purpose, of the compost, which has been applied to the fruit trees in the orchard-house, the nutritive qualities of which are by no means exhausted. When repotted, the plants are p'aced out in a shady spot, and kept watered till the end of September, when they are again plunged. On this we should remark, that even better results would be obtained by plunging the pots in a north border. We have ourselves obtained good results by knocking the plants out of the pots in spring, and "laying them in" a shady place, removing them into pots in the autumn, and dotting them between clumps of Snowdrops and Crocuses.

Into the details of propagation we need not here enter; it must suffice to say, Mr. WILKS abundantly proved how attractive a garden may be made, at little cost, in the dull months by the adoption of procedures such as he recommended.

THE LATE CHRYSANTHEMUM SHOW AT EDINBURGH.—At the meeting of the Scottish Horticultural Association, held on the 7th inst., the Treasurer, Mr. A. MACKENZIE read a statement of the income and expenditure of the International Chrysanthemum Centenary Exhibition, held on the 21st, 22nd, and 23rd November last, as up to the date 28th December, 1889, the income reached the total of £1389 11*s.* 9*d.*, and the expenditure £958 6*s.* 5*d.*, leaving a balance of £440 5*s.* 4*d.* As showing the popular interest taken in the event, it was stated that during the three days of the show over 40,000 people entered by the turnstiles, which are checked and recorded by the City authorities. On the motion of Mr. MALCOLM DUNN, it was resolved to contribute £20 of the surplus to the general funds of the Association, £5 to the benevolent fund of the Association, £5 to the Royal Infirmary, Edinburgh, and £5 to the Gardeners' Orphan Fund. An honorarium was also presented to Messrs. MUNRO and FERGUSON, the joint honorary secretaries, who by their energetic and intelligent management did so much to render the show a success. Mr. D. P. LAIRD moved, and Mr. RUSHTON seconded, that the Association should hold another Chrysanthemum Show on similar lines to the last, and the motion was all but unanimously carried, and a committee appointed to draw up a schedule immediately.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The quarterly meeting of the above Society was held on Monday evening at the Caledonian Hotel, Mr. RILEY SCOTT in the chair, and on this occasion four new members were elected, making the total for the past year forty-two. The annual meeting has been arranged to take place on Monday evening, February 10, at the above-named hotel. The secretary, Mr. W. COLLINS, of 9, Martindale Road, Balham, S.W., will be happy to answer any inquiries respecting the above useful Society.

PROFESSOR LAWSON.—Notification has appeared in the *London Gazette* of HER MAJESTY'S approval of the appointment of Professor LAWSON as Argentine Consul at Halifax, Nova Scotia.

"L'ORCHIDÉENNE."—At the meeting held at Brussels on the 12th inst., a Diploma of Honour of the first class was awarded to M. Linden, for Aërides augustianum, a new species from the Philippines. First-class Certificates were awarded to Odontoglossum Rossi var. shown by Madame Gibez; to an unnamed Odontoglossum shown by M. Hye-Leysen; to O. Pescatorei album, from M. Hye-Leysen; to Cypripedium Arthurianum from M. Wallaert. Second-class Certificates were given to Odontoglossum Cervantesii var. lilaceum, from M. Warocqué; to Oncidium splendidum, from Mr. Van Imschoot; to Cypripedium nitens, from M. Linden; and to Cattleya Trianæ, shown by M. Linden, as well as by M. Vervaet. A Cultural Certificate of the first class was awarded to M. Linden, for Masdevallia Macrura; to Madame Block, for Cypripedium caudatum. A Cultural Certificate of the second class was awarded to M. Warocqué, for a variety of Odontoglossum crispum.

THE FIRST SNOWDROP.—On the 9th of the present month we had the delight of gathering the first Snowdrops of the year, and these from a cold,



Fig. 13.—Solanum macranthum—the tree potato: flowers deep lilac. (see p. 75.)

clayey, damp garden, with a northern aspect, and one in which, as a rule, all spring flowers are late in making their appearance. From the state of expansion of the flowers, when first seen on the 9th, it was obvious that they must have been in bloom on the 8th at least. Thinking the date unusually early, we turned to the records at our disposition, with this result: the earliest date recorded, so far as we know, and during a period of fifty-five years, is December 24, 1778. This was recorded by Mr. MARKHAM, in a paper read before the Royal Society on April 2, 1789, extracts from which were reprinted in our columns in April 7, 1888. Setting this on one side as quite exceptional, or as applying to a special variety, such as that known as octobrensis, we turned to *White's Selbourne*, wherein we find that on the average of twenty-five years the earliest date (in Hampshire) noted was January 10, the latest, February 5. MARKWICK'S observations, for the period, noted in the same book, and made in Sussex, show January 18 as the earliest. The *Cobham Records*, edited by Miss ORMEROD, cite January 10 in 1834 as the earliest day, and February 25 in 1838 as the latest, the mean date being February 2—"an amplitude" of forty-six days. At Marlboro' (Wilts) as recorded by Mr. ROBERTS, in his *Naturalist's Diary*, the earliest date is noted as January 11, the average being the 28th, the latest February 16. The mean of fifty-five annual observations in Norfolk give January 15 as the average date of the first appearance of the Snowdrop; while in Surrey, the mean of twenty annual observations gives February 2 as the average date. According to Mr. PRESTON, who has tabulated the results, during ten years of observations made at fifty different places in the British Isles, the average date of flowering is on January 27. The earliest noted was on January 14 in 1875; the latest on the forty-sixth day of the year (*i.e.*, February 15) in 1880. This latter date is noteworthy. Those who remember the dreadful season of 1879, when rain was almost continuous, and the sun well-nigh banished from these isles, a state of things followed by a severe winter, will not be surprised to hear that not only the Snowdrop, but other flowers were behindhand in 1880. Thus the Hazel was not noticed till the fifty-seventh day, instead of the twenty-ninth; the Celandine (Ficaria) till the sixty-fourth day, instead of the forty-ninth, and so with others. The year 1881 was also a very backward one, owing, no doubt, to the severity of the previous winter. Unfortunately, in these cases there is in general no corresponding record of soil temperature, a most important factor in these cases. Taking the whole of the recorded observations, it appears that the average of the earliest dates of flowering of the Snowdrop for the whole country is the 11th of January, the average of the latest observed first flowering is the forty-ninth day of the year (February 18), the mean between the two extremes being thus the 30th of January. If the average obtained by dividing the sum-total of the observations by their number be taken, the result arrived at is the 28th. So that on the whole it may safely be assumed that the first flowering of the Snowdrop may on the average of the whole country be expected between the 28th and 30th, being earlier or later according to season and locality. Unfortunately in these calculations not only is any reference to soil temperature wanting, but also all consideration of the particular variety of Snowdrop. This is scarcely ever recorded (never so far as we have seen), and yet, as connoisseurs know, there is a very wide range in this particular in the same season, and in the same garden, according to the variety.

M. COSSON. — The death of this eminent systematic botanist is announced. M. COSSON had a fine library and museum, and for some years past had been collecting materials for a Flora of the Barbary States.

A LAW TO PROTECT GENTIAN.—The Gentian, whose roots, not alone of use in medicine, but also in the fabrication of a kind of spirit much patronised by the natives of the mountain regions where the plant is found, is in danger of being extirpated by the practice of digging out its roots before the seed time. The Saltzburg Landtag, with the view of preventing the entire loss of this plant, has passed a law which forbids the digging up of the roots when they are of less diameter than 2 centimetres. As this diameter is attained only by a three-year-old plant, two seasons of seeding are secured. *Garten und Blumenzeitung, December*, 1889.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The following is a statement of the receipts and payments for the year ending December 31, 1889, presented to the annual meeting on the 16th:—

Dr.	£ s. d.	£ s. d.	£ s. d.
To Balance, 1888		... ...	674 11 4
Annual subscriptions ...	1428 0 0		
Donations at and in consequence of annual dinner	2451 5 10		
Collecting cards ...	994 9 9		
	4773 15 7		
Advertisements ...	63 1 0	4836 16 7	
Dividends on Stock ...	606 12 6		
Interest on deposits ...	73 14 7	680 7 1	
Legacy, viz:—			
Proceeds of legacy, of the late — Rylands, Esq.		527 1 9	— 6041 5 5
			£6691 19 9

Stock in 2½ per cent. Consols, £23,000.

CR.	£ s. d.	£ s. d.	£ s. d.
By Pensions and gratuities			2345 13 4
Secretary's salary and honorarium	£186 5 0		
Rent of offices	75 0 0		
Stationery	25 6 8		
Book of cheques	3 6 8		
Printing	155 0 0		
Expenses of annual dinner... ...	153 16 10		
Marion & Co., for frames	1 1 4		
Postages and sundry petty expenses	110 9 1		
		714 5 7	
			3060 18 11
Amount placed on deposit ..	£1000 0 0		
Purchase of £1000 Two-and-Three-Quarter per cent. Consols ...	1846 14 0		
		2846 14 0	
			5908 12 11
Balance, viz.:			
With Treasurer and Bankers...	£729 2 3		
,, Secretary	24 4 7		
		753 6 10	
			£6691 19 9

Audited, January 13, 1890. JOHN LEE. J. F. MESTON. J. WILLARD.

At the election held on Thursday last the following candidates were placed on the list of pensioners:—James Baillie, Sophia Burt, Mary A. Milroy, Elizabeth Parker, Sarah Brush, Robert Cox, Geo. W. Young, Maria Milley, and James Robinson.

THE ROYAL HORTICULTURAL SOCIETY AND THE NATIONAL ROSE SOCIETY.—We are glad to be able to announce that the following prizes for Tea and Moss Roses are offered for competition by members of the National Rose Society at the meeting of the Royal Horticultural Society to be held on June 24 next:—

Class 5. For amateurs only, six varieties Tea and Noisette Roses, three blooms of each, £2, £1, and 10s. First and 2nd prizes by Mr. F. Cant; 3rd, by Mr. G. Prince.

Class 6. For nurserymen only, twenty-four varieties of Teas and Noisettes (distinct), £2 10s., £1 10s., and £1. Offered by Dr. Hogg.

Class 7. Twelve varieties of Teas and Noisettes (distinct), three blooms of each, £2 10s., £1 10s., and £1. Offered by W. H. Fowler, Esq.

Class 8. Open. Twelve varieties of Moss Roses, in bunches, £1 10s. and £1. Offered by Messrs. G. Bunyard, of Maidstone, and Messrs. Cooling, of Bath.

Class 9. Open. A basket of Tea and Noisette Roses, in tripod wicker baskets, as at the National Rose Society's shows; Rose foliage only to be used. Offered by Messrs. Paul & Son.

Such co-operation to a common end is most valuable, particularly when in this case two distinct principles are represented—the competitive and the educational, both of which are necessary to the end in view. In this way great part of the work of the special societies could be done at less cost, and with less unnecessary frittering away of energy than under the existing circumstances, and without any weakening of the parent Society.

STOCK-TAKING: DECEMBER, 1889.—A great change has come over the face of affairs since our last note on stock-taking. The joys of the Christmas season are replaced by the wheeze and the sneeze of the so-called influenza patient; but even in these returns we can find hope for the thousands of sufferers! There appeared in the public press a few days since a paragraph to the effect that in certain parts of southern Africa this so-called influenza was a common disorder amongst the native population, who on being attacked ran, not for the hospital, but for the orange-groves (the fruit being always ripe at such times), and sucked the healing juice until such time as they could contain no more, when the evil spirit had departed. So for Londoners it will be glad news that there is a grand importation of oranges and lemons. The importation of these two beautiful fruits during the month just past amounted to 1,354,712 bushels. So now—bearing "Southern Africa" and its natives in mind—may fruits and disease disappear together! There are a few other imports to note, however, as coming from foreign countries and British possessions, which we give in the usual tabular form as follows:—

	1888.	1889.	Difference.
	£.	£.	£.
Total value of imports	37,940,625	38,267,934	+327,309
§II.—(A.) Articles of food and drink duty free	12,457,038	11,760,004	—697,034
(B.) — do., dutiable	2,490,995	2,367,896	—123,099
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	10,200,838	10,232,829	+31,991
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,841,492	3,029,375	+187,883
§IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,685,365	1,657,703	—27,662

The following excerpts have the usual interest:—

	1888.	1889.	Difference
§ II. Fruit:—			
Apples, raw ... ... bush.	877,309	426,629	—450,680
Unenumerated, raw ... ,,	26,282	45,060	+18,778
Onions ... ... ,,	355,633	324,600	—31,033
Potatos ... ... cwt.	108,610	18,311	—90,299
Vegetables, raw, unenumerated ... ... Value	£13,200	£20,836	—13,364

Once more the British market gardener will note that "minus has it." It would be interesting to note under existing conditions of health, if there is any increase in the imports of Cinchona, but the figures are not given, further than that there is an increase of £3000 in the value of "unenumerated drugs."

ROSE STATISTICS.

(Continued from p. 57.)

THE BEST TWELVE TEAS FOR SHOW.

Here, as with the H.P.'s, some varieties that are comparatively new or little known, *e.g.*, Madame Hoste, Ethel Brownlow, &c., are probably deserving

of a somewhat higher rank than they here obtain; but this, time and trial can alone decide.

LIST V.

The Best Twelve Teas for Show Blooms. (78 Voters.)

	Votes.		Votes.
1. Catherine Mermet	71	32. Souvenir de Paul Neyron	3
2. Comtesse de Nadaillac	68		
3. Maréchal Niel	62	33. Sunset	
4. Marie van Houtte ...	61	34. Mme. Hoste	1
5. Souvenir d'Elise ...	57	34. Cheshunt Hybrid	
6. Innocente Pirola ...	49	34. Boule d'Or	
7. Niphetos	48	34. Souvenir de Gab. Drevet	
8. Souvenir d'un Ami ...	44		
9. Jean Ducher	43	34. Rêve du Pare ...	
10. Hon. Edith Gifford ...	39	34. Lady Mary Fitzwilliam	2
11. The Bride	37	34. Vicomtesse Folkestone	
12. Adam Oliver	35	34. Anna de ...	
12. Mme. Lombard ...	35	34. Mme. Margottin	
14. Mme. de Watteville ...	34	34. Mme. Falcot ...	
15. Mme. Bravy	29	34. Princess Beatrice ...	
16. Rubens	28	34. Homer	
17. Caroline Kuster ...	27	34. Ethel Brownlow ...	
18. Devoniensis	26	34. Mme. Welch ...	
19. Francisca Krüger ...	19	34. Comtesse Panisse ...	
20. Mme. Cusin	18	34. Gloire de Lyonnaise	
21. Perle des Jardins ...	15	34. Perle de Lyon ...	
21. Princess of Wales ...	15	34. Mme. Berard ...	
23. Perle Lyonnaise ...	10	34. Souvenir de la Malmaison	1
24. Mme. Willermoz ...	8		
25. Mme. Hippolyte Jamain	6	46. Jean Ferniet ...	
25. Etoile de Lyon ...		46. Souvenir de Thérèse Levet ...	
25. Gloire de Dijon ...		48. Triomphe de Rennes ...	
28. Adam		49. Princess Royal ...	
28. Bouquet d'Or ...	5	49. Mme. Charles ...	
28. Grace Darling ...		49. Lucidie ...	
28. Yves Fe.			

THE NEXT BEST TWELVE TEAS.

Of these I have only given those obtaining five or more votes, there being fifty-three others named. Again, it is obvious that the higher ones in List V. will figure among the lower in the present list, as they have already received almost as many votes as possible.

LIST VI.

Next Best Twelve Teas for Show. (64 Voters.)

	Votes.		Votes.
1. Rubens	38	22. Mme. Margottin ...	13
2. Princess of Wales ...	33	23. Marie Van Houtte ...	12
2. Mme. Bravy	33	23. Mme. Welch	
2. M. Lombard	28	25. Niphetos	11
2. Souvenir de Paul Neyron	28	26. Boule d'Or	10
6. Caroline Kuster ...	27	27. Jules Finger	
7. Francisca Krüger ...	26	27. Adam	10
7. Souvenir d'un Ami ...	26	27. Souvenir de Thérèse Levet ...	10
7. Devoniensis	26	29. Anna Olivier	9
7. Mme. Willermoz ...	26	30. Rêve d'Or	8
7. Etoile de Lyon	26	30. Sunset	8
12. Jean Ducher	25	32. Souvenir de Gab. Drevet	7
12. Mme. Cusin	25	33. Bouquet d'Or	6
14. Mme. de Watteville ...	22	34. Catherine Mermet ...	5
15. Anna Olivier	21	34. Mme. Berard	5
16. Perle des Jardins ...	20	34. Mme. Falcot	5
17. Mme. Hippolyte Jamain	18	34. Souvenir de la Malmaison	5
18. Hon. Edith Gifford ...	16	34. Angèle Pignier ...	5
19. Lucidie	15	34. Mme. Falcot	5
20. Princess Beatrice ...	14	34. Comtesse de Nadaillac	5
20. The Bride	14	34. Rêve du Pare	5

LIST VII.

Twenty-four Teas receiving Twenty or more Votes between Lists V. and VI. are selected.

This list practically gives the best twenty-four Teas, in the opinion of the voters, for show purposes:

1. Catherine Mermet	71	7	78	15. Mme. Bravy	29	28	57
2. Marie Van Houtte	61	12	73	16. The Bride	37	14	51
3. Comtesse de Nadaillac	68	3	71	17. Caroline Kuster	27	19	46
4. Souvenir d'un Ami	44	26	70	18. Devoniensis	24	22	46
5. Jean Ducher	43	25	68	19. Francisca Krüger	19	25	44
6. Maréchal Niel	62	5	67	20. Mme. Cusin	18	23	41
7. Souvenir de Paul Neyron	3	64	67	20. Princess of Wales	15	28	41
8. Innocente Pirola	49	17	66	22. Perle des Jardins	15	23	38
9. Mme. Lambard	35	28	63	22. Mme. Willermoz	8	30	38
10. Niphetos	48	14	62	24. Etoile de Lyon	6	30	36
11. Rubens	28	34	62	24. Souvenir de Paul Neyron		28	31
12. Anna Olivier	35	21	56	26. Mme. Lambard	0	28	28
13. Hon. Edith Gifford	39	16	55	27. Mme. Hippolyte Jamain	6	18	24
14. Mme. de Watteville	33	22	55				

The next few columns in the Statistical Returns have received so few answers that those who may happen to be interested in the subjects which they concern will not find it any great labour to summarise them for themselves.

THE TWELVE HARDIEST TEAS.

Those receiving less than five votes have been omitted, as they included the name of almost every known Tea.

LIST VIII.

The Twelve Hardiest Teas. (53 Voters.)

	Votes.		Votes.
Mme. Lambard ...	45	Belle Lyonnaise	
Marie van Houtte ...	39	Bouquet d'Or	13
Anna Olivier	32	Mme. Cusin	
Souvenir d'un Ami ...	31	Mme. de Watteville ...	
Gloire de Dijon ...	28	Etoile de Lyon	12
Rubens	24	Innocente Pirola	10
Francisca Krüger ...		Jules Finger	
Hon. Edith Gifford ...	23	Devoniensis	8
Jean Ducher		Safrano	
Caroline Kuster ...	22	Mme. Falcot	7
Homer		Grace Darling	
Catherine Mermet ...		Niphetos	
Mme. Welch	18	Comtesse de Nadaillac ...	6
Mme. Berard		Perle des Jardins ...	
Mme. Bravy	14	Mme. Margottin	5
		Souvenir de P. Neyron ...	

ANY EXCEPTIONALLY DELICATE TEAS.

In this list it must be remembered, in contradistinction to all others, that the greatest honour is to be at the bottom and [illegible].

LIST IX.

Any Exceptionally Delicate Teas. (36 Voters.)

	Votes.		Votes.
Comtesse de Nadaillac ...	17	Vicomtesse Christophle ...	
Niphetos	11	Isabella Sprunt	
Devoniensis	9	Perle Lyonnaise	
Souvenir d'Elise ...	6	Mme. Bravy	
Princess of Wales ...		Lucidie	
Angèle Pignier		Jean Ducher	
Jules Finger		Mme. Cusin	
Mme. Berard		Souvenir de Paul Neyron ...	
Lady Mary Fitzwilliam ...		Mme. Willermoz	1
Mme. de Watteville ...		Mme. Falcot	
Mme. Lambard		Princess Beatrice ...	
Marie Van Houtte ...		Mme. Welch	
Mme. Hippolyte Jamain ...		Comte Flour d'Amiat ...	
Jean Ducher		Souvenir de Thérèse Levet ...	
Comtesse de Nadaillac ...		Mme. Welch	
Rubens	2	W. F. Bennett	
Anna Olivier		Souvenir d'un Ami ...	
Mme. Cusin		Souvenir de Dame ...	
Perle des Jardins ...			
Souvenir de P. Neyron ...			

The preceding list would have been of more general use to the inexperienced if the question asked had referred to "hardiness to withstand frost." As it is, it appears to be evident that some, in making this return, have regarded "weakly growing" as synonymous with "exceptionally delicate" [illegible], Madame Cusin is undeniably a somewhat poor grower, but it is very hardy against cold, whereas those marked with an asterisk (*) are among the easiest victims to King Frost.

I trust, therefore, that those who have been kind enough to vote on this question of delicacy will not be offended by my expressing a hope that the general public, for whom alone I am venturing to make these notes, will not give undue weight to the verdict of this or the following list, but will try for themselves; and in particular that they will let nothing deter them from planting that perhaps most lovely of all lovely Teas, Comtesse de Nadaillac, which in my own garden, for instance, proves as hardy as any, though not quite so vigorous a grower as some. It may further be taken for granted that any not named in either List VIII. or IX. are neither especially hardy nor particularly delicate. However, to reap the true value of Lists VIII. and IX., it remains to combine them, or rather to subtract IX. from VIII., and note the result. *Rev. W. Wilks, in Journal of Royal Horticultural Society.*

(*To be continued.*)

RAILWAY RATES.

TERMINALS.—The railway rates enquiry is now approaching a stage of great importance to the horticultural trades. We understand that a meeting of these trades has been called by the Nursery and Seed Trade Association for Monday next, at the "Windsor Hotel," Victoria Street, Westminster, at which meeting a report will be given on the present position of the enquiry, and steps taken with a view to deciding the class of evidence to be laid before the tribunal charged with the enquiry. The position of the matter to-day is somewhat improved compared with the state of things in existence at the time of the opening of the enquiry. Already certain articles have been moved to lower classes, concessions have been made (as we recently pointed out) with regard to "smalls," and a new class for "perishable merchandise" has been created. There remains to be considered the classification of articles not yet agreed upon, and also the question of rates for conveyance, and for station and terminal services. We propose this week to call our readers' attention to the subject of "Terminals," which is undoubtedly the most difficult of the questions to be decided; but before we do so, we would wish to correct a wrong impression which exists, we believe, in the minds of many who have but cursorily studied the matter, viz., that the traders of the country are endeavouring to reduce the rates charged by the railway companies—such is not really the case. If this were effected, and the revenues of the companies were materially reduced, the traders would very soon find out that the remarkable facilities enjoyed by them at the present day would be also reduced. The interests of the railway companies and of the traders of the country are undoubtedly closely allied up to a certain point, but care must be taken that the advantages of the one are not extended to the detriment of the other, and this is what the traders are contending so vigorously against. It is, as far as they are concerned, a war of defence and not of aggression.

Amongst other things, the companies are endeavouring to have fixed, certain maximum, terminal charges for (1) station accommodation for goods, and (2) services rendered in handling goods. Terminal charges have always existed in some shape, and indeed, have been recognised by the Law Courts—notably in the case of Hall *v.* The London, Brighton and South Coast Railway, in which the right to make a terminal charge was fully discussed and decided upon, by the Queen's Bench—but they have hitherto been under the jurisdiction of the railway commissioners. Since the passing of the Railway and Canal Traffic Act, 1888, the railway commissioners have ceased to exist, and there will now be no means of appealing to any tribunal to settle any differences which may arise with regard to terminal charges. Hence the necessity for fixing maximum terminal charges which shall be fair and reasonable, and at the same time binding alike on the railway companies and traders; and on the principle that a bad law is better than an uncertain one, it will be for the benefit of all that this should be done.

But how is the terminal charge to be arrived at, and of what is it to consist?

The railway companies are seeking to divide it as above-mentioned, but their right to make a charge under the second head is being strenuously opposed on the ground, that the charges for handling the goods are included in the rates for conveyance. It is different with regard to station terminals or charges for accommodation at stations for goods in transit. This charge represents that which was formerly made by the carrier before the development of railway goods traffic, at which period the carrier undertook the collection and delivery of goods, and supplied accommodation for storage. When, as pointed out in a previous number, the railway companies took over the businesses of the great carriers, they erected goods stations and sheds in close proximity to their lines, and they have hitherto charged traders with a sum representing a fair percentage on the capital provided for the erection of such buildings. Consequently, there has been no uniform charge made for station terminals, the amount being determined by the circumstances in connection with each station, and it follows that the cost of providing accommodation at a small country station would be much less than at stations such as Manchester, Liverpool, or Birmingham.

But the railway companies have arrived at a very simple method of fixing a maximum station terminal. They propose to lump the whole cost of constructing accommodation for goods throughout the kingdom, and strike an average. If this plan be adopted, the small tradesman at an out-of-the-way station will be called upon to pay his share of the cost for accommodation and maintenance of warehouses, &c., at all the centres of commerce. The companies profess to be unable to adopt any other means of arriving at a proper charge, but it is diffi-

cult to see why the principle hitherto adopted cannot be continued. It must be borne in mind that the tonnage passing through large towns is very great; and, even admitting the increased cost for accommodation, yet the rateable charge per ton would be decreased in proportion to the increase of traffic. The task of inquiring into the costs of construction of all the goods' stations in the kingdom is one at which Lord Balfour of Burleigh might well stare aghast, but that would appear to be the only satisfactory way of arriving at the data on which to base the terminal charge.

With a view to avoid such an enormous expenditure of time and money, it was suggested by the Board of Trade that they should appoint a Commissioner to inquire into, and report upon, the cost of construction of each station, and that this should be done concurrently with the holding of the inquiry: but the Lord Mayor's Committee of Objectors appear to have considered that such an inquiry (at which the objectors would not be represented) would prove most unsatisfactory. It was therefore arranged for the present, at all events, that the railway companies should select a certain number of representative stations, and submit their accounts for construction of them for the examination of the objectors. One of such "representative" stations selected by the London and North Western Railway Company was Northampton Castle Station, and the engineer-in-chief of that line was called to prove the cost of construction, and from him was elicited by Mr. Balfour Browne, Q.C., on cross-examination, the fact that in the construction of such station the company spent £6000 in diverting the course of the River Nene, which originally ran across the site of the present goods station. If the "average terminal charge" is to be based on such expensive stations as this, it is feared that traders will be called upon to pay far more than their fair proportion. The objectors will naturally retaliate by selecting stations which have been erected at a minimum of cost, and the prospect of fixing a fair terminal charge will not be advanced.

The attempt to fix a proper terminal charge is not of recent origin. So far back as 1861 a long discussion took place between the Chairman of the railway committee of the House of Lords (Lord Redesdale) and the various railway companies with this object, and a model clause was accepted by the railway companies (but which was, unfortunately, never incorporated in any Act of Parliament), to the effect that the railway companies should make a reasonable terminal charge for the accommodation afforded and service rendered other than the actual charge for conveyance, such charge in no case to exceed 2*s.* per ton for goods, and 9*d.* per ton for minerals at each terminal station. The proposed terminal charge now reaches 5*s.* 6*d.* per ton, being 2*s.* per ton for station terminal and 3*s.* 6*d.* per ton for service terminal. If one terminal charge of 2*s.* per ton would have satisfied the railway companies thirty years ago, it is difficult to understand why to-day they require two charges, amounting to nearly three times as much. It is true that the accommodation provided to-day is greater than it was then, but so is the traffic, and it is only fair to assume that the accommodation has been increased only in the same proportion as the traffic has. If it has been increased beyond such proportion (as, indeed, is suggested) then the traders ought not to be called upon to pay for accommodation which is not required.

The charges included by the railway companies under the head of "service terminals," which they seek to impose, embrace a variety of items, amongst which are the following:—Wages paid to clerks, agents, shunters, weighers, marshalmen, checkers, signalmen, signal lampmen, pointsmen, porters, watchmen, gatemen, also charges for stationery, coal, clothing, and numerous other things; and for all these they seek to make a charge to the trader, in addition to the charges for station accommodation and for conveyance. The greatest possible resistance will, of course, be offered to this charge, and we hope it will not be without good result.

DARLINGTONIA CALIFORNICA.

WE are now able to lay before our readers an illustration (fig. 15) of the fine specimen of this Pitcher-plant, to which reference was made in our last issue by Mr. Burbidge (see p. 50). The figure is from a photograph, and the plant grows in Mount Merrion Gardens near Dublin, the largest pitcher measuring 3 feet 9 inches in height. In fig. 14 a flowering example of this plant is shown.

PLANTS AND THEIR CULTURE.

POTTING AND SHIFTING PLANTS.—Soon after this date the work of the plant grower commences in earnest, and much time may be saved by previously preparing the materials used. The various kinds of soils should be put under cover, either in sheds or by thatching the heaps outside, and in any case it should not get frozen. Peat may be prepared for use, and leaf-mould sifted, a good supply of both river and silver-sand being secured, and see that it comes from a clean source, and is free from any admixture, and not of too fine grain. All dirty pots ought to be washed, and new ones bought if found necessary, before the busy season begins. All the crocks required for draining pots should be washed, and sifted into various sizes. Old and new stakes may be sharpened in readiness for use. The compost should now be got in readiness for the first lot of Allamandas and Bougainvillea glabra, these being plants that are invaluable for cutting purposes when specially grown. The plants will have been kept dry during the last three months, and may be pruned back, and the roots placed in a tub of water till the mass of soil is thoroughly wetted, and laid aside to drain, the old loose soil being then removed, and some of the larger roots cut off. The repotting should be done with good fibrous yellow loam, to which rotten manure and bone-dust have been added in small quantities, and some half-inch bones placed over the drainage; make the soil firm by ramming it, water carefully, and place the plants at the warmest corner of the stove, syringing the plants when the weather is fine, but not otherwise, for the present month. By getting these plants started into growth early, and allowing them to grow freely along the roof, and getting all the sun and light they can, the bloom, if the plants are well treated, will last for several months. Another lot of plants may be started in two or three months' time, and these will furnish the house with bloom till late in the year.

A plant or two of Clerodendron Balfourianum started into growth now, will be found of service, and unless much larger specimens than last year's are desired, the roots should not be disturbed; but if it become necessary to give a shift, the compost into which the plant should be shifted should consist of two parts good loam, one of rough fibrous peat, and the remainder may be decayed cow-manure, pieces of charcoal, and coarse sand, taking care not to break the old ball of earth, but only remove the loose crocks, and after repotting, place the plants at the cooler part of the stove, keeping them close to the light, and watering them very carefully till the new growth is several inches long. Ixoras should likewise be started for early blooming, and these, having been kept rather drier, may now be pruned back, and repotted shortly in a compost consisting of three parts peat, to one of loam, together with a liberal quantity of coarse silver-sand, small pieces of charcoal, and a few half-inch bones, the latter being put over the crocks. Give them a place in a close pit, and a day temperature of 70° to 80°. As I have before observed, the old I. coccinea is still one of the best to grow for cut bloom. Dipladenias should be now starting into growth, and given the same treatment as advised for Ixoras, affording some bottom-heat if possible, and training them near the glass, the roof-glass being covered at night with a thick covering to maintain an even temperature. If Stephanotis floribunda is wanted to flower early, plants of it may be started in heat, but for this purpose the plants must have had a good rest, and have been kept in a cool house for several months. The plants should be pruned, and as soon as new growth commences, repotting must be done, thoroughly saturating the root masses previously. The compost

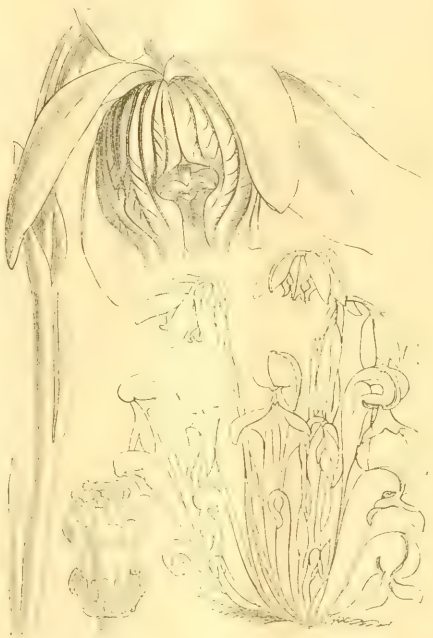


FIG. 14.—DARLINGTONIA CALIFORNICA IN FLOWER.

may be that advised for Allamandas. The plants should be syringed daily. A few of the earliest pots of Gardenias may be brought on in a temperature higher than that which the plants have wintered in, and manure-water afforded them after a week or two, or the flower-buds will be undersized. The bottom-heat may range from 80° to 90° at this date. Succession plants of Gardenias must be kept scrupulously clean, or the blooms will be of no value, and with proper attention the merely bug pest is easily kept in check. Plants of Plumbago rosea going out of bloom should be kept a little drier for a time, that is, until new growth forms; and cuttings should be secured as soon as possible from the young growth. If large plants be desired the old stock should be repotted, removing a large portion of the old soil and some of the strong roots. *G. Wythes, Syon Gardens.*



Fig. 15. DARLINGTONIA CALIFORNICA. (SEE P. 84.)

Home Correspondence.

THE ROYAL HORTICULTURAL SOCIETY.—It may be conceded that within the limits of fair criticism the editor of a paper is not "responsible for the opinions of any correspondent." But when the paper is made the channel for a persistent douche of fault finding, too often without any adequate basis, the sympathy of the editor with the malcontents may not unreasonably be inferred. And that this has been done with some accuracy is evident from the tone of your editorial remarks upon the action of the Council of the Royal Horticultural Society in insisting that *all* who take part in the affairs of the latter should be subscribing members of its body. This is a matter on which a little plain speaking appears desirable. I was a member of the Council at the time the decision was arrived at, and I cordially approved and supported it. It is important, to get a clear view of the question, to consider what the Royal Horticultural Society in its present condition really is. It is a body of persons who have agreed to co-operate for the attainment of certain ends which individually they cannot achieve. The first requisite for doing anything is obviously the possession of a common income. The main source of this is the contribution of the members. Now the present constitution of the society is essentially democratic; it is composed of all classes of the community. The constitution of the governing body, the Council, is in the hands of the members, and its present composition reflects that of the Society itself, consisting as it does of amateurs, officials, nurserymen, and gardeners. What ground in equity or common sense then is there for granting to individuals pecuniary privileges which are not shared by all? How can we invite persons interested in horticulture, but often of very moderate means, to join our body if "many amateurs and gentlemen unconnected directly with horticulture" are to enter it gratuitously by a back door? At the time the Council's decision was arrived at it is notorious that the Society was greatly straitened for want of means. It was absolutely necessary to get rid of these anomalous privileges which were part of the "damnos hereditas" of South Kensington. Its action in placing all the members on the same footing as regards payment, is said to have been "discourteous and ill-judged." Well, it is better to have these epithets hurled at one's head than to be courteous with other people's money and at other people's expense. In my opinion it would have been repugnant to common honesty to make a present of their subscription (in any but the exceptional cases provided for by the bye-laws), to any person with a sufficient taste for horticultural pursuits to wish to take part in our proceedings. That "any gentleman or amateur" should feel himself debarred from doing so by the obstacle of a guinea subscription is inconceivable. In any case if there be such persons, we must do our best to get on without them. *W. T. Thiselton Dyer, Royal Gardens, Kew.* [As to the particular point raised, whilst there is no doubt as to the general correctness of the position taken up by Mr. Dyer, it is precisely to the exceptional cases mentioned by our correspondent that our remarks applied.—Ed.]

—— The much esteemed Hon. Secretary of this society exhibits some impatience when the acts of his Council are subjected to adverse criticism, but the fact must be recognised that a society is a democracy, and a body not to be governed despotically, but by the general consent and approval of all its members, therefore it should be the duty of the Council to gather so far as possible, the general views of the members, and in this case especially, the opinions of the active working members, so as to bring the actions of the society into harmony with general opinion. To that end the Council should welcome heartily criticisms from every quarter, and especially adverse ones, because it is through these chiefly that the mind of the mass of the members is gauged, and defects of administration not visible to the official eye are discovered. It is best to think in all these cases that every critic has the welfare of the society at heart. It would be very wrong indeed to imagine otherwise. Let me make it clear that however much it may be needful to differ from what is sometimes done, yet Mr. Wilks is such an energetic, hard-working secretary, that much is tolerated for that reason, which all the same may be thought to be wrong. Now the frequent criticisms and references made to the diverse acts of the Council, especially in relation to the Committees, show that there is a very wide interest in the society's welfare existing in the community, and for that interest the Council should be very grateful. No similar society in the kingdom evokes one half the interest. But those Fellows who do object to anything done by the Council, no matter how trifling, have their annual constitutional opportunity close at hand. The general meeting takes place next month, and on the moving of the adoption of the report, the widest range of subjects connected with the society can be discussed and I suggest that it would be well to take advantage of that chance to raise a full discussion respecting the appointment of the Committees, and their general treatment. All the members of these bodies should remember that they are now fellows, and can exercise at the general meeting the full right of members, to demand explanations, and urge changes of administration. I fear generally the Council have overlooked the fact that in regard to their later treatment of members of the Committees, that many of those gentlemen are called to adjudicate upon more important matters than they do at the Drill Hall, that they are paid liberal fees, also travelling expenses, and have all due refreshments provided for them, and that their decisions, often of the highest importance, are not supervised as at the Drill Hall by the Committee of the society they are engaged by. At Manchester, for instance, Mr. Findlay, who is a tower in horticulture, indeed, would never dream of insulting the gentlemen of wide experience he invites on behalf of his council to act as his judges by subjecting their decisions to some supervision by his council the thing would be too absurd. Their decisions are final, why not so at the Drill Hall? [Because the Council has to bear the responsibility.] The exhibition of a notice on all subjects certificated by the Committee, that such awards are subject to the sanction of the Council, are intolerably galling; and I marvel, first, that any body like the Council should subject its Committee to such humiliation—

but still further do I marvel that the Committees should submit. But after all, the general meeting is the proper place to thresh out all grievances, and the actual desire of the Committees for more freedom and liberal treatment will then be tested. *A Fellow, but not a Committee-man.* [We quite concur that the general meeting is the proper tribunal, and in spite of these more or less legitimate complaints, we have no doubt whatever that the general verdict must be unmistakeably in favour of the Council for the efforts they have made in putting the Society on a proper basis. Ed.]

CHRYSANTHEMUM SHOW DATES.—It was almost amusing to find "R. D." in the *Gardeners' Chronicle* complaining of the Royal Horticultural Society fixing the date of its November meeting on the same date as that fixed for Kingston and the National Society's Centenary Exhibition, and urging the Royal Horticultural Society to put its meeting a week earlier; whilst in *The Garden* another correspondent complains of the National having fixed its Show dates to clash with Kingston, Birmingham, and other of the provincial shows, and invites the fixing of an earlier date. Probably the Show authorities may exclaim "A plague on both your houses," for it is evident that no date will please everybody. It is worthy of remark, however, that the Royal Horticultural Society did wisely fix the date for its Chrysanthemum Conference of the past year during the first week in November, and doubtless owing to the season being early, and no important Show being antagonistic, was highly favoured. Of course it is not intended to hold in November this year any special Chrysanthemum gathering, but all the same, it does seem as if the meeting must greatly suffer because of the big attraction at the Aquarium. But then there is very much wisdom in the other advice to the National to bring its Show forward a week, as without doubt last year, and probably in most years henceforth, both because it is the rule to strike cuttings earlier, and to house plants in the autumn earlier; the best show blooms come rather early than late, and scores of growers last year would have given their eye teeth to have been enabled to exhibit earlier than they finally did, or failed to do. There is just a shade of suspicion that some of the grumbling comes from would-be judges who cannot emulate Sir Royle Bache's Javeona bird, and be in two places at once; but as some of the elect seem to exhibit a desire to grab all the engagements possible, which is little less than avaricious, there will be some consolation found in the fact that others as good but less bold men have got a share of the spoils, which seem so plentiful in the Chrysanthemum show season. *O. P. Q.*

ARNEBIA CORNUTA.—In a notice of this plant on p. 52, "R. D." speaks of it as "the first annual species of this genus." If he means by this that no annual Arnebia has before been cultivated in England, I can assure him that he is mistaken. A few years ago some packets of seed were sent to me from North-Western India, many of which produced flowering plants. One of these when sent by me to Kew, was named Arnebia Griffithi, and it was an annual, with flowers very nearly resembling those of Arnebia echioides; but the plant, being an annual, was inferior in habit to the perennial and more easily cultivated Arnebia echioides, which flowers for half the year; so after recording the flower, I think in the *Gardeners' Chronicle*, I took no trouble to continue its cultivation. *C. Wolley Dod, Edge Hall, Malpas, Jan.* 12.

THE GARDENERS' ORPHAN FUND.—I am very pleased to read "G.'s" letter in this week's issue. A little healthy criticism is always welcome; it shows interest, and does good in many ways. Before helping "G." to see straight, I would just like to say how grateful we of the Committee feel for the very generous and liberal support that has been given to the Gardeners' Orphan Fund ever since it has been established. It is the most earnest desire of the Committee to carry out the wishes of the subscribers, and to give as much assistance to the poor orphans as the funds placed at our disposal will permit of. If "G." will read, I will try to explain—that the monies received for the Fund are of two classes, viz., annual subscriptions, interest, &c., which may be termed income, and secondly, donations, legacies, &c., which have to be invested. The Committee have no power in the matter as the rules at present exist. If the investments seem large in proportion to the annual income, it is simply that the givers preferred giving it so. We never refuse money, whether given in the form of a donation or as income. "G." is astonished that being able to invest £2525 11*s.* 10*d.*, we could only make allowances of £139 15*s.* to the orphans "during the past year." This is scarcely a correct statement, the investment of £2525 11*s.* 10*d.* referring to the balance sheet of 1889, upon which £247 a year is being paid, and the allowances of £139 15*s.* to the year previous. This is not, however, of much importance. If "G." will kindly turn to the figures again, he will see the annual income, out of which all expenses have to be met, will not admit of much more being done. That some modification of the present rules may now be advisable to adopt so as to bring some of the funds in more direct application, I am disposed to believe would be beneficial. If "G." is disposed to assist the fund, let him secure plenty of annual subscribers—the more support he and friends can give in this way the more orphans will be provided for; but the adoption of a policy which he advocates of blind trust in something going to turn up, and incurring responsibilities there are no visible means of meeting, would be sheer recklessness and folly. Prudence begets confidence, and confidence in the management of this Fund has secured the support of a great many gardeners throughout the country. *A. F. Barron, Hon. Secretary.*

— In reference to the letter, in your last issue, signed "G.," complaining that too much money is invested and too little devoted to the orphans, it appears to me that the writer, for whose opinions one would feel greater respect had he signed his name, stands condemned on his own showing. He seems to admit that he is in a hopeless minority, and therefore he can scarcely, with justice, blame the executive for following a course of action which commends itself to the majority. Nothing is easier than to complain in generalities; but let us see how the facts stand. The fund has been established for a period of two completed years. At the first election, *all* the applicants were elected, so that upon that occasion, I suppose, "G." will admit, all that it was possible to do was done. In arranging for the second election, held in July last, the executive, having no precedents to go upon, took what they considered, and what I venture to aver, was the very wisest course open to them, viz., to seek the opinion and advice of an actuary of one of the largest insurance companies in London. Their appeal was most generously responded to by Mr. A. H. Smee, who after taking considerable pains, strongly recommended that only five candidates should be elected. In the end, however, six candidates were placed on the fund; so that here, I think, the committee showed a careful and wise discretion in the exercise of the powers vested in them. What lines of procedure will be adopted at the next election remains to be seen; but I submit that they have hitherto manifested a proper care and forethought for the interests of the fund. But apart from his individual opinion, "G." advocates a course of action in direct opposition to the rules by which the executive are bound to administer the fund. Rule 5 distinctly states that "all donations and legacies (and such proportion of the annual subscriptions as shall be sanctioned by the executive committee) shall be invested in the names of the trustees." While this rule remains, and it is not in the power of the committee to alter it (see rule 15), such a course as that advocated by "G." is impossible, and I venture to add, inadvisable. Has "G." considered what a bad impression would be created in the public mind by an attempt to float an institution like this with a barren exchequer? On very many occasions I have heard the executive congratulated upon the growing solidity of the fund, and upon the public confidence which so goodly an invested sum inspired. Yet another point, and that a very important one, which appears to have escaped the notice of "G." It should be remembered that more than 50 per cent. of our income last year consisted of donations, and 25 per cent. of one donation—£500 by the Duke of Bedford—so that we must not be surprised if the aggregate of our receipts in the current year falls short of that of last year by this amount. Last year must be taken as an exceptional year, for we cannot, of course, count upon anyone else treating the fund with like liberality. Here, then, will commence the advantage of a reserve fund. For these and several additional reasons I could advance, the executive have undoubtedly acted wisely by not launching out too freely until the success of the fund has been assured. First well establish the concern, secure for it a sound reserve fund, and then when some years' experience shall have enabled the Committee to adequately gauge the annual income, it will be easy to estimate the expenditure it will be able to bear. Money may be rightly spent after having obtained it; but it is the imprudent man who spends it before he gets it. A steady, solid growth, with a corresponding annual accession to the number of orphans, will inspire greater confidence, and will work to greater advantage than a spasmodic rush into a position from which we might find it difficult to retreat. I need hardly say that if "G." has any practical suggestions to offer, and will communicate them either to Mr. Barron or myself, he may rest assured that they will be duly submitted to the executive, by whom I feel sure they will be gratefully appreciated. *Geo. Deal, Chairman of Committee.*

DUBLIN.—Lovely weather here, like Nice or Genoa. Narcissus minimus, N. pallidus-præcox in flower; Primroses by the hundred, Iris reticulata, I. cyanea, and the new golden I. Bornumülleri, a dainty gem; as is also Iris stylosa alba, with its Cœlogyne cristata-like flower; Christmas Roses are, and long have been, very floriferous and acceptable to our friends as grouped with the ruddy leaves of Tellima grandiflora rubra, a Henchera-like plant, not known, as I believe in England, where the green-leaved type is common. Saxifraga Burseriana major is such a gem. Snowdrops are budding up through the soil; Galanthus Elwesi, G. umbricus, from Central Italy; G. imperati, from Naples; and several other species are *en evidence. F. W. Burbidge.*

THE HABITATS OF PLANTS, &C.—*A propos* of this note, p. 55 in your issue for January 11, I never saw Lilium auratum growing wild in Japan, or as a vegetable, or with more than five or six flowers on one stem, but the flowers seemed individually larger than ours. *J. Van Volxem.*

RAILWAY RATES.—By your notice on railway rates it does not appear that any advantage has been gained on present rates, at any rate so far as the Great Eastern Railway is concerned. On page 755, vol. vi., col. a, line 17, "If in quantities of less than 560 lb. at passenger train rates, for small parcels at per cwt. per mile." The next paragraph explains the "smalls," and I find that 28 lb. sent 30 miles will be 1*s.* 10½*d.*—present charge by above railway is 7*d.* Also 56 lb. sent 30 miles will be 2*s.* 9¾*d.*—present charge for the same is 10*d.* You do not state if every package is to be weighed and charged separately by the same train; if so, the favourite cross-handle basket will be useless, for hothouse fruit in large packages are very risky consignments, so I trust they are to be charged and weighed as one. Where is the British Fruit Growers' Association that blew a loud blast two years ago? *R. Farrance.*

A HORTICULTURAL HALL.—We are very pleased to see you are giving publicity to suggestions as regards a hall for horticulture. After reading the various comments respecting it, many must have been surprised at the wide difference of opinion as to the best method of attaining the object in view. The Editor in the *Gardener's Chronicle*, Jan. 4, 1890, in reviewing our circular which proposes to solicit donations from the wealthy who have horticulture at heart, remarks "Like our friends we too hope to see the day when we shall have 'a hall worthy of our great nation,' and one which shall be available not only for the meetings of the Royal Horticultural Society, but of all the Special Societies, of the Library, of the Horticultural Club, of the charitable societies connected with horticulture. This has been a dream for many a long year, but when we see the proposal being sent broadcast we begin to hope the dream may be fulfilled." Our friend, Mr. Hibberd, in the *Gardeners' Magazine, Gardeners' Chronicle, Journal of Horticulture, Gardening World*, and probably a host of other papers, says if our suggestions are carried out it will be a mockery, delusion, and a snare, and almost commands his friends not to have a hand in such an awful and dangerous work; yet the very same means we suggest are adopted to build nearly all our churches, chapels, and many other public buildings, and how your readers will understand and reconcile the statements coming from two such distinguished men is beyond comprehension. However, delighted to think that we have been the means of publicly uncovering the light which Mr. Hibberd has so long kept under a bushel. If he alludes to us as the friends who heard of his scheme—a sort of a pseudo-joint-stock market or co-operative store company or some such kindred title—our friend was never more mistaken in his life; he should be sure, and certainly show some evidence before putting forth such statements. Mr. Hibberd

also speaks of a resolution he put to the meeting in 1888, and lost. A year before that, in the side room at the Albert Hall, we asked the Council not to finally engage the Drill Hall until the Fellows had had time to consider its adaptability; and again at the same meeting, he (Mr. H.) mentions, we proposed that we should ask the Crystal Palace Company: this was also lost, consequently, here is far more ground for considering that his ideas were borrowed from us. He was present on both occasions, and probably heard us converse with many persons about procuring a site on the Thames Embankment. We think we are safe in saying very few projects have had a happy time where capital has had to be borrowed for horticultural purposes. Many have had, we know, a disastrous ending. No one knows the extent of such, better than our friend, yet he almost makes it appear as if the Horticultural Society is not doing as much good work and is deserving of sympathy, as any of the Polytechnic Institutions whose eleemosynary donations are to the extent of £50,000 a year in London. Our friend is so definite and determined on this point, that we are afraid if some well-wisher were to bequeath us, for this Hall, a thousand or so in the same way as Mr. Davies, Mr. H. would by his teachings be for immediately returning such donation, and saying it would lower the dignity and injure the very foundation of our society; every farthing to build this hall must be obtained by its own commercial pursuits, and of course be called "The Royal Horticultural Hall Trading Co., Unlimited," the very thing in our opinion to destroy its charter, character, independence, and all the purposes for which the Society is intended. However, judging from the several enquiries of the sort of building needed, our hopes are more and more strengthened that we shall have assistance from some amongst the great and wealthy of this country, and so be enabled to place the society in a comfortable and becoming building, equal to those possessed by horticulturists in Belgium and America, to which we could look up with pride and pleasure, and feel that the Society was advancing in the improvement and encouragement of horticulture. *H. Cannell & Sons.*

The matter has been "talked of" so long and by so many people that we think it would be very difficult to say who was the originator of the scheme. ED.]

SERVICE-TREE BEER.—It is commonly asserted, as on page 650 of the *Gardeners' Chronicle*, vol. vi., that the English name Service-tree, as applied to Pyrus Aria, P. Sorbus, and their kind, is derived from the Latin word *cervisia* (beer), because this drink was formerly made from their berries (or leaves?). The subject is not new to me, but I have again searched my not very large library to find out (1) what is most likely to be the derivation of Service-tree; (2) whether beer ever was made from the Service-tree or its congeners; (3) what the Latin word *cervisia* really means.

1. To change the initial *c*, pronounced hard in old Latin, into *s*, is a violation of the ordinary rules of etymology; but in derivatives from Latin *b* is often changed into *v*, and *o* sometimes into *e*. The old Latin name of the Service-tree is *sorbus*, in French *sorbier*, and in Spanish, according to Gerard's Herbal, the berries are called *sorbas* or *servas*. I think it more probable, therefore, on philological grounds, that service is a corruption of the old Latin name. Certainly the good old Saxon name, White-beam, might, for the reason alleged, have been changed into Service by some pedantic herbalist of the sixteenth century, had it really been used in making *cervisia*, but I find no trace of such an origin.

2. Virgil tells us (Georgic III., 380) that nations living north of the Danube spent the winter in underground houses, where in their nightly jollifications, they burnt elm trees whole, and drank home-made wine made of leaves (*fermentitia*) and sour Service-berries (*sorba*). Virgil's words are obscured in poetic elegance, but all the editors have followed one another in suggesting that the drink was beer (*cervisia*). I find no other passage in the Latin classics in which *sorba* are mentioned as the ingredients of a drink, except in Pliny, who names them amongst fourteen kinds of fruit, such as Apples, Mulberries, Cornels, and Medlars, which were used in making imitations of grape wine (*vina fictitia*), but these wines as the context shows, were not like beer, but like what we call home-made wines, such as are now made from Elderberries, Gooseberries, Currants, &c. But Evelyn in his *Sylva*, describing the Mountain Ash or Quick-beam, a close ally of the White-beam, says, "Ale and beer brewed with these berries, being ripe, is an incomparable drink, familiar in Wales." He tells us also in another chapter that the fruit of the Service-tree "makes a conditum of admirable effect to corroborate the stomach," but I search in vain for anything to corroborate his statement about the ale and beer, though it may be true. Gerard, who is full on the "virtues" both of the Quick-beam and the White-beam, says nothing about their use in brewing.

3. Pliny is the only Latin classical writer in whose works we find the word *cervisia*. He uses it of a drink made of cereal grain in Gaul, and other Roman provinces. In Spain it was called *cerit*; he might have added that in Britain it was called *cuzw*, which, with a Latin termination, he would have spelt very like *cervisia*. This name is supposed to have been adopted, and changed to Latin, from the language of the conquered Celtic nations, who used the drink, and to whom the same word went back again in its Latin form, becoming in French *cervoise*, in Spanish *cerveja*, and in Italian *cervogia*. Our Briton ancestors, no doubt, brewed their *cuzw* from good malt, and not from anything so nasty as Service-berries. Malt ale, as Herodotus tells us, was in use amongst the ancient Egyptians, who called it "*Zythi*." Xenophon welcomed the same drink amongst the Armenian mountaineers, where he and his soldiers were dying of cold. He does not tell us its native name, but says that it was good, but very strong. Tacitus describes the malt ale of the ancient Germans, and Dioscorides, who calls it *cour-mi* (again the Celtic root of *cuzw*), says it was drunk by the Spaniards and Britons, as well as the ancient Egyptians. Having stated my case to show that *cervisia* was not Service-tree beer, I leave the matter to the judgment of the readers of this journal. *C. Wolley Dod, Edge Hall, Malpas.*

SYCAMORE BUDS AND SQUIRRELS.—A few days ago when passing through a group of Sycamores, I was astonished to see a large quantity of leaf buds strewed on the ground under the trees, and thinking that birds were the authors of the mischief, I looked up to see which species of bird it was. To my surprise, instead of birds, I saw a squirrel very nimbly leaping from branch to branch, and apparently selecting the buds, but for what purpose I could not determine; but it seemed as much for mischief as for food, seeing that the buds were dropped as soon as bitten off. It would be interesting to know if any readers of the *Gardeners' Chronicle* have previously noted the occurrence, and if it is usual for squirrels to bite off the buds of the Sycamore. Although squirrels are rather plentiful here, and injure many of the Coniferæ, no person to whom I have spoken on the subject has known them to have attacked the Sycamore before. May not the scarcity of Fir cones and buckmast account for the injury done? *J. Whatton, Grooms Cast.*

HELLEBORUS NIGER V. ANGUSTIFOLIUS.—At the present time there is a good display of this fine variety of Christmas Rose in the York Nurseries, some of the plants being very large, and with over one hundred snow-white blossoms on each. This is the plant which is grown so finely in the vicinity of Manchester, and is in consequence sometimes called the "Manchester variety." For gardens where the loam is of a sandy nature, it is the best possible variety to grow; if, however, the loam is heavy and inclining to clay, H. niger v. altifolius (maximus) should then be planted, it being one that is best suited for such soils. *R. P.*

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 14.—The first of this year's meetings of the several committees was held in the Drill Hall at Westminster last Tuesday, when, although the plants exhibited were by no means numerous, there was a strong muster of horticulturists, and also in the afternoon, during the instructive Lecture on "A Form of Winter Gardening," which was given by the Rev. W. Wilks.

Floral Committee.

Present: Dr. M. T. Masters, F.R.S., in the chair, and Messrs. R. Dean, T. Baines, F. Ross, H. Herbst, J. Walker, G. Nicholson, H. B. May, H. Cannell, W. C. Leach, P. Blair, B. Wynne, H. Turner, C. Noble, G. Paul, J. Fraser, R. B. Lowe, and W. Holmes.

A group of nicely grown Ferns in pots was staged by Mr. H. B. May, Dyson's Nursery, Upper Edmonton, in which were some very useful Ferns. There were a fine plant of Nephrolepis davallioides, Adiantum ciliare, the crested compact Pteris cretica nobilis, Adiantopsis radiata, Lygodium dichotomum, Gymnogramma multiceps, a vigorous growing form, and heavily crested; also a large example of Pteris serrulata gloriosa, a very full crested form, to which an award was made: it is likely to be of much use as a decorative plant. From Messrs. J. Veitch & Sons, Chelsea, S.W., was sent an interesting collection of Pitchers of Nepenthes, showing species and hybrids. There were examples of all the best kinds, which may be seen by the list given.

Natural species and Varieties.	Nepenthes Curtisii
Nepenthes Northiana	,, lævis?
,, cincta	*Garden Hybrids.*
,, bicalcarata	Nepenthes chelsoni
,, laciniata, glabrescens (Ceylanica)	,, cylindrica
,, ,, rubra (Ceylanica rubra)	,, Dicksoniana
,, gracilis major	,, Dominii
,, Hookeriana	,, Courtii
,, ,, elongata	,, coccinea
,, sanguinea	,, hybrida
,, distillatoria	,, ,, maculata
,, Burkei	,, intermedia
,, Veitchii	,, Masters'ana, light var.
,, Raffles'ana	,, ,, dark variety
,, Rajah	,, Morganiæ
,, Kennedyana	,, rufescens
,, albo-marginata	,, rubro-maculata
ampullaria	,, Sedeni
,, Veitchii	,, Stewartii
,, ,, vittata	,, Raffles'iana pallida?
,, ,, vittata major	,, Amesiana
	,, Wrigleyana

A number of flowering plants of Amaryllis aulica were sent by Mr. O. Thomas, Chatsworth Gardens, Chesterfield. They were vigorous specimens, and were laden with their richly coloured flowers.

A collection of nine varieties of the Chinese Primrose, all singles, was sent by Messrs. H. Cannell & Sons, Swanley, Kent, and were well flowered, good habited plants; the best varieties being Her Majesty, a large pure white flower with a conspicuous eye; Eynsford Pink, rosy-pink—very elegant; and Eynsford Red, bright shaded crimson, and frilled edges to the petals.

Messrs. Paul & Son contributed specimens of Spiræa astilboides in flower, and Arum sanctum, with the spadix and interior of the spathe deep purple-brown.

Blooms of a dwarf variety of Richardia æthopica were sent by Messrs. Walsham & Son, nurserymen, Scarborough; and from Messrs. Barr & Son, Galanthus Elwesii, various Crocuses, and Narcissus minor.

Orchid Committee.

Present: Sir Trevor Lawrence, Bart., M.P., in the chair; and Messrs. James O'Brien, H. J. Veitch, F. A. Philbrick, Baron Schroder, De B. Crawshay, F. G. Tautz, T. B. Haywood, E. Hill, H. Ballantine, H. M. Pollett, J. Dominy, C. Pilcher, L. Castle, J. Douglas, and F. Moore.

From the gardens of Sir Trevor Lawrence, at Burford Lodge, Dorking, came an interesting collection of Dendrobiums, comprising D. nobile Tollianum, D. n. Cooksoni, and a new form of D. nobile, distinguished as D. n. Burford variety; it exhibits the characteristics of D. n. Cooksoni, but the markings similar to those on the labellum, are on the sepals instead of the petals. Three very handsome hybrid Dendrobes were also exhibited in this collection, viz., D. xanthocentrum ×, which somewhat resembles D. Schneiderianum ×. The flowers partake much of the characters of D. Findlayanum, which was one of the parents. It is white, with a rosy flush on the petals and sepals, darker at the tips; lip broad, and almost round, drawn to a slight point, which was of the same rosy-purple as the other parts. In the throat was a rich orange blotch. Another was named Dendrobium Juno×, and was the result of crossing D. Wardianum and D. Linawianum (moniliforme). Its flowers resembled those of D. nobile nobilius, but with the dark blotch and orange-yellow of D. Wardianum in the lip. The third is a charming novelty named D. Luna×, with growths and flowers of the same form as D. Findlayanum, which, with D. Ainsworthii, was its parent. Its flowers are white, with sulphur-yellow at the base of the lip, and pale pink tips to each of the segments. From the same gardens also came Lælia Patinii, Rchb. f., which is probably a variety of Cattleya Skinneri, and a distinct form of Lælia pumila named "El Spirito Sancto."

From Baron Schroder's collection, at The Dell, Egham, Mr. H. Ballantine brought cut spikes of a fine representative collection of white Lælia anceps—

L. a. Dawsoni, L. a. stella, L. a. Sanderiana, L. a. Veitchiana, L. a. Percivaliana, and the true L. a. Schroderiana, a very different form from the variety of L. a stella, which is found under that name in gardens.

De B. Crawshay, Esq., Rosefield Sevenoaks, contributed a plant of Lælia Crawshayana, and a cut flower of it, and also of L. Gouldiana and L. anceps, for comparison, from Messrs. F. Sander & Co., St. Albans.

Frederick G. Tautz, Esq., Goldhawk Road, Shepherd's Bush (Mr. Cowley, gr.), sent well-flowered plants of the pretty Cœlogyne lentiginosa, with rich yellow-brown flowers; Lycaste plena Measuresiana, and three fine forms of L. Skinneri, that named "Lucyana" being white suffused with pink; and the variety "Imperator" had large and well-formed flowers, whose lip and petals exhibited fine crimson colouring, both being very delicate and pleasing.

Another very handsome variety, L. Skinneri rubra, came from the gardens of N. N. Sherwood, Esq., Dunedin, Streatham Hill. It is one of the broadest in the segments of any of the varieties of L. Skinneri, and has very dark, dull, rosy colour on lip, sepals and petals, and is very striking.

E. Harvey, Esq., Riverdale, Aigburth, Liverpool, staged a fine specimen with five spikes of a rather small flowered variety of Lælia anceps of the L. a. Williamsii type. From Mr. Johnson, gr. to T. Statter, Esq., Stand Hall, Whitefield, Manchester, came a good plant of a nearly white form of Vanda Amesiana, with one piece of the coloured variety for comparison. The plant had six spikes, and its fragrance was remarkable.

Mr. Blair, from the Duke of Sutherland's gardens at Trentham, brought a good specimen of a pale variety of Cattleya Trianæ, with seven flowers, the parts of flower being faintly suffused by rosy-purple. It was named C. t. albescens. A large and well grown specimen of Lycaste plana, with many fine flowers, was contributed by E. Ellis, Esq., Manor House, Wallington (gardener, Mr. G. A. Glover).

One of the most interesting of the exhibits was Dendrobium Macfarlanei, from Messrs. Jas. Veitch & Sons, Chelsea. The growth of the plant is much like a slender D. suavissimum, and it had an upright spike bearing two snow-white flowers, with some violet on the side lobes of the labellum. It is a valuable introduction from Torres Straits, and its flowers vividly call to mind a white Lælia anceps. They are borne often ten or twelve on a spike. The sepals are pure white and lanceolate, about 1½ inch long, and ½ inch or more wide at the base; petals are pure white, and as long as the sepals, of rhomboid form, being nearly 1 inch across at the widest part. The lip has a conspicuous median lobe about 1 inch in length and ½ inch across, it is oval, and notched into three points at the tip. The side wings are closed around the column, and bear a few lines of violet, which is indeed the only trace of colour in the entire flower. Messrs. Veitch also contributed Cypripedium Calypso×, a variety approaching C. Lathamianum×, and under the name C. Masereeliaanum ×, Messrs. Pitcher and Manda, of the United States Nursery, Short Hills, New Jersey, U.S.A., sent a hybrid between C. Spicerianum and C. insigne Chantini, which the committee decided was C. Leeanum×. Mr. Myles, Abbey Tower, Ryde, Isle of Wight, forwarded a twin-flowered C. insigne similar to those frequently seen of late years.

Fruit Committee.

Present: J. Lee, Esq., in the chair; and Messrs. P. Crowley, P. Barr, C. Ross, J. Cheal, G. Cliffe, W. Dominy, G. Norman, A. Watkins, W. Warren, J. Wright, A. H. Pearson, G. W. Cummins, G. Bunyard, W. Wildsmith, F. Lane, H. Balderson, T. J. Saltmarsh, R. D. Blackmore, W. Coleman, J. Hudson, J. Smith, and Dr. R. Hogg.

From the Society's gardens at Chiswick were sent a few varieties of Broccoli, the best of which appeared to be Snow's Winter White—good solid heads; Improved Early Purple Sprouting, White Sprouting, and Early Penzance.

A fruiting-plant of a Carica was contributed by Mr. O. Thomas, Chatsworth Gardens, Chesterfield, with a good cluster of fruit, ripe and unripe, the individuals were small oval fruits, lemon-yellow, and quite smooth.

A collection of good sound fruits of Apples was sent by W. Roupell, Esq., Harvey Lodge, Roupell Park, S.E. There were in all twenty varieties, the best being Peasgood's Nonsuch, Alexander, Cox's Orange, Lane's Prince Albert, Cellini, Bismarck, Melon, The Queen, and Beauty of Kent. They were shown as having been grown within the 5 miles radius.

Mr. A. Dean, Bedfont, Middlesex, sent two samples of Spanish Onion, one the large soft exhibition type, the other smaller, heavy fine examples, much more useful.

Mr. Miller, gr. to Lord Foley, Esher, sent two boxes of Mushrooms from inside and outside beds. Mr. Miles, Appley Towers, Ryde, I.W., sent his new Grape, Appley Towers, and another white seedling, Lady Hutt.

Mr. H. Morris, Tarbach, S.W., sent a fine Pine, and Mr. Cummins, gr. to A. H. Smee, Esq., The Grange, Wallington, sent Apple Remborough, much like King of the Pippins in form and general appearance.

Awards were made as follows:—

BY THE FLORAL COMMITTEE.

Awards of Merit.

To Pteris serrulata gloriosa, from Mr. H. B. May (unanimous).

To Primula Eynsford Pink, from Messrs. H. Cannell & Sons (9 votes to 1).

To Primula Her Majesty, from Messrs. H. Cannell & Sons (unanimous).

To Primula Eynsford Red, from Messrs. H. Cannell & Sons (unanimous).

Medals.

Silver Banksian, to Messrs. J. Veitch & Sons, for group of Nepenthes.

Bronze Banksian, to Mr. H. B. May, for group of Ferns.

BY THE ORCHID COMMITTEE.

First-class Certificates.

To Dendrobium xanthocentrum×, from Sir T. Lawrence (10 votes to 3.)

To Dendrobium Juno, from Sir T. Lawrence (unanimous.)

To Dendrobium Luna, from Sir T. Lawrence (11 votes to 2).

To Dendrobium Macfarlanei, from Messrs. J. Veitch & Sons (unanimous.)

To Lælia anceps Schroderiana, from Baron Schroder (unanimous.)

Award of Merit.

To Dendrobium nobile Burford var., from Sir T. Lawrence (unanimous.)

Cultural Commendation.

To E. Ellis, Esq., for Lycaste plana.

The following is the list of members of Committees for the current year.

FLORAL COMMITTEE.

Chairman. — William Marshall, Auchinraith, Bexley.

Vice-Chairmen.—Shirley J. Hibberd, 1, Priory Road, The Green, Kew; Maxwell T. Masters, M.D. F.R.S., Mount Avenue, Ealing, W.; George Paul, The Old Nurseries, Cheshunt.

Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Baines, Thomas, Fern Cottage, Palmer's Green, N.
Barlow, S., Manchester.
Burbidge, F. W., Trinity College Botanic Garden. Dublin.
Blair, P. C., Trentham Gardens, Stoke-on-Trent.
Cannell, H., Swanley, Kent.
Castle, L., Hotham House, Merton.
Dean, R., Ranelagh Road, Ealing, W.
D'Ombrain, Rev. H. H., Westwell Vicarage, Ashford, Kent.
Douglas, J., Great Gearies, Ilford.
Druery, C. T., 25, Windsor Road, Forest Gate.
Fraser, John, Lea Bridge Road, Leyton, E.
Girdlestone, T. W., Sunningdale, Berks.
Goldring, W., 52, Gloucester Road, Kew.
Herbst, H., Kew Road, Richmond, Surrey.
Hill, E., Tring Park Gardens, Tring.
Holmes, W., Frampton Park Nurseries, Hackney, E.
Ingram, W., Belvoir Castle Gardens, Grantham.
James, J., Farnham Royal, Slough.
Jeffries, C., Boston House Gardens, Brentford.
Kelway, W., Langport, Somerset.
Leach, W. C., Aldbury Park Gardens, Guildford.
Lindsay, R., Botanic Gardens, Edinburgh.
Lowe, R. B., Ashbridge Gardens, Berkhamsted.
May, H. B., Dyson's Lane, Upper Edmonton.
Mawley, E. Rosebank, Berkhamsted.
Molyneux, E., Swanmore Park Gardens, Bishops Waltham.
Nicholson, C., Royal Gardens, Kew.
Noble, C., Sunningdale Nursery, Bagshot.
O'Brien, James, West Street, Harrow-on-the-Hill.
Pilcher, Charles, 84, Ringford Road, Wandsworth, S.W.
Pollett, H. M., Fernside, Bickley, Kent.
Ross, F., Pendell Court Gardens, Bletchingley.
Thomas, Owen, Chatsworth Gardens, Chesterfield.
Turner, H., Royal Nurseries, Slough.
Walker, J., Ham Green, Surrey.
Williams, W. H. (Keynes & Co.), Salisbury.
Wynne, B., 17, Catherine Street, Strand, W.C.

NOTE.—Members of the Council are Members of all the Committees.

ORCHID COMMITTEE.

Chairman.—H. J. Veitch, F.L.S., Royal Exotic Nursery, Chelsea, S.W.

Vice-Chairmen.—J. Douglas, Great Gearies, Ilford; Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W.

Secretary.—James O'Brien, West Street, Harrow-on-the-Hill.

Baines, Thomas, Fern Cottage, Palmer's Green, N.
Ballantine, H., The Dell Gardens, Staines.
Castle, L., Hotham House, Merton.
Crawshay, De Barri, Rosefield, Sevenoaks.
Cookson, Norman C., Oakwood, Wylam-on-Tyne.
Courtauld, Sydney, Bocking Place, Braintree.
Dominy, John, 11, Tadema Road, Chelsea, S.W.
Haywood, T. B., Woodhatch Lodge, Reigate.
Hill, E., Tring Park Gardens, Tring.
Latham, W. B., Botanic Gardens, Edgbaston, Birmingham.
Lawrence, Sir Trevor, Bart., M.P., 57, Princes Gate, S.W.
Lindsay, R., Botanic Gardens, Edinburgh.
Moore, F., Blendon Hall Gardens, Bexley.
Philbrick, F. A., Q.C., Oldfield, Bickley Park.
Pilcher, Charles, 84, Ringford Road, Wandsworth, S.W.
Pollett, H. M., Fernside, Bickley, Kent.
Sander, F., St. Albans.
Schroder, Baron Henry, The Dell, Staines.
Smee, H. J., Wallington, Surrey.
Tautz, F. G., Studleigh House, Goldhawk Road, W.
Williams, H., Victoria Nurseries, Holloway, N.

FRUIT AND VEGETABLE COMMITTEE.

Chairman.—Sir Charles Strickland, Bart., Hildenley, Malton.

Vice-Chairmen.—T. Francis Rivers, Sawbridgeworth; John Lee, 78, Warwick Gardens, Kensington; R. D. Blackmore, Teddington.

Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Balderson, H., Corner Hall, Hemel Hempstead.
Barr, Peter, 12, King Street, Covent Garden, W.C.
Bates, W., Poulett Lodge Gardens, Twickenham.
Bennett, W., Rangemore Park Gardens, Burton-on-Trent.
Bunyard, George, The Nurseries, Maidstone.
Cheal, J., Crawley, Sussex.
Cliffe, G., Shoreham Place Gardens, Sevenoaks.
Coleman, W., Eastnor Castle Gardens, Ledbury.
Crowley, Phillip, Waddon House, by Croydon.
Cummins, G. W., The Grange Gardens, Wallington.
Denning, W., Heathfield Nursery, Hampstead.
Dunn, Malcolm, The Palace Gardens, Dalkeith, N.B.
Fairgrieve, P. W., The Palace Gardens, Dunkeld, N.B.
Ford, Sidney, The Gardens, Leonardslee, Horsham.
Hogg, Dr., LL.D., F.L.S., 99, St. George's Road, Pimlico.
Haycock, C., Goldings, Hertford.
Hudson, J., Gunnersbury House, Acton.
Lane, Fred. Q., Berkhamsted.
McIndoe, James, Hutton Hall Gardens, Guisborough.
Moore, F., Blendon Hall Gardens, Bexley.
Moss, A., 39, London Bridge, E.C.
Norman, G., Hatfield House Gardens, Hatfield.
Pearson, A. H., The Nurseries, Chilwell, Notts.
Ross, Charles, The Gardens, Welford Park, Newbury.
Saltmarsh, T. J., The Nurseries, Chelmsford.
Smith, James, The Gardens, Mentmore, Leighton Buzzard.
Sutton, A. W., F.L.S., Reading.
Veitch, H. J., Royal Exotic Nurseries, Chelsea.

Veitch, P. C. M., The Royal Nurseries, Exeter.
Watkins, A., Exeter Street, Strand.
Warren, W., Worton Gardens, Isleworth.
Weir, Harrison, Sevenoaks.
Wildsmith, W., Heckfield Place, Winchfield.
Willard, Jesse, Holly Lodge Gardens, Highgate, N.
Wright, John, 171, Fleet Street.
Wythes, G., Syon House Gardens, Brentford.

NOTE.—Members of the Council are Members of all the Committees.

ANCIENT SOCIETY OF YORK FLORISTS.

A well attended annual meeting was held last evening in the White Swan, York, under the presidency of Mr. G. Lamb. Mr. Lazenby, secretary, read the annual report, which stated that the committee had again the pleasure to announce very satisfactory results from past year's work. There was a large increase in the number of members, the receipts from this source being augmented by about £22. Despite the increase of the expenditure, there remained a balance at the bankers of over £100. A flower service, through the kindness of the chaplain (the Rev. F. Umpleby), was held at Osbaldwick Church in July, and a collection, amounting to £10, was made in aid of the Gardeners' Orphan Fund.

Obituary.

JOHN DUKE.—By the death of John Duke, which took place at 64, Canongate, Edinburgh, on the 5th inst, at the age of 78 years, a figure familiar in the nursery trade of Edinburgh for many years, and to numerous readers of the *Gardeners' Chronicle*, has been removed. Mr. Duke began his career as a nurseryman in nurseries in the south of Scotland, removing, after some time, to Edinburgh, where he served first the late Mr. Cunningham (now Cunningham & Fraser), of Comely Bank Nursery. He was, however, best known in connection with the firm of Messrs. Peter Lawson & Son (latterly the Lawson Seed and Nursery Company, Limited), which he served between thirty and forty years. His knowledge of nursery stock, particularly of hardy shrubs and trees, and fruit trees, was very comprehensive, and of such kinds of nursery stock he was recognised as being a very capable valuer. He retired from active work about the year 1885.

Law Notes.

PROSECUTION OF A COMMISSION SALESMAN.

On Thursday last, Frederick Wise, described as a commission salesman, was charged at Bow Street Police Court with obtaining goods under false pretences. Mr. Wolverton (with whom was Mr. J. P. Grain), instructed by Mr. C. Butcher, Solicitor for the Nursery and Seed Trade Association, appeared to prosecute, and said the prisoner had held himself out to be a commission salesman, having a stall, No. 360, in the Wholesale Flower Market, Covent Garden, although he had no stall whatever in the market, and on the faith of such representation, it was alleged growers of produce had sent goods to him which he had sold, and had not accounted for the proceeds. Counsel stated that he would only call sufficient evidence to justify a remand. He called Mr. Cook, gardener to Major Henneage, of Compton Bassett, Wilts, and Mr. Theodore Jannoch, of Dersingham, Norfolk, who proved having sent goods to the prisoner on the faith of his representation, and the case was then adjourned till Thursday next. As this is a case of much importance to the trade, and is taken up on public grounds, it is hoped that others who have sent goods under similar circumstances will communicate with the Nursery and Seed Trade Association.

CHISWICK GARDENERS' ASSOCIATION.—Next Friday evening, January 24, Mr. W. SWAN, Castle Hill Garden, Englefield Green, Staines, will lecture to the members of this Association, dealing with Orchids and their cultivation.

Markets.

COVENT GARDEN, January 16.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

BUSINESS very dull, and prices of imported goods much lower. Grapes realising better values. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Evergreens, in var., per doz.	6 0	24 0
Aspidistria, doz.	18 0	42 0	Ferns, in var., per doz.	4 0	18 0
— specimen plants, each	7 6	10 6	Ficus elastica, each	1 6	7 0
Azaleas, various, each	2 6	5 6	Foliage plants, various, each	2 0	10 0
Begonias, dozen	4 0	12 0	Hyacinths, p. doz	9 0	12 0
Christmas trees, doz.	4 0	24 0	Lily of the Valley, p. doz. pots	18 0	24 0
— extra size, each	5 0	21 0	Marguerites, doz.	6 0	12 0
Chrysanth., dozen	6 0	15 0	Palms in var., each	2 6	21 0
Cyclamen, dozen	15 0	24 0	Pelargoniums, scarlet, per dozen	6 0	8 0
Cyperus, per dozen	4 0	12 0	Roman Hyacinths, per dozen pots	9 0	12 0
Dracena terminalis, per dozen	30 0	60 0	Solanums, per dozen	6 0	12 0
— viridis, per doz.	12 0	24 0	Tulips, doz. pots	8 0	10 0
Epiphyllum, per doz.	12 0	18 0			
Euonymus, in var., per doz.	6 0	18 0			
Ericas, various, doz.	8 0	21 0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Marguerites, 12 bun.	3 0	6 0
Azaleas, doz. sprays	0 9	1 6	Narcissus, paper-white, French, doz. bun.	3 0	6 0
Bouvardias, per bun.	0 8	1 0	Eng., doz. sprays	1 0	1 6
Carnations, 12 bl.	1 0	2 0	Pelargoniums, 12 spr.	1 0	2 0
Cattleyas, white, doz.	2 0	4 0	— scarlet, 12 spr.	0 9	1 6
— various, per doz.	1 0	2 0	Primulas, double, 12 sprays	1 0	1 6
Carnations, 12 blms.	1 0	2 0	Roman Hyacinths, Eng., doz. sprays	0 9	1 6
Chrysanth., 12 bun.	4 0	12 0	Roses, Tea, per doz.	1 0	3 0
Chrysanth., 12 blms.	0 6	3 0	— coloured, dozen	2 0	4 0
Cyclamen, 12 blms.	0 4	0 9	— red, per dozen	2 0	3 0
Daffodils, doz. blms.	1 0	2 6	— Safrano, dozen	1 6	2 6
Eucharis, per dozen	3 0	4 0	Spiræa, doz. sprays	1 0	1 6
Gardenias, 12 blooms	0 4	1 0	Stephanotis, 12 spr.	0 9	1 0
Heliotropes, 12 spr.	0 6	1 0	Tuberoses, 12 blms.	1 6	2 0
Lilac, white, 1 r. bun.	3 0	7 0	Sweet, doz. blooms	1 0	2 0
Lilium, var., 12 bl.	2 0	6 0	Violets, 12 bun.	1 0	2 0
Lily of the Valley, doz. sprays	0 9	1 6	French, bunch	1 6	2 6
Maiden Hair Fern, 12 bun.	4 0	9 0	— Parma, bunch	3 6	5 0
Mignonette, 12 bun.	2 0	4 0			
— French, per bun.	1 6	2 0			

ORCHID-BLOOM in variety.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Beans, French, lb.	0 9	...	Mushrooms, punnet	1 6	...
Beet, red, per dozen	1 0	2 0	Onions, per bunch	0 5	...
Carrots, per bunch	0 6	...	Parsley, per bunch	0 6	...
Cauliflowers, each	0 3	...	Ribbarb, per bundle	0 6	...
Celery, per bundle	1 6	2 0	Seakale, punnet	2 6	...
Cucumbers, each	1 0	1 6	Shallots, per lb.	0 6	...
Endive, per dozen	1 6	...	Spinach, per bushel	5 0	...
Herbs, per bunch	0 4	...	Sprue, per bundle	1 6	...
Leeks, per bunch	0 3	...	Brussel Sprouts, per lb.	0 3	...
Lettuce, per dozen	1 6	...	Tomatos, per lb.	1 0	...
Mustard and Cress, punnet	0 4	...	Turnips, per bunch, new	0 5	...

POTATOS.—Market firm. For best samples, 90s. to 100s.; medium, 60s. to 70s.; and ordinary to inferior, 40s. to 50s. per ton.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	1 6	7 0	Lemons, per case	12 0	20 0
— Nova Scotia, brl.	12 0	25 0	Pine-apples, Eng., lb.	1 0	1 6
Cobs, per 100 lb.	110	0 ...	— St. Michael, each	2 0	6 0
Grapes, per lb.	2 0	4 0			

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure (quarter), for the week ending January 11:—Wheat, 30*s.* 1*d.*; Barley, 31*s.* 5*d.*; Oats, 18*s.* 4*d.* For the corresponding period last year:—Wheat, 30*s.* 2*d.*; Barley, 26*s.* 8*d.*; Oats, 16*s.* 6*d.*

SEEDS.

LONDON: *Jan.* 15.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, state that the inquiry for farm seeds is now increasing. Choice parcels of English red Clover are scarce, and command higher figures; secondary qualities remain unchanged. Trefoil, white Clover, and Alsike, keep steady. Rye-grasses neglected. There is a more active demand for winter Tares. Blue Peas sell at full prices, though trade is not brisk. Haricots are this season good and cheap. Birdseed are still remarkably low.

FRUITS AND VEGETABLES.

SPITALFIELDS: *Jan.* 15.—Supplies continue plentiful, but the demand very slow. The following were the quotations:—Cauliflowers, 1*s.* 6*d.* to 2*s.* 6*d.* per dozen; Savoys, 2*s.* to 3*s.* 6*d.* per tally; Cabbages, 1*s.* 6*d.* to 2*s.* do.; Curley Kale, 1*s.* per bushel; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Sprouts, 9*d.* to 1*s.* 6*d.* per half sieve; Turnip-tops, 1*s.* 6*d.* to 2*s.* 6*d.* per sack; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches; Turnips, 2*s.* to 3*s.* do.; Carrots, 1*s.* 6*d.* to 2*s.* do.; Parsley, 1*s.* to 2*s.* do.; Celery, 4*s.* to 11*s.* per dozen bundles; Horseradish, 1*s.* to 1*s.* 3*d.* per bundle; ; Parsnips, 4*d.* to 6*d.* per score; Beetroots, 3*d.* to 4*d.* per dozen; Endive, 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress, 1*s.* to 2*s.* per dozen baskets; Leeks, 1*s.* to 1*s.* 6*d.* per dozen, Spanish Onions, 6*s.* to 7*s.* 6*d.* per case; English do., 7*s.* to 8*s.* 6*d.* per cwt.; Bordeaux do., 6*s.* to 7*s.* per case; Belgian do., 5*s.* to 6*s.* per bag of 110 lbs.; Dutch do., 5*s.* 5*d.* to 6*s.* do.; forced Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; English Apples, 3*s.* to 7*s.* per bushel; American do. 10*s.* to 16*s.* per barrel.

STRATFORD: *Jan.* 14.—Greens, 1*s.* 6*d.* to 2*s.* 6*d.* loose; Carrots (cattle feeding), 18*s.* to 25*s.* per ton; Mangels, 15*s.* to 20*s.* do.; Swedes, 17*s.* to 20*s.* do.; Apples, English, 2*s.* to 7*s.* per bushel; Sprouts, 1*s.* to 2*s.* per half-sieve; Onions, 7*s.* 6*d.* per case; Oranges, 8*s.* 6*d.* to 14*s.* do. Beetroot, 8*d.* to 1*s.* per dozen; Parsnips, 10*d.* to 1*s.* per score; Carrots, 2*s.* 6*d* per dozen bunches; Rhubarb, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Radish, 1*s.* do.; horseradish, 1*s.* 6*d.* per bundle; dates, 13*s.* per cwt.

POTATOS.

SPITALFIELDS: *Jan.* 14. — Supplies large, with drooping prices:—Regents, 45*s.* to 85*s.*; Hebrons, 45*s.* to 100*s.*; Magnum Bonums, 40*s.* to 95*s.*; Imperators, 45*s.* to 75*s.* per ton.

SPITALFIELDS: *Jan.* 15.—Quotations: Early Rose, 40*s.* to 50*s.*; Magnums, 45*s.* to 65*s.*; Regents, 50*s.* to 70*s.*; Champions, 50*s.* to 55*s.*; Imperators, 50*s.* to 70*s.*; Hebrons, 50*s.* to 60*s.* per ton.

STRATFORD: *Jan.* 14. — Quotations:— Magnums, light, 50*s.* to 60*s.*; do., dark, 40*s.* to 50*s.*; Scotch do., 60*s.* to 80*s.*; Regents, 60*s.* to 70*s.* per ton.

HAY.

Averages.—The following are the averages of the prices at the various metropolitan markets during the past week:—Clover, prime, 78*s.* to 98*s.*; inferior, 40*s.* to 75*s.* Best hay, 60*s.* to 92*s.*; inferior, 26*s.* to 50*s.* Straw, 28*s.* to 40*s.* per load.

The Weather.

THE PAST WEEK.

The following summary record of the weather for the week ending January 11, is furnished from the Meteorological Office:—

"The *weather* has continued cloudy or dull very generally, with frequent falls of rain. In many parts of England, however, some fine, bright intervals were experienced. Soon after the commencement of the week severe thunderstorms occurred in many parts of Ireland and Scotland.

"The *temperature* has been much above the mean in all districts. Over Ireland and the greater part of Scotland, the excess has been 5° or 6°, and over the western parts of England and Scotland 7°, while over southern, central, eastern, and north-eastern England, the excess has been as much as 8° or 9°. The highest of the maxima were registered in most places either on the 6th or 7th, when the thermometer rose to between 52° and 55° over Scotland, and to between 54° and 57° in Ireland, while over England they ranged from 55° to 58°. The lowest of the minima, which were recorded either on the 5th or 11th, ranged from 24° in 'Scotland, N.,' and 29° in 'England, N.E.,' to 36° in 'Scotland, W.,' and 'England, N.W.,' and to 44° in the 'Channel Islands.' During the greater part of the week, the minima at many of the English stations were but little below 50°.

"The *rainfall* has been rather less than the mean in nearly all of the English districts, but considerably more over Ireland and Scotland, as well as in 'England, N.W.'

Bright sunshine has continued very deficient generally, the percentage of the possible amount of duration having ranged from 3 in 'England, N.E.' to 17 in 'England, S.' and 'Ireland, N.,' and to 21 in the 'Channel Islands.'"

[BY the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.						RAINFALL.			BRIGHT SUN.	
	Above (+) or below (—) the Mean for the week ending January 11.	ACCUMULATED. Above 42°, for the Week.	ACCUMULATED. Below 42° for the Week.	ACCUMULATED. Above 42°, difference from Mean since Jan. 1, 1890.	ACCUMULATED. Below 42°, difference from Mean since Jan. 1, 1890.	More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths inch.		In.		
1	5 +	24	11	+ 26 —	37	4 +	12	2.0	5	5
2	6 +	29	13	+ 24 —	35	6 +	10	1.8	10	8
3	8 +	31	6	+ 23 —	8	1 —	7	0.6	3	6
4	8 +	35	4	+ 21 —	1	1 —	7	0.6	15	17
5	9 +	38	4	+ 19 —	2	2 —	9	0.6	10	12
6	8 +	39	0	+ 19 —	11	1 —	7	0.9	17	15
7	7 +	32	3	+ 22 —	37	3 +	12	3.5	5	10
8	7 +	36	1	+ 19 —	24	3 +	11	1.7	5	8
9	7 +	46	0	+ 18 +	3	4 —	10	1.2	9	16
10	5 +	34	5	+ 18 —	24	7 +	12	2.1	17	21
11	6 +	40	0	+ 28 —	26	5 +	12	2.5	21	20
12	5 —	53	0	+ 21 +	1	1 —	11	1.2	9	18

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

ENQUIRIES.

"*He that questioneth much shall learn much.*"—BACON.

CAN any reader oblige by informing me of the name of the subjoined lines, and their place and publication?

Come, let us go into the lane, love mine,
And mark and gather what the autumn grows;
The creamy Elder mellowed into wine,
The russet hip which was the pink-white Rose;
The amber Woodbine into rubies turned,
The Blackberry that was the Bramble born;
Nor let the seeded Clematis be spurned,
Nor pearls, that now are corals, of the Thorn.
Look! what a lovely posy we have made
From the wild garden of the waning year—
So when, dear love, your summer is decayed,
Beauty more touching than is clustered here
Will linger in your life, and I shall cling
Closely as now, nor ask if it be spring. *X.*

Where can I get seeds of Limnophila heterophylla, L. racemosa, and L. gratioloides? *G.*

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

ADIANTUM FARLEYENSE: *An Old Subscriber.* Pot the plant in early spring, using peat, a little loam, and leaf-mould, and through the whole distribute nodules of sandstone of the size of a walnut and and less, a fair amount of coarse sand must be added to make the mass quite permeable to water. The drainage must be good if the plant be in a pot, but less is needed if a pan be used. Place in the intermediate house, and not at the warmest part, and where it may be shaded during bright sunshine. Water the soil before it gets very dry; and do not syringe or water overhead, or afford water by means of a rose, but let the water run on to the soil, at a point distant from the root-stock. Give the plant less water after September, and keep it moderately dry in the resting period, that is, during the late autumn and winter months. If the plant be stood over a pan of water a few inches above the surface, it will be benefited in summer thereby. When it has grown to a large size, the centre becomes starved, and compressed by the surrounding crowns; and it is better then if broken up in three or four pieces, or the centre may be cut clean out with a long knife and refilled with soil. It is an evergreen, and is therefore not improved by having its fronds mown over, but the aged fronds, which by the way are frilled and are unfertile, may be removed as fast as they become dingy. The farther the plant stands from the light the longer will the stipes be.

BADLY COLOURED GRAPES: *A. P.*—Overcropping this year certainly, and perhaps in previous years, is the cause of the Vines growing but little, and having red berries. The evil has been somewhat aggravated by shading, and the flavour has suffered from that cause. Do not let more than a dozen bunches grow next year, thin early the bunches and berries. Use Thompson's vine manure on the surface of the border, and do not mulch; you do not need it at Birmingham.

BOOKS: *A. B.*—The *Kew Bulletin* is published by Messrs. Spottiswoode & Sons, Queen's printers.

CLAY AND ROSES: *J. P.* The Rose has a partiality for a stiff soil, provided it be well drained. Therefore, the practice you mention as being advocated by an F. R. H. S. is a good one in soils that are sandy or otherwise of a light nature; but it is better when the clay is chopped up with a spade, and mixed with the staple. Take care that the soil is made very firm *under* the Roses before planting, and round about after planting them; but do not trample it if it be wet, rather leave it till it is dryish, and does not stick to the shoes. Do not put the clay immediately about the roots at planting, but for that purpose use sifted leaf mould and potting bench refuse.

CORRECTION: The last two lines of Mr. Fish's article on "The Time to Plant Roses," in our issue for January 4, p. 11, should run thus:—"That Roses planted before or in November *must* succeed—planted afterwards, they may."

COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY: *S.* Yes; any two Fellows have the right to recommend persons for election into the Council, or to fill any of the principal offices, provided that they give written notice on or before the 10th day of January. If you have not already done so, you are too late for this year, as you cannot vote for any other persons than those then submitted to you at the annual meeting.

GARDEN ACCOUNTS: *A. G.* We cannot inform you of the particular number in which the article appeared; and seeking for it in our already numerous volumes, would be, in time alone, a costly affair.

GROS COLMAR AND LADY DOWN VINES: *Old Subscriber.* Both will grow well together in the same house. In the absence of particulars of management, we cannot say to what cause the failure to colour may be due. We think you have much to learn in the matter of growing grapes. Send particulars.

HYACINTHS: *G. H.* The appearance is not uncommon, and apparently arises from the want of a proper balance of growth between the outer scales and the base of the flower-spike. The outer scales are thick and turgid, and do not separate one from another sufficiently freely to give room to the spike; the consequence is, the rapidly-growing flower-spike is pinched and, as it were, throttled, and ultimately breaks off.

NAMES OF PLANTS: *A. C.* Chimonanthus fragrans. —*Var.* Coccoloba platycladon.—*F. S.* Panicum variegatum, the Cyperus next week.—*W. H. H.* Probably Spiræa Lindleyana, but the scrap is insufficient.—*Constant Reader.* We cannot name florists' flowers.—*H. J. P.* Oncidium ornithorhynchum. The Dracæna has probably been over-fed. Such variegated plants frequently die off in the same way as yours have done.—*J. W.* 1, Eucalyptus globulus; 2, Begonia Ingrami; Libonia floribunda; 4, Echiveria retusa glauca (probably).—*Aireville.* Asplenium marinum.

ODONTOGLOSSUM ROSSI VAR.: *W. H. Stephens.* Varieties similar to yours have appeared lately in some few collections. It is not common.

SPRING BUDDING: *A. P.* Yes, the budding would be done with mature, plump buds, cut from last season's growth. It is in reality bud grafting, and there must be the same union at the edges of the inner barks of stock and scion as with ordinary grafts. The bud may be oblong, square, or round, and must retain the wood at the back. It is not to be inserted in a slit like an autumn bud.

CATALOGUES RECEIVED.

HAAGE & SCHMIDT, Erfurt, Germany — Seed and Plant Lists.

THOS. KENNEDY & Co., 106 and 108, High Street, Dumfries, N.B.—Vegetable and Flower Seeds.

WM. BARRON & SON, Elvaston Nurseries, Borrowash, near Derby—Forest Trees, Cover Plants, &c.

WILLIAM LEIGHTON, 89, Union Street, Glasgow, N.B.—Vegetable and Flower Seeds.

E. P. DIXON & SONS, Yorkshire Seed Establishment, Hull—Garden and Farm Seeds.

TOOGOOD & FINLAYSON, 58, Above Bar, Southampton —Garden Seeds.

W. DRUMMOND & SONS, Stirling, N.B.—Vegetable and Flower Seeds.

ARMITAGE BROS., Nottingham — Vegetable and Flower Seeds.

WILLIAM M. BEALE, Post Office Buildings, Neath—Garden Seeds.

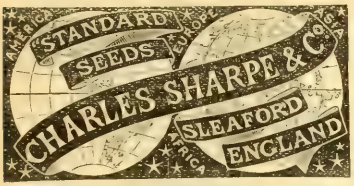
JOHN PEED & SONS, Roupell Park Nurseries, Norwood Road, London—Seeds.

COMMUNICATIONS RECEIVED.—F. A. W.—Messrs. Sutton & Sons —J. van Volxem.—R. S. & Sons.—R. D.—J. W. M.—D. Cros.—Ben. R. & Co.—J. C. & Co.—A. L.—Messrs. Rovelli Pallanza, many thanks.—H. E.—J. O. W.—Our Belgian Correspondent.—Our Berlin Correspondent.—Ashford.—H. H. D. O.—J. A.—J. R. J.—St. Louis.—H. J. R., Florence.—J. R.—Sir W. T.—W. R. Aberdeen.—H. T. D.—J. F. J. W.—L. L.—G. F.—Prof. Goebel, Marburg.—W. P.—H. T. E.—F. W. B.—The Sec. R. H. S.—G. P.—R. R.—W. B.—G. J. S. —E. R. C.—S. & Co.—G. W.—J. W.—W. G.—J. S.—W. B. H., Cork.—J. O. W.—W. C.—W. S.—W. T.—L. L., Brussels (next week).—E. P.—XIXth Century Art Society.—F. C.—Westmorland Gazette.—Shirley Hibberd.—P. B. & Son.—H. E.—W. Clark.—F. A. W.—J. R. B.—Andrew Taylor.—W. N.—W. R.—C. B. S.—U. D.—W. D.—J. D.—H. W. W. —A. D.—T. C.—E. M.—D. D. next week.—W. H. S.—J. O'B.—F. R. J. Marcham (next week).

DIED.—We regret to announce the death, on January 3 last, of Enoch White, aged fifty-nine years, a much-respected nurseryman of Bournemouth, Dorsetshire.

VARIORUM.

PODOCARPUS DACRYDIOIDES. A. RICHARD (THE KAHIKATEA).—The Kahikatea or "White Pine" of the timber merchants is a noble tree, often forming dense forests in swampy districts, although by no means unfrequent in dry or hilly situations below 1,500 feet. It was originally discovered by Captain Cook in the great forest between the Thames and Piako Rivers: a tree measured by him was found to be 19 feet 8 inches in circumference at 6 feet from the ground, and 89 feet to the first branch. He states, "It was straight as an arrow, and tapered but little in proportion to its height; so I judged there were 356 cubic feet of solid timber in it, exclusive of the branches. As we advanced we saw many others that were still larger." The forest in which it was first discovered is probably the largest Kahikatea forest in the colony, and I am informed by Mr. Bagnall, of the Turua Sawmills, that he has discovered a tree which he believes to be the one actually measured by Cook. *T. Kirk, in "Forest Flora of New Zealand."*



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The Successful Transplanting of Large Trees and Plants.

BOOK ON TRANSPLANTING LARGE TREES AND SHRUBS. Post-free on application.
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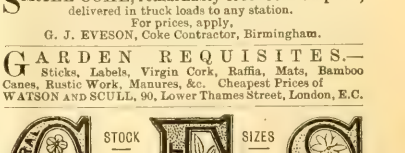
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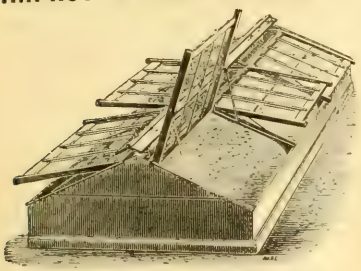

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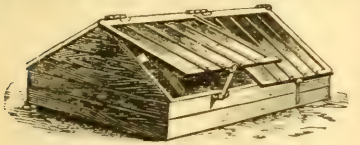
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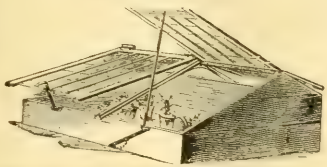


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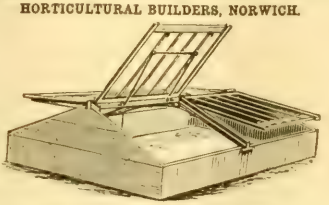
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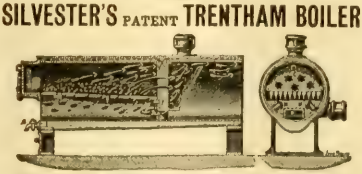
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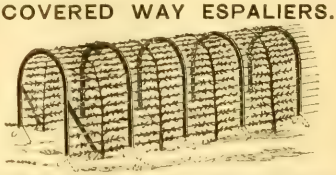
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WANTED, NURSERY MANAGER, Indoors and Out; thoroughly practical, good Manager of Men; one used to Market Nursery preferred. State age, wage, and experience.—BETTS, BARKER & CO., Burton-on-Trent.

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HEAD GARDENER WANTED.—The COMMITTEE are PREPARED to RECEIVE APPLICATIONS for the Office of HEAD GARDENER, the duties to commence on the 31st day of March next. Applicants must be married, the wife having to take charge of the Lodge and adjoining Gates; and the number and ages of children are required. Salary, £70 per annum, with House (the Lodge), Coals, and Gas.—Applications, with original Testimonials (which will be returned), to be sent on or before the 15th day of February next, to

WILLIAM MAYCOCK, Secretary,

The Parade Lodge, Jephson Gardens, Leamington, January 8, 1890.

Gardener.

WANTED for North Derbyshire for the end of January, an unmarried MAN under 30 years of age, as Gardener, single-handed, experienced In and Out; must understand the Management and care of Poultry. Preference given to a man who has served under an experienced Head Gardener.—Address with full particulars, and stating wages required, board and lodging being found, to GARDENER, care of W. H. Smith & Son, Advertising Agents, Manchester.

WANTED, a SINGLE-HANDED GARDENER, place very retired district, of North Hants; experience as Single-handed In and Out-door Work, assist with Coals, &c. Age 25 to 40; wages 18s. and cottage.—Miss A. LUSHINGTON, Kingsley, Alton, Hants.

WANTED, a Married Couple (middle-aged), Man as SECOND GARDENER—good at Vines, Hothouse Plants, &c.; wife, LAUNDRESS. Cottage and garden, with Laundry attached.—State all particulars, F. WOLLASTON, Esq., Shenton Hall, Nuneaton.

WANTED, a SECOND GARDENER for Flower and Kitchen Garden. Wages 19s. per week with Bothy.—C., 3, Charles Terrace, King's Road, Mortlake, S.W.

WANTED, a good PROPAGATOR and GROWER of Herbaceous and Alpine Plants for a Small Nursery near London, an abstainer preferred. State age, wages, and experience, by letter to C. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, an active and industrious young Man as PROPAGATOR and GROWER.—State age, wages, and particulars to W. TROUGHTON, 4 Church Street, Preston.

WANTED, an energetic pushing young man as PROPAGATOR and GROWER of Plants, principally for Cut Blooms; must be able to Graft Roses and Clematis. Wages to commence at 22s. per week; first-class references required.—Box 0 a good firm.—W. and J. BROWN, Wothorpe, Stamford.

REQUIRED AT ONCE, Young MAN in the Houses (Country). Must understand Geraniums and the growing of other soft-wooded Stuff for Cut-bloom; able to make Wreaths, &c.—Apply, stating wages, references, qualifications, and experience, to M. A., *Gardeners' Chronicle* Office. Must be a Churchman. Preference given to a man who would sing in the Choir or play a band instrument.

WANTED, a strong, steady young MAN, as Third where five are kept. Wages to commence 12s. per week with Bothy, Milk, and Potatos.—Full particulars to J. HORNER, Myton Hall, Helperby, York.

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WANTED AT ONCE, a YOUTH, also an APPRENTICE to First-class Florist, Indoors,—Apply, NEWMAN, Florist, Bromley, Kent.

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WANTED, as above, a sharp YOUTH, with a knowledge of Seed and Flower Trade.—Apply, stating age, wages, required, &c., to W. BARRACK, Seedsman, Kendal.

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Mr. THOMAS OLDHAM, late of Malvern Hall Gardens, Solihull, Birmingham, has been engaged as Head Gardener to H. L. POWYS-KECK, Esq., Stoughton Grange, Leicester.

Mr. F. ELMES, late Head Gardener at Westfield, Edgbaston, has been appointed Head Gardener to W. W. RIDDELL, Esq., Shenstone Lodge, near Lichfield.

Mr. ALEXANDER MCRAE, late of Corriemony Gardens, Inverness, N.B., has been engaged as Gardener to GEORGE INGLIS, Esq., of Newmore, Invergordon, N.B.

WANT PLACES.

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Telegraphic and Postal Address—"DICKSONS, CHESTER."

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GARDENER (HEAD), married.—W. KEMP, eight years Head Gardener to Lord Hindlip, Doveridge Hall, is now open to treat with any Nobleman or Gentleman requiring a practical energetic man. Highest testimonial from late employer.—Doveridge, Derby.

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GARDENER (HEAD WORKING); age 36.—The Advertiser would be pleased to treat with any Lady, Nobleman, or Gentleman requiring the services of a thorough practical hardworking Gardener. First-rate grower of Grapes, Peaches, Strawberries, Melons, Flowers and Vegetables, &c., and is thoroughly conversant with the requirements of a large establishment; twenty-two years' experience, including six as Head in present situation. A comfortable place with good staff of men, and reasonable remuneration expected; Character, &c., of the highest order.—E., 41, Wellington Street, Covent Garden, London, W.C.

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GARDENER, or GARDENER and BAILIFF.—The LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, wish to recommend a first-class man in the above capacity. Unexceptional references. Full particulars on application to the Company.

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GARDENER (UNDER).—Age 21, strong; seven years' good character, Inside and Out. Willing to be useful.—Apply, stating particulars, to DAVIES, Gardener, Salem House, Parkyrhos, Lampeter.

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FOREMAN, in the Houses, in a private Establishment.—Age 28; good references.—H., 2, Turkey Street, Waltham Cross, Herts.

FOREMAN, in the Houses; age 24.—W. H. MANNERS can with confidence recommend his Foreman as above to any Gardener.—Address, The Gardens, Garnons, Hereford.

FOREMAN.—Mr. BLAND, Scaber House, Fordham, Soham, can with confidence recommend his late Foreman. Thoroughly experienced.—Please state particulars to above, or to F. H., Handsworth, Sheffield.

FOREMAN.—Age 24; abstainer. Last ten years under Mr J. Ford at Wexham Park. Excellent testimonials. Disengaged.—ARTHUR PENTRY, High Street, Cobham, Surrey.

FOREMAN, in a good establishment.—Age 25; practical experience in Fruit and Plant Growing, also Cut Flower Work. Seven years in present situation two years as Foreman. First-class references.—J. SMITH, Holly Lodge Gardens, Highgate, N.

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FOREMAN, or FIRST JOURNEYMAN, in a good Garden.—Age 22, respectable; nine years' experience; four years in present situation.—M. GRAY, The Gardens, Bury Hill, Dorking, Surrey.

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GROWER, for Market.—Age 24; Soft-wooded Plants, Cut Flowers, Ferns, Grapes, Tomatos, &c. Good references.—G. STUART, Wellbrook Cottage, Farnborough, R. S. O., Kent.

JOURNEYMAN (FIRST). Inside or Out, in good Establishment; or SECOND, where four or five are kept.—Age, 24; strong and active; well recommended.—A. HICKES, Kimpton Hoo Gardens, Welwyn, Herts.

JOURNEYMAN.—Age 20; five years' experience. Good character.—J. MCCULLOUCH, Ballywalter, Newtownards, co. Down.

JOURNEYMAN, in the Houses; age 21.—W. H. MANNERS can with confidence recommend a steady young man as above.—Address, The Gardens, Garnons, Hereford.

JOURNEYMAN, Inside or Out.—Age 19; Bothy preferred. Seven years' experience, well recommended.—H. GARNER, Holmdale, Ashurstwood, East Grinstead.

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Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES RHODODENDRONS, &c.

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Wednesday Next.

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MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, January 29, at half-past 12 o'Clock precisely.

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Wednesday Next.

Just received in splendid condition.

6000 SEEDS KENTIA BELMOREANA.

6000 SEEDS KENTIA FORSTERIANA.

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On view, morning of Sale, and Catalogues had.

Friday next. Vanda Sanderiana.

Highly important SALE of ORCHIDS, by order of Messrs. F. Sander & Co., St. Albans.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, January 31, at half-past 12 o'Clock precisely, an unusually fine selection of imported ORCHIDS as follows:—

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Important to Seedsmen, Nurserymen, and others.

15,000 Bulbs just received from Japan.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALES, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, January 27, 7000 BULBS; and on WEDNESDAY NEXT, January 29, 8000.

On view morning of Sale, and Catalogues had.

Thursday, February 6.

SALE of NURSERY STOCK from SAMPLE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of NURSERY STOCK from SAMPLE will take place as above, for which they will be GLAD TO RECEIVE ENTRIES AS SOON AS POSSIBLE.

Auction and Estate Offices, 67 and 68, Cheapside, E.C.

Orchids.

We have received instructions from Blenheim to offer 400 lots of ORCHIDS without reserve, His Grace the Duke of Marlborough having decided to reduce his collection to make room for flowering stuff. This is an unusual opportunity of obtaining Orchids from this unrivalled collection. Sale to commence at 1 o'Clock on WEDNESDAY NEXT, January 29, at our Sale Rooms, 6, Phillip Street, adjoining the Market Hall, Birmingham.

MESSRS. POPE AND SONS, Horticultural Auctioneers.

Catalogues by post on application.

WANTED TO RENT, 2 or 3 acres of LAND, with some Glass Erections, or Partnership in a larger concern which would bear strictest investigation treated with.

Particulars to E. J., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE SOLD, by Private Treaty, an Old-established NURSERY BUSINESS. Leasehold, Dwelling-house, 8 Greenhouses, and about 10 Acres of Land. Near London. For particulars, apply to MONTAGU SCOTT AND BAKER, Solicitors, Gray's Inn, W.C.

To Nurserymen and Florists, Hampton, Middlesex.

BUSINESS FOR SALE, on an unexpired lease, with immediate possession, comprising a 6 room Cottage, with about an acre of ground stocked with choice Shrubs, &c.; also well adapted for Glass.

For terms and particulars apply to Mr. JOHN EMBLETON, Auctioneer, &c., Suffolk House, New Hampton.

TO LET, Walled-in GARDEN, three acres; eight-roomed House, Stable, and Outbuildings, Vinery and Pits, well stocked with Fruit Trees, &c., near two market towns, good soil. Rent £50.

Apply to Mr. MASLIN, Ferring, Worthing.

Allanshaw Nursery, Hamilton, Lanarkshire.

TO LET, entry immediately (Mr. Thomas Rankin having given up business), as NURSERY or MARKET GARDEN. The Ground extends to 10 Acres, half in Grass and half for Trees and Shrubs.

Apply to THOMAS FINNIE, Gardener, Allanshaw, Hamilton.

TO BE LET, on Lease, near Weybridge, about 3 acres of LAND, suitable for Nurseries, containing 16,800 super. feet Modern Glasshouses, fully heated on the 2 principle, and planted with Black Hamburgh, Mussel of Alexandria, Gros Colmar and Alicante Vines—mostly 4-year old canes. Productive Tomato Crop can be grown till Vines bear. Apply, Mr. G. MUNRO, Fruit Salesman, Covent Garden, W.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense stock, to which they are constantly adding, and all are offered at the lowest possible prices. LISTS with Prices and particulars post-free on application to the Company,

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

GEE'S GENUINE HOME-GROWN SEEDS, of PLANTS, POTATOS, QUICKS, &c., now ready, reasonable in prices, and quality unsurpassed.

PETER LOGAN, Esq., Hilton, Roxburghshire, writes:—"Your climate in Bedfordshire seems most favourable for the growing of Farm and Garden Seeds. All the kinds sown here from your establishment have branched quickly. No failures, heavy crops, and no refuse."

COLLECTIONS of BEDFORDSHIRE GROWN VEGETABLE SEEDS, made to suit all sized gardens, containing a most liberal assortment of best varieties, for a year's supply, at 5s., 10s. 6d., 21s., 42s., and upwards, Carriage Paid.

ONION SEED, Genuine Home-grown, which may be relied upon (not foreign), Gee's Improved White Spanish and Bedfordshire Champion, 7s. 6d. per lb., 8d. per oz., Carriage or Postage paid.

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CABBAGE PLANTS, all leading sorts, from F. Gee's noted stocks, extra strong, at 3s. per 1000 of 1200.

LETTUCE PLANTS of best kinds, 5s. and 7s. 6d. per 1000, on Rails.

ASPARAGUS ROOTS, excellent stuff, at 2s. 6d., 3s. 6d., and 5s. per 100. Cheaper in large quantities.

SEAKALE, for planting, 5s. per 100.

RHUBARB, Large Victoria and Early Scarlet, 4s., 6s., and 9s. per dozen.

ARTICHOKES, Jerusalem, in any quantity, 3s. 6d. per bushel, 6s. per cwt.

QUICKS, for Hedge Planting, in any quantity, at 7s. 6d., 10s., 15s., 20s., and 30s. per 1000. Ditto, extra large, for Gap Stopping, 40s. per 1000, 8s. per 100.

PRIVET, strong, about 2 feet, 5s. per 100, 40s. per 1000.

Terms, Cash on Rails. CATALOGUES on application to—

FREDK. GEE, Seed and Plant Grower, &c., "Riverford, Biggleswade, Bedfordshire.

LARCH FIRS.—20,000, 3 to 4 feet high; 20,000, 4 to 6 feet high, extra strong, twice transplanted, specially good, and are offered cheap to clear.

Large quantities of strong FOREST TREES, including Ash, Oak, Beech, Hornbeam, Spruce Firs, and Austrian Pines to offer.

COVERT Plants, Laurels, Evergreen Privet, Tree Box, Berberis, and strong Quicks, of which samples may be had, and Priced CATALOGUE free by post.

R. TUCKER, Nurseries, Faringdon, Berks.

Bulbs and Seeds for Spring Planting.

ANT. ROOZEN AND SON, of OVERVEEN, HAARLEM, beg to announce that their New BULB and SEED CATALOGUE for Spring, 1890, is now ready. It contains full details of their extensive Collections of Hyacinth, Dahlias, Lilies, Begonias, Persian sinensis, and other Bulbs for Spring Planting, and also of a large Collection of CHOICE FLOWER SEEDS, which can be recommended with every confidence.

The Catalogue will be sent, post-free, an application to themselves direct, or their Agents, Messrs. MERTENS & Co., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

ROSES—ROSES—ROSES.

50 Choice H.P. and TEA ROSES in good plants and best-named varieties for 21s., 25 plants for 11s.

MARÉCHAL NIELS, in 24-pots, strong flowering plants, 2s. each, 21s. per dozen.

TEA ROSES, a fine Collection, 9s., 12s., and 18s. per dozen. Terms Cash.

EDWIN HILLIER, Rose Grower, &c., Winchester.

FERNS.—FERNS.—FERNS.—Cheap trade offer of twenty most saleable sorts, at 12s. per 100. ADIANTUM CUNEATUM, PTERIS MAJOR, &c., packed for cash.

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CHRYSANTHEMUMS, best sorts true to name, strong Cuttings now ready, from 1s. 6d. per dozen, 10s. per 100. Many of the best prizes in the country are taken by my customers. For price of New Japanese Incurved, &c., see CATALOGUE, 2 stamps, of W. ETHERINGTON, Chrysanthemum Grower, Swanscombe, Kent.

BOX EDGING, extra fine at £10 per 1000 nursery yards, carriage paid. STRAWBERRY, Vicomtesse, President, Rutheman, per

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At the Annual General Meeting of the Members of this Institution held on THURSDAY, the 16th inst., for the Election of Nine Pensioners, the following was the result of the Ballot:—

CANDIDATES.

Votes.	NAME.	
3241	JAMES BAILLIE	ELECTED.
238	HENRY BARTHOLOMEW.	
741	THOMAS BENNING.	
1345	SARAH BRUSH	ELECTED.
795	WILLIAM BUNN.	
2389	SOPHIA BURT	ELECTED.
213	JAMES BUSH.	
540	JOHN BUTLER.	
1547	ROBERT COX	ELECTED.
172	JONAH DICKENSON.	
694	JAMES GAGE.	
455	THOMAS GOODWIN.	
488	ISAAC GIBBONS.	
618	GEORGE HINXMAN.	
572	DAVID INNES.	
358	LOUISA JENNINGS.	
1435	MARIA MILLEY	ELECTED.
1890	MARY ANN MILROY	ELECTED.
476	BENJAMIN MORRELL.	
170	JANE ELIZA NICHOLS.	
1568	ELIZABETH PARKER	ELECTED.
571	JOSEPH HENRY POOLE.	
767	HENRY PRIMMER.	
1213	JAMES ROBINSON	ELECTED.
1493	GEORGE WM. YOUNG	ELECTED.

EDWARD R. CUTLER, Secretary.

50, Parliament Street, S.W., January 17, 1890.

KING'S Unrivalled VEGETABLE and FLOWER SEEDS, in collections of 2s. 6d., 5s., 12s. 6d., 21s., &c. Liberal quantities combined with the best quality only. Garden Manual post free 7 stamps, free to customers.
JOHN K. KING, Royal Seed Grower, Coggeshall, Essex.

RED CURRANTS, Raby Castle and Red Dutch. COB NUTS, strong well-rooted plants. APPLES, Pyramid, good sorts, 5 to 7 feet. Scarlet CHESTNUTS, fine trees, 6 to 9 feet. STRAWBERRY PLANTS, Vicomtesse Hericart de Thury, Sterling Castle.—TODDINGTON ORCHARD CO., Winchcombe, Gloucestershire.

NEW CHRYSANTHEMUMS.
Awarded Silver Medal and twenty Certificates, 1889.
The finest collection in Europe.
MRS. S. COLEMAN, awarded six First-class Certificates; golden-bronze sport, shaded rose; from Princess of Wales, 5s. each, 3 for 12s. 6d.
ADA SPAULDING, the largest incurved variety ever raised; colour deep rose, with lighter centre. Won Harrison and four other Cups and Prizes in America as the best seedling. 5s. each.
JOHN LAMBERT, sport from Lord Alcester; colour, creamy-yellow, shaded rose; distinct, and superior to Emily Dale or Golden Queen in build and colour; considered the best of the Queen family. 3s. 6d. each.
Orders executed in rotation early in March. I hold the stock of these three grand novelties; no exhibitor can win in future without them.
CATALOGUE of over 100 splendid novelties and general stock in Press, price 6d., gratis to customers. Culture, by E. Molyneux, W. Tunnington, and C. Orchard.
ROBERT OWEN, Floral Nursery, Maidenhead.

3,000,000 RHODODENDRONS, in sorts.
PONTICUMS, 6 to 9 inches, 10s. per 100, 80s. per 1000; 9 to 12 inches, 13s. per 100, 110s. per 1000; 12 to 18 inches, 18s. per 100, 160s. per 1000.
CATAWBIENSA HYBRIDA, 6 to 9 inches, 12s. per 100, 100s. per 1000; 9 to 12 inches, 15s. per 100, 120s. per 1000; 12 to 18 inches, 20s. per 100, 180s. per 1000; 15 to 20 inches, 24s. per 100, 220s. per 1000.
All the above are nice bushy plants, twice and three transplanted.
For choice named varieties see CATALOGUE, free on application to
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STRAWBERRIES.—Leading kinds, in 3½-inch pots, for immediate Planting or Potting on for Forcing. Send for LIST.
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SMALL SHRUBS, &c., Reduced.—Araucaria imbricata, 10 inches, 40s. per 100; Sweet Bays, 2 yr., 25s. per 1000; Cupressus macrocarpa, 9 to 10-inch pots, 8s. per 100; C. erecta viridis, 6 inches, 50s. per 1000; C. Allumii, 9 inches, 7s. 6d. per 100; C. stricta, 1 foot, 10s. per 100; C. Lawsonianum, 12 inches, 40s. per 1000; Laurustinus, 8 inches, 7s. per 100; Evergreen Oaks, 1 year, 30s. per 1000; Pampas Grass, 50s. per 1000; Rhododendron ponticum, 1 yr. transplanted, 25s. per 1000; Pinus Cembra, 3-yr., 16s. per 1000; P. insignis, 1-yr. 2s. 6d. per 100; P. excelsa, 1-yr., 4s. per 100; Pinus pinaspo, 1-yr., 4s. per 100; P. Nordmanniana, 1-yr., transplanted, 40s. per 1000; English Yews, 1-yr., 2-yr. transplanted, 30s. per 1000.
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VINES and VINE CULTURE. The most complete and exhaustive Treatise on Grapes and their Culture ever published.
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AUCUBA JAPONICA, 2 feet, 75s. per 100; many thousands to offer.
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RETINOSPORA PLUMOSA AUREA, 2 to 3 feet, 100s. per 100; 1½ to 2 feet, 75s. per 100.
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AMERICAN ARBOR-VITÆ, 4 to 5 feet, 60s. per 100.
CEDRUS DEODARA, 10 to 12 feet, 7s. 6d. to 10s. 6d. each.
CUPRESSUS LAWSONIANA, 2 to 3 feet, 50s. per 100.
" " ERECTO VIRIDIS, 2 to 2½ feet, 50s. to 75s. per 100; 3 feet, 100s. per 100.
THUIA LOBBII, 3 to 4 feet, 75s. per 100.
BIRCH, 10 to 12 feet, 100s. per 100.
SYCAMORE, 10 to 12 feet, 100s. per 100.
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ALDER, 12 to 15 feet, 100s. per 100.
CHESTNUTS, 12 to 14 feet, 100s. to 150s. per 100.
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LAURELS, Standard Portugal, 4 to 5 feet stems, 10s. 6d. to 21s. each.
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BOX, YEWS, HOLLIES, Green and Variegated Flowering SHRUBS, CLIMBERS, &c.
RHODODENDRONS, fine named sorts, well set with blooming buds.
An inspection of the above is solicited.
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Within itself unique in the extreme. Its "Book of Daffodils" has no rival in the United Kingdom. Its "Book of Seeds" for 1890 is not like any other publication throughout the British Isles, and those rare seeds and plants offered that no other house has yet attempted to offer. Send three stamps to cover postage, &c., and you will get it.
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"Now is the Time to Plant Trees."
ROBERT NEAL begs to call the attention of Gentlemen, Land Boards, Builders, and others who intend planting the season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, &c., &c. PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB roots.
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CONIFERS and SHRUBS.—Abies Douglasii, 4 to 5 ft., 50s. per 100; 6 to 7 ft., 70s. per 100; Araucaria imbricata, 2 to 2½ ft., 20s. per doz.; 3 to 3½ ft. 30s. per doz.; 4 ft., 48s. per doz.; Cupressus Lawsoniana, 2 ft., 25s. per 100, 3 to 3½ ft., 42s. per 100; 5 ft., 24s. per doz.; Cupressus erecta viridis, 1½ to 2 ft., 30s. per 100, 3 ft., 40s. per 100; Pinus Nordmanniana, 3 ft., 12s. per doz.; Retinospora plumosa, 1½ ft., 25s. per 100; 3 to 3½ ft., fine, 50s. per 100; R. squarrosa, 1½ to 2 ft., 32s. per 100; Thuia Lobbii, 3 to 4 ft., 30s. per 100; 4 to 5 ft., 50s. per 100; T. occidentalis, 2 ft., 30s. per 100; 4 ft., extra, 20s. per doz.; Berberis Aquifolium, 2 ft., 12s. per 100; Box trees, 2 to 3 ft., 20s. per 100, Japan Box, 12 inch, 12s. per 100; Cotoneaster Simonsii, 3 to 4 ft., 16s. per 100; Sea Buckthorn, 12 to 15 inch, 8s. per 100; Euonimus americana, pots, strong, 24s. per 100; Laurels, common, 2 to 3 ft., 12s. per 100; L. Colchicum, 3 to 3½ ft., 20s. per 100; L. caucasicum, 3 to 3½ ft., 20s. per 100; L. rotundifolia, 2 ft., 16s. per 100; Rhododendron ponticum, 1½ to 2 ft., 30s. per 100; 2 to 2½ ft., 40s. per 100; 4 ft. buds, 1,000, per 100; R. hybrida, 2 to 2½ ft., 60s. per 100; 4 ft., 120s. per 100. Special prices per 1000.
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COOLING'S BEAUTY OF BATH should be added to every Collection. It is the best flavoured and handsomest early Apple yet introduced, and will be indispensable as an early dessert fruit when it becomes known. Strong Maiden Trees, 2s. 6d. each, 24s. per dozen; 2-yr. Trees, 3s. 6d. each, 36s. per dozen; Pyramids, 5s. each; Dwarf-trained, 7s. 6d. each. Full description free by post.
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J. E. D. will be able to supply this extraordinary fine strain at 1s. per packet, for season 1890. The following testimonial (one of many similar) has been received from—
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PRIMROSE. Hardy's new hybrid novelties (very choice), about thirty colours, strong plants, 5s. per 100, 45s. per 1000.
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All the above are well known, and give excellent satisfaction. Many Testimonials. One just before me now says, "Your Primroses and Polyanthus are really charming."
CURRANTS, Black Naples and Red Raby Castle, a few hundred very strong, 3-yr. old bushes, 8s. per 100, to clear.
Cash, Packages free. Extra plants for carriage.
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CURRANTS, White Grape, strong, 10s. per 100; strong standard APPLES, leading sorts, £5 per 100; do. PEARS, do., 60s., 80s. per 100; do. English ELMS, 10 to 14 ft., 50s., 60s., 80s. per 100. Strong dwarf trained PLUMS, Victoria; do. APPLES, sorts; do. PEARS, do.; do. CHERRIES, do., 18s. per doz. American ARBOR VITÆ, 3 feet, 70s. per 100, handsome plants, finely transplanted. Oval-leaved PRIVET, 3 feet, bushy, 8s. per 100; Evergreen do., 3 feet, do., 25s. per 1000; strong Gloire de Dijon ROSES, at 8s. per doz., 60s. per 100, at HOPWOOD'S, Belle Vue Nursery, Cheltenham.

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MADAME ARTHUR WAROCQUE. A Bright Scarlet
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See Opinion of the Press. A well-known grower of Carnation says:—"It is undoubtedly the best of the 'Malmaisons.'" We have still a few good, well-established plants, in pots, at 5s. each, cash. Trade price on application.
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beg to offer a large and well-grown stock of the following:—

FRUIT TREES—Of the leading varieties suitable for Market and Private Gardens.

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RHODODENDRONS—Of the best named sorts, well set with buds; also Hybrid, Seedling, and Ponticum, for shrubbery and covert planting.

CONIFERS—A Large Collection for Lawns and Pleasure Grounds.

SHRUBS — Ornamental and Flowering, adapted for Belts, Shrubberies, Screens, &c.

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FOR PLEASURE AND PROFIT.

FRUIT. Nothing so profitable and easy to grow. 74 Acres in stock.
See CATALOGUE for simple Instructions and kinds of Trees to suit all soils.

ROSES. 20 Acres. Bushes 8s. per dozen, 60s. per 100.
☞ Packing and Carriage Free for Cash with Order.

ROSES IN POTS from 15s. per dozen.

ORNAMENTAL TREES, 91 Acres.

4 Acres of Glass.

CLEMATIS (80,000), 12s., 18s., and 24s. per doz.

SEEDS & BULBS. VEGETABLE, FLOWER, and FARM.

Descriptive LISTS free.

RICHARD SMITH & CO., WORCESTER.

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WE can make Special Prices for any of the following, in quantities:—

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8 to 12 ... 10s. each.

ACER PLATANOIDES FOLIIS ELEGANTER VARIEGATIS (Hesse).

A remarkably fine, very interesting, most striking, and very distinct variety of the Norway Maple, raised from seed in my nurseries several years ago, and first obtained by visitors. On first appearing, the leaves are nearly white. Afterwards most of the leaves are marked with a regular white pattern. Here and there we find some leaves all white, or half white and half green, but are perfectly developed, and a very important point is, that they never suffer from the heat of the sun, as everything else with trees having variegated foliage. They preserve their beautiful markings unaltered till autumn. They are just the thing for producing decorative effects in private gardens.

Height ... 2ft. each.

THUIA OCCIDENTALIS WARREANA LUTESCENS (Hesse).

A very fine variety of Thuia Warreana, of compact growth, grown here and introduced into commerce by me some years ago. The leaves are shaded of a shining light yellow and of a darker yellow tint. It sees all the superior qualities of Thuia Warreana, is very hardy, and is of a beautiful habit. Mr. Bessner, Inspector of the Botanic Garden at Bonn, writes on this subject:—"Your Thuja occidentalis Warreana lutescens gute, wirkungsvolle Form ist in unserem Garten eine sehr effective Form. Though introduced into cultivation some years ago, it is not yet much known. Because there are so many named but not worth cultivating, are shall send out no more."

5 ft. 12 ... , 18s. *for* 10.
12 to 16 ... , 28s. *for* 10.
16 ...
2 to 24 ...
3 to 4 ...

Procured Re-transplanted Plants.

ABIES AMABILIS (Forbes).

A fine and very hardy silver Fir, introduced by Douglas in 1831 from Oregon territory, but which, strange to say, was not cultivated, and has remained entirely unknown. Only seven years ago I received cultivated seed direct from its native country, which, in spite of all my efforts, I obtained only once again. In nurseries we seldom find it genuine. What we receive under this name is mostly Nordmann or from France mostly A. magnifica (Murry & Gordon). In its young state it resembles A. nobilis, to which sometimes been mistaken for that species. The leaves are longer than those of A. nobilis, straight, glossy, green above, with a pink line along the middle, and with two broad glaucous lines beneath. A very striking and pleasing plant, on account of its feathered decumbant branches, and the peculiar deep bluish green of its foliage.

5 to 12 in. ... 1s. 6d. *for* 10, 12s. *for* 100.
12 to 16 ... 2s. 6d. *for* 10, 20s. *for* 100.
16 to 2 ...
2 to 24 ...

PICEA OMORICA (Pancic).

Mr. Pancic found this remarkable and fast-growing spruce in Servia. It has very long and also short pointed and prickly leaves, white underneath. When these trees grow older, the leaves turn, as is the case with all the Fir trees of this group, so as to show at the same time their white and green sides. This is a very interesting and attractive species, and deserves to be much propagated. See illustration in *Gardeners' Chronicle*, Mar. 8, 1884, p. 299.

Plants in pots, 4 to 5 inches high, 3s. 6d. to 4s. each; 24 to 32 in. high, 10s. to 15s. each.

PSEUDO-LARIX KÆMPFERI.

Seedlings, 3 to 4 inches high, 15s. per 100; plants, 16 to 24 ...

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THE FLOWER TRADE IN SCILLY.

THERE are few more interesting phases in the market gardening of to-day than the rapid growth of the trade in flowers. What were regarded half a century or so ago as perfectly superfluous luxuries, are now looked upon as essentials without which life itself would be hardly bearable. Other luxuries, and, perhaps, also certain necessaries, have suffered in consequence of the present rage for flowers, for the rise of one industry is invariably made at the expense of another, and its consummation frequently marks the decadence of several more. The inception and growth of the flower-trade in the Scilly Isles, however, was the effect rather than the cause of a great and sudden decline in Potato-growing; and as the public mind grows upon what it feeds, so the Scilly trade has fostered and encouraged a wide-spread emulation for flowers as decorative agents.

There are many still living at Scilly—not very old men either—who remember the time when farming began to prove unremunerative, and resulted in a state of chronic semi-starvation. Luckily, market gardening stepped in, and for many years proved exceedingly lucrative. But long before the cultivation of vegetables for the markets began to decline—before, indeed, any such catastrophe was dreamed of; in fact, late in the sixties, Mr. Augustus Smith, the late landed proprietor, advocated the growing of flowers for market purposes. He set the ball rolling by sending off to market a few baskets of Soleil d'Or Narcissus, which were growing in a semi-wild state in the hedges. The result appears to have been satisfactory; and after a time Mr. Richard Mumford, of Holy Vale, and Mr. Trevillick, of Rocky Hill, were induced to follow his example. For some years, however, the industry made very little headway, and, as a matter of fact, its rise

and its prosperous ramifications may be confined to the span of years between 1879 and 1889. It was in or about the former date that importation of bulbs was effected to any considerable extent; before this, the growers had relied chiefly upon their home supply of roots, and this brings me to a most interesting point.

From time immemorial half-a-dozen distinct varieties of Narcissus have been established in various parts of the islands. These include Soleil d'Or, Grand Monarque, gloriosus, Pheasant's Eye, biflorus, the common yellow Daffodil, and the variety named, I believe by Mr. Barr, Scilly-White, which is peculiar to Scilly. Whether any or all of these varieties are indigenous is another question into which I am scarcely qualified to enter. No one seems to have any definite idea as to whence these varieties came, supposing them to be aliens. But it has been suggested that, at least, one sort—the Soleil d'Or—was introduced by soldiers' wives, when, in times gone by, it was necessary to fortify the "English Hesperides." This variety, with Grand Monarque and biflorus, appear to have been found round about the garrison, and not, like some of the others, in more remote quarters of the island. The other varieties grew with the greatest abundance in certain orchards, the Scilly Whites flourishing with extraordinary vigour at Newford; whilst the common Daffodil appears to have made itself quite at home everywhere, especially in marshy spots.

It is related with much gusto—by those who were not over-reached—how one or two shrewd individuals generously offered to cart away the Narcissus rubbish, which was beginning to be a serious nuisance; the unsuspecting portion of the Scillonian public—or, in other words, nearly everybody who had any quantity of roots—fell into this ingenious little trap. By-and-by it came out that the philanthropic weed-exterminators did not require the offensive bulbs merely to make "the front garden look gay," and that their motives were very much more than sentimental. And great was the lamentation among those who had obliged their neighbours, and deprived themselves of a veritable gold mine! Of course, if the scheme had proved a complete failure, the laugh would have been quite on the other side, but it was not.

I remember very well, some eight or nine years ago, when the first importation of any considerable bulk was obtained and sent over by Mr. J. G. Mitchinson, then of Penzance, but now of Christ Church, New Zealand. It was then thought that the Scillonians were doing a rash thing, but so long as they were willing to pay for making experiments, no one could raise objections. Still, only three or four growers ventured upon this new departure. The more conservative argued that thay would stick to Potatos, which could be eaten by themselves and by their cattle if there was no market for them; whereas, neither the flowers nor the roots of Narcissi could be utilised as substitutes for Potatos.

As time went on, and as foreign competition played havoc with the Scilly Potato growers, the new order of things opened up a prospect of better times and handsomer profits. Now, everybody grows Narcissi; even children grow them—not for pleasure, but for profit—and discuss the respective merits of Grand Monarque and biflorus with a glibness, and pronounce the unfamiliar names with a fluency strong enough almost to make Gerarde and Parkinson turn in their graves. Men and women who can scarcely read, or who, like Tony Lumpkin, may know an M, a T, and an S—"but whether the next be an Izard, or an R, confound me, I cannot tell"—but not much more, pronounce the names with great accuracy. It would, perhaps, be hyperbole to state that St. Mary's is covered with Narcissi; but it is no exaggeration to say, that you cannot go half-a-dozen yards in the island without seeing some. They are to be seen on every side—from the acres of the wealthy cultivator to the three or four pots on the window-sills of the humblest cottage. The sight from November to May would be absolutely beyond description, were it not for the fact that the spikes are cut off before they are actually in bloom. As it is, the flower "that comes before the swallow dares" is more or less *en evidence*, and in blossom for six months out of twelve.

So long as the demand for Narcissi lasts—and there is no indication of an abatement—an acre or two of land planted out with this bulb must prove exceedingly lucrative; but the initial cost is something appalling. One acre will easily swallow up nearly half a million roots, and these are sold at 40*s.* per 1000. This great expense has deterred, and still deters, many people on the "off" islands from entering largely into the fray. But when once established, the subsequent costs are merely nominal, and chiefly consist in keeping down weeds. Almost the only manure given consists of road-scrapings; but the best nourishment of all is the natural one afforded by their decaying leaves. Mr. J. C. Tonkin informs me that no strong manure should on any account be given at the time of planting. The roots are placed at from 2 to 4 inches deep in the soil, according to taste, and each has a space of about 6 square inches allotted it. The rows are separated into beds, which, during winter, are earthed-up with earth from the paths, and this top-dressing is drawn down again in early spring. The different varieties—even the forms which spring from one common type—are by no means amenable to an identical course of cultivation. Some do best with any amount of exposure, whilst others require the shade and protection of orchards or shrubberies. The origin and habitat of each new variety cannot be too closely studied and followed in the case of new varieties, and disaster besides disappointment will be the lot of those who neglect these points. If the first cost of a plantation of Narcissi is expensive, it has its counter-advantage in the fact that the bulbs increase with great rapidity. At Scilly, the bulb-grounds are dug up every three years, by which period each root has produced three or four flowering replicas, so to speak. These are separated, dried, and planted singly, as were the parent bulbs, early in the autumn; so that, in three years, the grower's stock will have increased at least threefold, without any material outlay. So far as the importation of Narcissi from Holland is concerned, it may be regarded as doomed. Many of those who supplied the Scillonians with roots now obtain their supply thence, the bulbs being quite equal to the foreign in quality and size, and considerably cheaper in price. As yet the export trade at Scilly is in its embryo, but the possibilities in this direction are vast. There are nearly one hundred acres devoted to the culture of Narcissi, and the capital therein invested is computed at something like £250,000. The Lord Proprietor, Mr. Dorrien-Smith, has also entered into this phase of market-gardening with enthusiasm, and he has at Tresco over 15 acres devoted to Narcissi; indeed, with him the subject is one of great importance, for just as he has a farm bailiff and a head gardener, so he has a head Narcissus grower. I am informed that Mr. Dorrien-Smith has every known variety either on trial or in cultivation; but how far this statement is correct I am unable to say; the boisterous weather of mid-December quite preventing me crossing from St. Mary's to Tresco.

One of the most remarkable facts in connection with the Narcissus industry, is the manner in which the combined elements of wind and rain are defied. In spite of admirable fences of Euonymus and Escallonia macrantha, the wind will penetrate everywhere, and it has, in times gone by, played sad havoc with the flowers, destroying thousands of spikes in one night. To obviate this, therefore, a most ingenious scheme has been hit on: so soon as the buds commence to burst, and just show the colour of the perianth, the spikes are carefully cut off and taken indoors, where they are slightly forced by being placed in shallow pans or other utensils of warm water. The perfection of the flower is by this process not only secured, but the opening thereof is hastened by many hours, nay, even by a day or two. The "keeping" qualities do not appear to be in the least interfered with, whilst the advantages are obviously great.

The correspondents have almost given up reporting the quantities of flowers exported, and certainly to those who only know Scilly under the old *régime* may be pardoned for being astonished at the figures which are published now and then in the local papers. In 1885, about 5000 packages were sent to the principal English and Scotch markets, but since then the quantity has probably nearly trebled. The largest consignment despatched by one man numbered over 500,000 spikes of Narcissi; but perhaps a still more concrete idea of the immensity of the trade in flowers at Scilly may be obtained, when it is stated that during the season 10 and even sometimes 15 tons of cut blooms are sent to market *viâ* Penzance at a time. This, of course, includes various other flowers besides Narcissus.

The newer or choicer and more expensive sorts of Narcissi are being gradually included among the collection at Scilly. Those which have so far proved best are Ajax, Barrii conspicuus, Burbidgei, Emperor, Empress, Cynosure, Horsfieldi, maximus, Orange Phœnix, Princess Mary, Leedsii amabilis, Rugilobus, Sir Watkin. Some of these may be had for a few pence each, whilst perhaps the fancy price is reached with Barrii conspicuus, which is a mere trifle of a guinea per bulb. The Scillonians have learned from experience that there are two ways of sending flowers to market—the right and the wrong. Baskets and boxes with their contents all sixes and sevens, and the flowers in complicated tangles, will not pay the cost of transit. Order and neatness are half the battle. The spikes are tied in dozens, and packed very tightly in boxes. The work of preparing Narcissi for the market is exceedingly simple, and offers a distinct contrast to that involved by Wallflowers, which have to be trimmed of their lower leaves and deprived of superfluous stems. In the height of the season every grower's house is literally choked with flowers, and the odours of Daffodils and Wallflowers not coalescing well, produce a combination of smell which, unlike the taste of a certain Cocoa, is neither grateful nor comforting. The "returns" show a sliding scale of considerable extremes, a bunch sometimes fetching three pence, and at others three shillings.

So far as we are here concerned, the Narcissus forms the most important branch of the Scilly flower trade, but there are one or two other aspects which we cannot overlook, although

our glance at them must be brief. In point of importance and quantity grown, Wallflowers take precedence. Here the initial cost is trivial, and the after-expense very small indeed. "Walls," as they are briefly called by the Scillonians, grow almost anywhere, and have hitherto yielded very good returns. They have the additional advantages of travelling well, and "keeping" good for many days.

The most recent "sensation" in the way of innovation at Scilly is the popularity of Anemone fulgens, which, with its very brilliant scarlet-crimson flowers, is a beautiful midwinter plant. I saw some scores in bloom a few days before Christmas in various gardens in St. Mary's, where it flowers profusely. Mr. J. C. Tonkin tells me that the home-grown or English roots are not satisfactory, and the Scillonians have had to fall back upon those collected in Italy and neighbouring countries. The size of the root is not altogether a criterion, for a tiny one half an inch long throws up eight or nine fine flowers all through the winter. An attempt has been made to cultivate Freesia refracta alba, which, with its exquisite perfume, and large trusses of pure white flowers, should prove a most valuable addition to the long list of winter flowers. But from some unaccountable reason it has never "taken." If only some *grande dame* would "patronise" this beautiful plant! Mr. Tonkin sowed half an ounce of seeds at the latter part of March, in one year, and he had a constant supply of flowers from the following September until January.

A recent writer in the *Cornishman* has pointed out that up to the present time Spain, Italy, Algeria, and other warm countries, have competed with Scilly in the wholesale culture of flowers for market; but the superiority of the home transit to the foreign is greatly in favour of Scilly; although the Scillonians should neglect no item in improving their cultural methods, and spare no expense in adopting the best ideas and the best sorts of flowers. The prosperity of the islands now rests almost entirely on the floral industry, which is fraught with uncertainty, and peculiarly amenable to competition. *W. Roberts.*

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM HERA ×, *n. hyb.*

This is a new and very pretty hybrid, raised in the collection of R. H. Measures, Esq., of The Woodlands, Streatham, between Cypripedium Spicerianum and C. villosum, the former being the seed-parent. A flower has just been sent to Kew, from which the following description has been drawn up. The characters of both species are well represented in the hybrid, those of C. Spicerianum somewhat preponderating in the dorsal sepal, and those of the other parent in the rest of the flower, though on the whole it is as thoroughly intermediate as hybrids generally are. The peduncle and ovary are shortly villose, the bract more than half equalling the latter, light green, and blotched with purple on the lower half. Dorsal sepal broadly orbicular, the margins strongly reflexed, colour white, with light green base and broad dark purple median band, and some light purplish marblings on either side of the same, and about half way to the margin. Lower sepal ovate, and lightest green. Petals cuneate-oblong, the upper margin undulate, the lower half pale green, the upper one light purple-brown, passing into lines of dots below, median band narrow, dark purple-brown. Lip smaller than in C. villosum, but otherwise much resembling it, light purple-brown in front, paler behind, internally marbled, and spotted with bright purple-brown. Staminode obovate-orbicular, the margin slightly raised, surface strongly papillose, colour light purple-brown, with a central dark green, slightly raised boss. The whole flower is bright and shining, though less varnished in appearance than many other hybrids partly derived from C. villosum.

Oncidium splendidum, *A. Rich.*

Oncidium splendidum has been pronounced as without doubt the finest Oncidium hitherto discovered, and whether this is so or not, there can be little doubt that it comes very near attaining this proud position. At the present time it is flowering in various collections, and when well grown its large panicles of golden flowers with red-brown markings on the sepals and petals are very effective. It was formerly considered to be a variety of the violet-scented O. tigrinum, and certainly there is a strong resemblance if individual flowers are compared. But what has struck me especially in comparing the two—with an eye, no doubt, to those botanical characters which may serve for the natural subdivision of this large and difficult genus—is the total dissimilarity of habit between them, so great, indeed, that they might well be placed in different groups. O. splendidum has the single large and very fleshy erect leaf, from the apex of a comparatively small pseudobulb, of the groups which contains O. Cavendishianum, O. Lanceanum, O. bicallosum, and several others, to which Lindley gave the name of Sarcoptera, in allusion to the fleshy wings of the column, and to confirm this position of O. splendidum, be it noted that the light rose-coloured wings are just as fleshy as in other members of the group. O. tigrinum is placed in the group Plurituberculata, and has a pair of thin arching leaves at the apex of the pseudobulb, as in others of the same group. However close may be the affinity between the two species, there is this important difference between them, and no one would ever confuse them together when out of flower. *R. A. Rolfe.*



Fig. 16.—Turkey oak tree struck by lightning.

TURKEY OAK STRUCK BY LIGHTNING.

On the Holwood property, one of Earl Derby's Kentish seats, no fewer than seven trees—four English and two Turkish Oaks, and an Austrian Pine—were struck by lightning during last summer, and that, too, in the short space of seven weeks.

The Turkey Oak (I find from a record I have kept) has been peculiarly free from damage by the electric fluid, but that it occasionally does suffer, and suffer most severely too, a glance at the annexed illustration clearly demonstrates.

This Turkey Oak was one of the largest trees of its kind at Holwood, and, as will be seen from the following figures, had a noble stem and fine spread of branches. It had a south-eastern exposure, was standing 75 feet from any other tree, the nearest being a large Elm, and was neither the largest nor smallest in that part of the park. It stood 76 feet in height, and had a clean, well rounded stem, which girthed 11 feet 5 inches at a yard from the ground. At about 10 feet from the ground the stem branched out into three large limbs, the girth of each at a yard from point of junction with the main stem being 7 feet, 4 feet 9 inches, and 4 feet 5 inches respectively. The lightning would seem to have struck the tree at 62 feet from the ground, and in descending shattered the main stem and branches in a most remarkable manner. The butt, to the length of 8 feet, was literally split into shingles, several planks of that length, and of a uniform thickness in inches, being preserved as a memento of the tree, without any preparation whatever, but just as left by the lightning. In passing downwards, the lightning seared the wood, leaving it in most places quite black, as if a hot iron had come in contact with it, and tore up the ground round the base of the tree for a depth of 21 inches.

After being struck, the appearance of the *débris* was curiously regular, the branches lying in a most regular manner around the stem, and forming almost a perfect circle of 99 yards in circumference. As showing the force of the lightning, it may be

*

stated that pieces of the bark up to eight ounces in weight were carried for 101 yards from the tree, and a block of timber weighing 2 cwt. 23 lb. was pitched bodily from the main stem to a distance of 42 feet (this block being 8 feet 3 inches long, and girthed at the smallest part 2 feet 11 inches). When cut up, the tree contained twenty-six loads of wood, and the branches were bound into 146 faggots. Two hours after being struck (on August 24, at 4 o'clock in the afternoon), a sulphurous smell was distinctly recognisable for several yards away. Another Turkey Oak was divested of half its bark for about 60 feet up, but did not suffer otherwise.

Amongst the English Oaks struck by the electric fluid, were two peculiar cases, the first in which the tree was struck at a stated height up, and in descending ran along the private telegraph wire to Holwood House. In another instance, the tree was struck at about 50 feet from the ground, and a clean triangular piece of wood, bark and all, removed in a perfectly straight line downwards therefrom. The piece removed was about 2 inches to side of the triangle.

The knotty branches of the Austrian Pine seemed too hard and cross-grained for the fluid, which evaded them in at least three places in a distance of 32 feet. *A. D. Webster.*

BOUGAINVILLEAS.

In bygone years the flowering of a plant of Bougainvillea speciosa was an uncommon occurrence, and the gardener who was successful was brought into prominence, as was the case with Mr. Daniels, gr. to B. R. Keene, Esq., of Swynescombe, Oxon. Mr. Daniel's secret, like almost everything pertaining to gardening practises, was soon made known, and was found to consist in giving the roots a strong dry bottom-heat, which seems essential to ensure the fullest success, as wherever specimens are so favoured, they are generally very floriferous. The best example I have ever seen is now to be found planted at Orwell Park, near Ipswich, where it stands at the back of a hipped roofed plant-house, and near to the boiler. The plant has but limited root-space, the border in which it is growing being only 9 inches wide, and raised above the path to a height of 2 feet; but there is no doubt some roots have got through the partition. The stem which is now very large, and the branches and shoots cover about 150 square feet of the roof, and the amount of bloom yielded is truly surprising, nearly every twig being festooned with beautiful bracts. These are of high colour, the effect of full exposure to the light. When the plant is in bloom, the air of the house is kept dry, and moderately cool, so that the bloom lasts in perfection a long time. The growth made yearly is of medium strength and length, and is so thoroughly matured by keeping the roots dry, after the young shoots are formed, that every leaf falls. The dryness and warmth of the border seem the two essentials of flowering this plant, and those who possess such conditions can secure fine blooms in midwinter. In very sunny houses I have seen good plants of this Bougainvillea growing in pots or slate boxes, the latter being perhaps the better, and those who cannot get the roots near a boiler may by using a slate box stand it on the pipes and so give it the requisite heat.

The warm and dry treatment is begun when growth ceases, and is continued for two or three months without hurt to the plants. B. glabra is a spring and summer blooming kind, and requires less heat than B. speciosa, the one just noticed; indeed, the first named of these will live in an ordinary greenhouse, or may be kept in a cellar or shed with Fuchsias, if kept dry at the root. For years I had plants so treated, which, when pruned back and started, flowered freely, and did duty in the conservatory before the roof climbers made the shade they now do.

When subjected to cold treatment, B. glabra becomes deciduous, as then it sheds its leaves; but in a warm-house, unless the roots are quite under control and be kept dry, it retains them, and remains green through the year. Unlike B. speciosa, which flowers on the wood of the previous year, B. glabra blooms on the young shoots, and therefore the way to manage the plants of this variety is to spur them in, which should be done just before they start, and if planted out and growing as a roof climber, it is necessary also to be frequently thinning as well, after the shoots move, or they soon become a dense mass; but this rampant growth may be checked by cramping the roots. To propagate either of these plants, take cuttings of young shoots of 3 inches long with a heel, and insert them in sharp sandy soil—cover with a bell-glass, and place in strong heat. The only insect which affects Bougainvilleas is greenfly, which are troublesome when the shoots are young and tender. The best remedy is gentle fumigation with Tobacco, repeated night and morning for several days in succession, as there is much danger in giving strong doses, which will bring down the inflorescence wholesale. *J. S.*

FOREIGN CORRESPONDENCE.

NOVA SCOTIA.

The Red-berried Elder. — The interesting notices you have already printed respecting the red-fruited Elder induce me to send you still another suggestion as to the cause of the want of success with it in certain localities. This shrub is very abundant as a native plant in some parts of Nova Scotia, and presents a striking appearance when laden with its weighty clusters of scarlet berries. In the summer season I am frequently asked what those berries are that grow so abundantly on the rocky railway banks near Halifax, that ripen so early, and are so beautiful. The Poison Elder, as it is commonly called here, makes the greatest show on rough, rocky, or stony places near the shore, where there is good natural drainage, and some accumulation of vegetable soil around the roots, with a moist atmosphere overhead. These appear to be its favourable conditions, suggestive to the planter of a lake or river bank, or terrace overlooking a harbour as suitable sites. I cannot conceive anything likely to be more effective than masses of this shrub planted along the margin of a lake or pond (as the Rhododendrons are at Trentham), so as to be mirrored in the sheet of water. This shrub is not likely to suffer from atmospheric dryness anywhere in England, but it may do so from poverty or wetness of soil, or want of autumn sunshine to ripen its wood, if planted in a shady place. I recollect a number of years ago, while walking through the village of Eisnach (Thuringia) with a friend, Mr. J. A. Haage, of Erfurt, we picked up a spray of it with an immense bunch of scarlet berries that had apparently been thrown over an adjoining garden wall. I have since seen it flourishing on the Pacific slopes of Colorado, in canons of the Elk mountains, as on the Atlantic coasts of Eastern America; Mr. Meehan testifies in your columns to its splendour in Alaska; it caught the eye of Michaux on his visit to the city of Quebec, July 19, 1792 (see his *Journal*, edited by Sargent); *Botany of Beechey* locates it at Avatschka Bay, in Kamtschatka, lat. 53° N.; and the Russian Floras testify to its wide distribution throughout other parts of northern Asia and Europe. It is one of the hardiest and most easily grown, and most easily propagated shrubs in existence.

I was not prepared for the discovery made by Mr. Meehan (one of the most accurate observers we have on this continent) that there is enmity between the Elder and the sparrow. Our experience here has to come. A small colony of Passer domesticus was harboured a good many years ago at the General's quarters in Halifax, and soon took occupation of the swallow's nests at the Artillery barracks. But the military locations have been gradually deserted, and the sparrows have latterly formed their headquarters in the centre of the city, occupying the eaves of the Province Building, and perching on the trees of the surrounding grounds. Last week a new contingent came to the port of Yarmouth on board a vessel from Boston, laden with Oats. But here no sparrow has, so far, gone out into the country where Elderberries grow. What is the correct botanical name of the red-berried Elder? This shrub was named by Linnæus in *Species Plantarum*, i., p. 386, Sambucus racemosa, being founded on S. racemosa rubra, Bauhin, Pinax" (1671). "Habitat in Europæ australis montibus. This name was adopted by Willdenow, Aiton, and others, with knowledge only of the European plant. In 1803, Richard described the American plant as S. pubens, in Michaux's *Flora Boreali-Americana*, but two years later changed the name to pubescens in Persoon's *Synopsis*. In 1820, Roemer and Schultes accepted the name pubens, remarking, "*valde affinis racemosæ*." De Candolle also adopted it in the *Prodromus* (1830), adding, "*Affinis S. racemosæ. Fructus etiam ruber.*" This specific name, pubens, was adopted generally by botanists for the American plant up to a recent date; but, in 1833, Sir William Hooker, in the *Flora Boreali-Americana*, placed both the American and European plants under the one original name, racemosa, observing:—"I do not find that [the Rocky Mountain and Pacific specimens] or the Eastern [American] state of the plant can in any be distinguished from the European S. racemosa, which I also have from Siberia. The fruit is red." Ledebour, in the *Flora Rossica*, 1844—46, followed Hooker in including S. pubens of Michaux, in racemosa. In 1880, Gray, in Brewer & Watson's *Botany of California*, i., p. 278, did likewise, stating that "the Californian and Rocky Mountain specimens are as glabrous as the European plant; in British America and Alaska it is commonly pubescent, as in the Atlantic States variety pubens." Sereno Watson had relegated it as S. racemosa var. pubens, in *King's Report*, v., p. 133. Finally, Gray, in the *Synoptical Flora of North America*, vol. i., part ii., p. 8, reduced pubens to a simple synonym of S. racemosa. That there are distinguishable varieties and forms of the species is obvious, one of the best marked being probably S. racemosa var. arborescens, Meehan, a name which Mr. M., by slip of pen, refers to Torrey and Gray. *George Lawson, Halifax, Nova Scotia.*

Red-berried Elder at Braemar.

The mention of this plant on p. 690 of the last volume of the *Gardeners' Chronicle*, interested me very much; and as testifying to its hardiness, I would name the following places where it is found growing in the far north: in Sweden, at Piteo 65° 19′ N.; in Norway, at Gröto 67° 50′ N.; in Finland, on the west coast, in latitude 65°, and in several places in Norway, where the temperature falls as low as 40—45 Celsius below the freezing point, and at all these places growing freely and ripening fruit. In some situations severe frost kills it to the ground, but the following summer shoots are sent up from four to five feet in length. *James Loney, Ofveras, Gothenburg, Sweden.*

KEW NOTES.

Iris Bakeriana and I. sophenensis are both in flower at Kew, the former being amongst the prettiest of the reticulata set we have yet seen. The inner segments are soft blue, whilst the outer ones have deep velvety tips, and a yellow-marked claw. It is as fragrant as the Violet, and will doubtless prove a most useful adjunct to our spring Irises. I. sophenensis is distinct in its reddish-purple, orange marked flowers, not so bright or attractive as the old type.

Iris Bornmülleri, Haussk.—A very charming and extraordinary little Iris, under the above name, is now in flower at Kew. It does not appear to have been described anywhere, and the only references we have been able to get at are a note from its introducer, Herr Max Leichtlin, of Baden-Baden (*Gard. Chron.*, 1889, ii., p. 279), and in the *Wiener Garten Zeitung*, 1889. It is a pretty, soft golden-yellow flowered species; but what strikes one most is the very rudimentary petals, which in some of the flowers are

almost entirely suppressed, and which incline us to believe it to be a mere variety, even if distinct from Xiphion Danfordiæ, Baker, *Journal of Botany*, 1876, v., p. 265. It agrees entirely with the latter as far as we can make out, in the almost entire absence of petals, the slight beard on the sepals, the orange-yellow, brown-spotted flowers, and the several protecting spathes, reaching almost to the top of the narrow tube. Iris Danfordiæ is a native of the Cicilian Taurus, where it was collected by Mrs. Danford, along with many more interesting bulbous plants. In a short note Mrs. Danford says that this Iris is "abundant where it occurs," but evidently very local, as she only met with it twice. It blooms about the beginning of March at an elevation of 4000 feet. It is only one-flowered, each plant growing apart from the other. When in bloom it has only narrow sheathing leaves, and grows from 2 to 4 inches high. The exact locality where it was found was the western side of Anaska Mountain, really a continuation of the Ala Dagh range. Here, on a slope of sandy earth, grows the yellow Iris, in close company with a brilliant orange Crocus. On the banks of the little rivulet, near where Iris Danfordiæ grows, such plants as Primroses, Violets, Scilla bifolia are to be found in large patches, and on the grey rocks above large clumps of Cystopteris fragilis, Asplenium Trichomanes, and A. ruta-muraria. Amongst the bulbs found in the same locality are Fritillaria aurea, Hyacinthus azureus, Bellevalia ciliata and hispida, all of which are perfectly hardy, as our beautiful yellow Iris will most likely also prove. The locality given by Herr Max Leichtlin is Armenia, no particular district being specified, and it may turn out to be not far distant from Mrs. Danford's original locality. Whatever may be Dr. Foster's final determination, one thing is certain. This Iris is certainly an acquisition among spring flowers, its pretty yellow flowers peeping above ground in January will always be looked forward to with interest and pleasure.

Galanthus umbricus.—A Snowdrop has come to us from Italy under the above name, and though flowering this year a little earlier than most of our established tufts, it proves to be nothing more or less than our common G. nivalis. The present rush after new names is to be deplored; and does not justifiy anyone in going to a certain locality, collecting a few bulbs, and distributing them under the name of that locality, without even taking the trouble to see if they have any distinctive features entitling them to a new name. Its early flowering is only of a temporary nature; it is well known that all bulbs ripened in the sunny south flower earlier the first year with us, but they soon drop back to a level with our old tufts. The common Snowdrop is always welcome as Galanthus nivalis. *D. Dewar.*

LIST OF GARDEN ORCHIDS.

(Continued from p. 55, vol. VI., n.s.)

LÆLIA.

86. **Lælia**, Lindl., *Gen. & Sp. Orch.* (1831), p. 115; Benth. and Hook. f., *Gen. Plant.*, iii., p. 533.—Pollen-masses 8, other characters as in *Cattleya*. Species about 20, occurring in the maritime provinces of Southern Brazil, and, after a wide interval, in Southern Mexico and Guatemala; no species being common to the two widely dissevered areas. For hybrids between this genus and *Cattleya*, many of which have been referred here, see LÆLIO-CATTLEYA×.

L. acuminata, Lindl. = L. RUBESCENS.

(1.) L. ALBIDA, Batem., ex Lindl., *Bot. Reg.*, xxv. (1839), *Misc.*, p. 2; *Id.*, t. 54; *Bot. Mag.*, t. 3957; Warn. and Will., *Orch. Alb.*, iii., t. 138; *Orchidophile*, 1885, p. 338, with fig.; Veitch, *Man. Orch. Pl.*, pt. 2, p. 55, 56, with fig. *Bletia albida*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 428.—Mexico. Introduced to cultivation about 1837, from the neighbourhood of Oaxaca, and flowered with Mr. Thomas Harris, of Kingsbury, shortly afterwards. It appears to have been first discovered by Count Karwinsky in 1832, at an elevation of 7000—8000 feet. The following varieties have been described:—

Var. BELLA, Hort., ex Williams, *Orch. Gr. Man.*, ed. 6, p. 348; Warn. and Will., *Orch. Alb.*, v. t. 239.

Var. BRUNNEA, Rchb. f., in *Gard. Chron.*, 1868, p. 208.

Var. DISCOLOR, Rchb. f., in Sander's *Reichenbachia*, ii., p. 43. *Lælia discolor*, Rich. and Gal., in *Ann. Sc. Nat.*, ser. 3, iii. (1845), p. 23.

Var. LINDLEYANA, Rchb. f., in Sander's *Reichenbachia*, ii., p. 43. "*Lælia anceps*, Bat., Lindl., *Bot. Reg.*, xxv., 59!" ex Rchb. f., in Sander's *Reichenbachia*, l.c., but I am unable to find any trace of it in the work cited.

Var. MARIANÆ, Warner, ex Williams, *Orch. Gr. Man.*, ed. 6 (1885), p. 349.

Var. OCHRACEA, Rchb. f., in *Gard. Chron.*, 1868, p. 208.

Var. ROSEA, *Fl. Mag.* (1867), t. 335. *Lælia albida*, *The Garden*, 1889, pt. 1, p. 314, t. 695.

Var. SALMONEA, Veitch, *Man. Orch. Pl.*, pt. 2 (1887), p. 56.

Var. STOBARTIANA, Rchb. f., 1877, pt. 1, p. 271; Sander's *Reichenbachia*, ii., p. 43, t. 68.

Var. SULPHUREA, Rchb. f., in *Gard. Chron.*, 1884, pt. 1, p. 76; Warn. and Will., *Orch. Alb.*, vii., t. 320.

Var. TUCKERI, Rchb. f., in *Gard. Chron.*, 1868, p. 208.

L.×amanda = LÆLIO-CATTLEYA×AMANDA.

L.×Amesiana = LÆLIO-CATTLEYA×AMESIANA.

(2.) L. ANCEPS, Lindl., *Bot. Reg.*, xxi. (1835), t. 1751; Paxt., *Mag. Bot.*, iv., p. 73, with plate; *Bot. Mag.*, t. 3804; Hook., *Cent. Orch.*, t. 24; Jenn., *Orch.*, t. 6, fig. 1; Warn. and Will., *Orch. Alb.*, ii., t. 75; Veitch, *Man. Orch. Pl.*, pt. 2, p. 56, with fig.; *Gard. Chron.*, 1885, pt. 2, p. 405, fig. 88 (fruit); *Bletia anceps*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 418.—Mexico. Introduced into British gardens by Messrs. Loddiges, of Hackney, in 1835. It was formerly very abundant in the neighbourhood of Orizaba and Cordoba, where it is called by the natives El toro. It is widely distributed along the eastern side of the Cordillera, from Orizaba northwards to Jalapa, and is also said to grow near the Pacific coast. It is extremely variable in colour, and the following varieties have been described:—

Var. ALBA, Rchb. f., in *Gard. Chron.*, 1879, pt. 1, p. 10; *Gard. Chron.*, 1887, pt. 1, p. 485, fig. 92.

Var. AMABILIS, Rchb. f., in *Gard. Chron.*, 1889, pt. 1, p. 104.

Var. AMESIANA, O'Brien, in *Gard. Chron.*, 1888, pt. 2, p. 660.

Var. BARKERIANA, Lindl., *Bot. Reg.*, xxiii. (1837), t. 1947; *Fl. des Serres*, t. 1100; Sander's *Reichenbachia*, i., p. 109, t. 48; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 5 (*Barkeri*). *Lælia Barkeri*, Kn. & Westc., *Fl. Cab.*, i. (1837), p. 63, t. 30. *Bletia anceps* var. *Barkeriana*, Rchb. f., in Walp., *Ann. Bot.*, vi., p. 418.

Var. BLANDA, Rch. f., in *Gard. Chron.*, 1885, pt. 1, p. 206.

Var. CALVERTIANA, Rchb. f., in *Gard. Chron.*, 1885, pt. 1, p. 206.

Var. DAWSONI, Anderson, in *Gard. Chron.*, 1868, p. 27; *Fl. Mag.*, t. 530; Jenn., *Orch.*, t. 6, fig. 2; Warn., *Sel. Orch.*, ser. 2, t. 34; Warn. and Will., *Orch. Alb.*, i., t. 44; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 1; *Gard. Chron.*, 1887, pt. 1, p. 424, fig. 82; Veitch, *Man. Orch. Pl.*, pt. 2, p. 58, with fig.

Var. DELICATA, Hort., ex Williams, *Orch. Gr. Man.*, ed. 6 (1885), p. 351.

Var. GRANDIFLORA, Williams, *Orch. Gr. Man.*, ed. 6 (1885), p. 351; *Gard. Chron.*, 1888, pt. 1, p. 105, 107, fig. 17. *L. anceps morada*, *Gard. Chron.*, 1888, pt. 1, p. 107, in note.

Var. HILLIANA, Rchb. f., in *Gard. Chron.*, 1881, pt. 1, p. 168; Warn. and Will., *Orch. Alb.*, iv., t. 146; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 6 (*Hilli*); *Ill. Hort.*, n.s., t. 584; *Gard. Chron.*, 1887, pt. 1, p. 425, fig. 83 (*Hillii*).

Var. KIENASTIANA, Rchb. f., in *Gard. Chron.*, 1886, pt. 1, p. 298.

Var. LEEANA, Sander, ex Rchb. f., in *Gard. Chron.*, 1884, pt. 1, p. 445.

Var. LEUCOSTICTA, Rchb. f., in *Gard. Chron*, 1885, pt. 1, p. 206.

Var. morada = var. GRANDIFLORA.

Var. MUNDA, Rchb. f., in *Gard. Chron.*, 1886, pt. 1, p. 298; 1888, pt. 1, p. 233.

Var. OBSCURA, Rchb. f., in *Gard. Chron.*, 1886, pt. 1, p. 41.

Var. PERCIVALLIANA, Rchb. f., in *Gard. Chron.*, 1883, pt. 1, p. 110; *Percivalliana pulcherrima*, Warn. and Will., *Orch. Alb.*, vi., t. 256; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 3; Sander's *Reichenbachia*, i., p. 79, t. 36.

Var. RADIANS, Rchb. f., in *Gard. Chron.*, 1888, pt. 1, p. 200.

Var. ROSEA, Rchb. f., in *Gard. Chron.*, 1880, pt. 1, p. 104; 1888, pt. 1, p. 233; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 4.

Var. SANDERIANA, Rchb. f., in *Gard. Chron.*, 1885, pt. 1, p. 140; 1887, pt. 1, p. 281, fig. 59; Sander's *Reichenbachia*, ii., p. 15, t. 56.

Var. SCHRŒDERIANA, Rchb. f., in *Gard. Chron.*, 1885, pt. 1, p. 342.

Var. SCOTTIANA, Warn. and Will., *Orch. Alb.*, vii., t. 325.

Var. STELLA, Rchb. f., in *Gard. Chron.*, 1886, pt. 1, p. 136; 1887, pt. 1, p. 280, fig. 58; Warn. and Will., *Orch. Alb.*, vii., t. 329; Sander's *Reichenbachia*, i., p. 109, t. 48.

Var. SUPERBA, Regel, *Gartenflora*, iv. (1855), p. 343, t. 140.

Var. VEITCHIANA, Rchb. f., in *Gard. Chron.*, 1883, pt. 1, p. 274; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 7 (*Veitchi*).

Var. VESTALIS, Rchb. f., in *Gard. Chron.*, 1880, pt. 1, p. 136.

Var. VIRGINALIS, Rchb. f., in *Gard. Chron.*, 1880, pt. 1, p. 136; *Journ. of Hort.*, 1887, pt. 1, p. 42, fig. 7.

Var. WILLIAMSII, Sander, ex Warn. and Will., *Orch. Alb.*, iv., t. 190; *Gard. Chron.*, 1887, pt. 1, p. 349, fig. 72; *The Garden*, 1884, pt. 1, p. 534, t. 446, fig. 2 (*Williamsiana*).

(3.) L. AUTUMNALIS, Lindl., *Gen. & Sp. Orch.* (1831), p. 115; *Id.*, *Bot. Reg.*, xxv., t. 27; Paxt., *Mag. Bot.*, vi., p. 121, with plate; *Bot. Mag.*, t. 3817; Batem., *Orch. Mex. & Guat.*, t. 9; Hook., *Cent. Orch.*, t. 26; *Gard. Chron.*, 1872, p. 1009, fig. 237; *Ill. Hort.*, t. 17; Veitch, *Man. Orch. Pl.*, pt. 2, p. 61, with fig. *L. rosea*, Hort., ex Rchb. f., in Sander's *Reichenbachia*, p. 21. *Bletia autumnalis*, Llav. et Lex., *Nov. Veg. Descr.*, ii. (1825), *Orch. Opusc.*, p. 19.—Mexico. First introduced into European gardens in 1836, in which year it was received from Mexico by Mr. Taylenr, of Parkfield, near Liverpool. Shortly afterwards it was imported by other horticultural firms. It is spread over a considerable part of the Mexican highlands, where it grows on bare rocks, stunted trees, and similar situations, exposed to the full force of the sun and rain. The flowers are used in Mexico for the decoration of the churches on All Saints' Day, and hence its vernacular name of "*Flor de todos los Santos*," or All Saints' Flower. It is far less variable than L. anceps, but the following varieties are known:—

Var. ATROPURPUREA, Weber, in *Deutsche Gart. Zeit.*, 1886, p. 162, fig. 41, 42.

Var. ATRORUBENS, Backhouse, in *Gard. Chron.*, 1879, pt. 2, p. 232; *The Garden*, 1880, pt. 1, p. 368, t. 229; Warn and Will., *Orch. Alb.*, ii., t. 49. A brightly coloured form.

Var. FURFURACEA. *Lælia furfuracea*, Lindl., *Bot. Reg.*, xxv. (1839), t. 26; *Bot. Mag.* t. 3810; Hook., *Cent. Orch.*, t. 25. *Bletia furfuracea*, Rchb. f. in Walp., *Ann. Bot.*, vi. (1861), p. 428. Discovered by Count Karwinsky in the neighbourhood of Caxaca, at an elevation of 7,500 to 8,500 feet, and subsequently by others, in other localities, but always at a high elevation. It was imported by Mr. Barker, of Birmingham, and sent to Dr. Lindley, in November, 1838. It is generally considered a distinct species, but it seems to me rather a dwarf alpine form of L. autumnalis, with the petals unusually broad, and the scurfiness of the ovary more strongly developed. The two seem to gradually run together in a series of specimens.

Var. VENUSTA, Goldring, in *The Garden*, 1884, pt. 1, p. 366, t. 438. Much paler than the variety atrorubens, otherwise very similar.

Var. XANTHOTROPIS, Rchb. f., in Sander's *Reichenbachia*, i. (1886), p. 21, t. 10. A form quite intermediate between typical L. autumnalis and the variety furfuracea, though there seems no reason for supposing it a hybrid between them, as suggested. It is said to flower in July and August. *R. A. Rolfe, Herbarium, Kew.*

TREES AND SHRUBS.

RETINOSPORA [OBTUSA VAR.] TROUBETZKOYANA. *Hort. Rovelli.*

UNDER this name Messrs. Rovelli, of Pallanza, whose collections of Coniferæ and of Camellias are so remarkable, obligingly send us specimens of a seedling form of Thuya (Retinospora) obtusa—or such we take it to be. Judging from the specimen before us, it is a dwarf compact variety, densely branched with short divaricating branchlets covered with appressed bright green rather thick, lanceolate, acute but not acuminate leaves, with a central gland on the back. Mr. Nicholson, who has seen the plant growing, speaks highly of it for decorative purposes.

THUYA [BOREALIS] VAR. NIDIFERA. *Hort. Rovelli.*

For this we also are indebted to Messrs. Rovelli, who call it Thuyopsis nidifera. From the specimen before us we incline to the belief that it is a seedling form from Thuya borealis (alias Nutkaensis), and if so it is remarkable, as that species is relatively less variable than some of its near allies. The specimens before us are feathery-looking with slender, pinnately branching shoots, densely covered with appressed, deep apple-green, subulate leaves, each with a central gland on the dorsal surface. The plant must be a very attractive one.

THE FLOWER GARDEN.

THE WORK ON THE LAWNS.—At this season it is specially desirable that the lawn should be kept scrupulously neat, for however fine the specimens of trees and shrubs may be—unless the lawn be kept in first-rate order, these objects will fail to produce the effects they were intended to give; hence the lawn should be frequently swept, but avoiding doing so during very wet or very frosty weather. The season having been so mild, without snow and excessive rains, the making of alterations and improvements has been greatly facilitated. Any depression in the turf in which water may lay should have the turf run back, and be filled up with loamy soil, replacing the turf neatly, and beating it to its proper level. Any spot where the turf has been damaged by play, or other causes, should be mended with fresh sound turves, so as to ensure a perfect sward by the time it is again required. On dry days the lawn should get a thorough rolling after a sweeping.

Walks.—Now is the time to place the edgings of walks, if of turf, in proper condition, with the edging iron and line, paring the sides until you have a regular line, pleasing to the eye. Where the width of the walks is increasing, a strip of turf along the side should be cut and pushed forward on to the surface of the walk, the bare space left being turfed over. By doing this a new edge may be cut without making the walk wider than it ought to be. If the edgings are of Box, vacancies in the lines may be made good, or the whole of it relaid. Edgings of tiles, flints, &c., should be put straight. The existing drains and catch pits in walks should be examined, and if stopped up they should be cleaned out. Where it is intended to carry drains along existing or new walks, such should be placed down the centre, and short branch drains carried into them from the catch pits or gratings at the sides of the walk. New gravel may now be placed on walks, previously passing it through a screen or sieve to remove all large stones. Where gravel is covered with moss or weeds, it may be turned with a steel fork or the spade, and afterwards rolled smooth.

Seeds and Flower Roots.—Several useful plants now require to be sown early in heat if they are to be had ready for the beds. Among the first lot to be sown are Eucalyptus globulus, Acacia lophantha, Centaurea candidissima, C. Clementei, and C. gymnocarpa; Cannas, Pyrethrum aureum and its varieties, Begonias, &c.

A sowing of Sweet Peas should be made in the open ground in prepared trenches, or in clumps in the herbaceous borders or shrubberies. These will come into bloom early. A sharp look-out must be kept for slugs.

Begonia and Dahlia roots should be introduced into gentle heat for the supply of cuttings. I prefer to strike Begonia cuttings on a gentle hotbed, covered with about 3 inches of finely-sifted soil composed of one-half well-decayed leaf-mould, one-fourth loam, and the rest red or silver-sand. It does not matter whether the cuttings are taken off with a heel or not; when struck, they may either be potted, or hardened off where they are. If inserted about 4 inches apart, they will take up with good balls of soil well filled with roots, and can be transferred directly into the flower-beds.

Pruning and Training.—Creepers and climbers on walls, with the exception of those flowering now, such as Jasminum nudiflorum, should be pruned, nailed, or tied, as required. I strongly advise in all cases, where practicable, that wires be placed on walls for training, as it preserves the wall from further damage, and greatly facilitates the work of training.

Hellebores never were more popular than now; they are best divided or removed at this season of the year. Perhaps one of the largest and most successful growers of this valuable flower resides in this neighbourhood; he grows many thousands, and has about completed his propagation and planting. Old plants which have been kept in pots until they have almost ceased to flower if turned out again, the old portion cut away, and planted out in the open ground in highly-manured soil, in a slightly shaded and moist position, will soon recover. They should be kept well mulched, especially during dry weather, and means taken to keep the slugs from them.

Chrysanthemums.—The old plants turned out from pots may be planted out between the shrubs, or in the herbaceous borders, where, if a favourable autumn prevails, such as we experienced last year, they will tend to make the flower-garden gay during the dull period of the year. *D. C. Powell, Powderham, Exeter.*

THE HARDY FRUIT GARDEN.

PEACHES AND NECTARINES.—These fruits, where grown extensively in favoured situations, should now be liberated from their fastenings and tied out to stakes in front of the wall, where the buds will be better retarded than by any other means during the remaining days of this month and February; the pruning may be done before they are liberated, but it is better to defer it till a little later. All the snags left from the autumn pruning should be trimmed over, and all the branches and young shoots washed with soap and water. Some gardeners paint their trees with strong insecticides after having pruned them, and I used to follow this practice; but by washing the growths twice with soap and water, I have found that scale never makes any headway even if there should be any of it present, and the risk of injury to the buds by the insecticides is avoided. If the walls are old and the joints open, and many nail-holes exist in them, a good washing with hot lime and a little linseed oil applied with a half-worn-out brush, is efficacious in ridding the wall of insects; and if training to wires is the fashion followed, it is a good plan to have all the wires painted if these are galvanised, for shoots tied close to them are often injured to such an extent that they have to be cut away. So far this season has been favourable for pushing on with manuring, renovations, &c., and any quarters of fruit or the soil round individual fruit trees, which may have become exhausted, should be dressed with good loam, or a mulching of half-decayed manure placed around each tree or bush. This encourages surface-rooting, which will have a marked effect on the subjects so treated.

Raspberry Plantations.—All staking and tying, if not already done, should at once be taken in hand, first thinning out the canes, not leaving too many to a stool, as these become crowded during the summer, and do not allow the fruit-bearing laterals to develop properly. If the locality is a damp one, the shortening back of the canes is better left until March, as by so doing the lower buds break much later. The ground should be heavily mulched with decayed manure, if it be of a light nature, but heavy and retentive soils may be dressed with charred refuse and soil. Digging must be avoided, merely the weeds being hoed up and raked off, and where mulching is done annually, very few weeds grow.

Gooseberry Plantations.—The bushes are frequently left until the spring before being pruned, but to have this operation standing over is certainly an inconvenience, the object of leaving them being that there is a better chance for the fruit-buds after the hard weather is gone. In bird-infested districts like this, where the bullfinches can be counted by the score in a flight, it is much the better plan to cover the Gooseberry quarters with permanent galvanised iron wire netting. Standards of 6½ feet above ground being fixed up at intervals to carry it; and the netting should be of 1 inch mesh.

A great many growers adopt early pruning, and rely on a dressing or two of thin limewash, strained through a hair sieve, and applied with a syringe or engine, but the result is not altogether satisfactory, the finches and sparrows not being deterred by this dressing. A good plan, and one which I have found to answer, is to run some wire netting a yard high, and of 1 inch mesh round the quarters, securing it to stout stakes, and covering the enclosed area with square mesh tanned fish netting, removing it when the fruit is set and safe. In pruning, thin the shoots severely in the centre of the bush, and avoid overcrowding anywhere. Good shoots should be selected for cuttings, if such are wanted, and these should be put into two-thirds of their length, rubbing off all buds beneath the upper four. If caterpillars have been troublesome during the past season, the soil underneath each bush should be shovelled up to the depth of two or three inches, and carefully carried to a heap of refuse and burned, slaked fresh lime being then applied as a top dressing, and fresh soil in place of that which was removed. Mulch the ground with half-rotten manure.

Gooseberry growing here is rather an important bit of work, a supply of fruit being required for as long a time as possible, and I will mention my various modes of planting the bushes, &c. First, there are six trellises, 4½ feet high, and the same distance apart, and on these are grown fruits which are kept solely for the members of the family and their visitors to pick and consume on the spot; and just when they are ripening, the bushes are spurred in, the ground is covered with clean straw so as to be accessible in any state of the weather, and there is no pricking of the fingers. Planting the Gooseberry on walls well repays for the space they take up, for it is surprising how long and regular is the supply from that source if planting is done on different aspects. I gathered the last dish of Warrington on November 23, and these were of good flavour. Whinham's Industry is an excellent variety, both for flavour and bearing, and also lateness. *A. Evans, Lythe Hill, Haslemere.*

ORCHID NOTES AND GLEANINGS.

LÆLIA ELEGANS BLENHEIMENSIS.

THIS is a magnificent variety, with fine evergreen foliage. It has slender, terete stems, some 2 feet high, bearing on the summit a pair of linear, oblong, coriaceous leaves. The flowers proceed from a small sheath situated between the leaves; these are well formed, and of good substance, and measure individually 5 inches across; the sepals are of a pale rosy-purple, becoming deeper in colour towards the edge; petals intense rose-purple; lip three-lobed, anterior lobe deep magenta-purple, veined with a deeper shade of the same colour; throat yellow. The flowers of this variety appear at a most unusual time for a dark variety—that is, in the month of February, and they continue in perfection for three weeks or a month.

We find from experience that this section of Lælia elegans requires a warmer and closer atmosphere than most of its congeners, by which means their stems are not allowed to shrivel; indeed, they require to be kept in a shady place, and their stems and foliage kept moist, until they plump up and form new roots. These plants require great attention, and should never be allowed to flower until they have become well rooted and thoroughly established. We cultivate the plants belonging to this section of Lælia by themselves, using one side of the house for them, a position in which they have full exposure to the light, but are shaded from the hottest sunshine. Here we give them an abundant supply of moisture between the pots and on the table, in order to pro-

duce a moist atmosphere during the season of growth; but in the winter months this is considerably reduced, as we give them only sufficient to keep their bulbs in a plump and healthy condition. The pots must be well and thoroughly drained, the best material to use about their roots is good, fibrous, upland peat, and this should be made firm. They thrive equally well in either pots or baskets, and may be hung up near to the roof-glass; but there is one thing to avoid in this situation—it frequently becomes a very chilly place in winter, and therefore we would avoid too close a proximity to the glass during extreme cold weather. "*Orchid Album.*"

Pescatorea cerina.

This is a beautiful evergreen plant, entirely destitute of pseudobulbs, merely having a tufty stem, formed in the axils of the leaves; the flowers measure some 3 inches across, the sepals and petals being fleshy in texture, concave, roundish-oblong, of a pale waxy lemon colour, the lateral sepals being somewhat darker, and the lip clear yellow. It blooms during October and November, and continues in beauty for a very long time.

This plant is successfully cultivated by different growers in various ways, and in various temperatures; but hitherto they have not proved long-lived plants under cultivation. This, however, arises from the want of knowledge of some special requirement, which, when once we have gained, there will be nothing to prevent us growing it, and all the species of the genus, with ease. Great care is necessary in the management of these Pescatoreas, and we have found it a good plan to keep them as fair-sized plants rather than to attempt to make large specimens, as the roots generally rot away when the plant attains large dimensions, and this is fatal in most instances, unless the old soil is at once removed, the roots washed, and any dead roots cut away. The plants should then be re-potted and placed in a shady situation. Basket culture is best for them, and good drainage is essential to their well-being, requiring, as they do, a liberal supply of moisture to the roots all the year round; but it should be allowed to pass away quickly and thoroughly, leaving nothing behind to stagnate. But little mould should be used about their roots, and this small quantity should consist of fibrous peat and sphagnum moss. The plants should be well elevated by mixing some nodules of charcoal with the soil, and we find the warm end of the Cattleya-house the most suitable position for them. Cultivated either in baskets or in pots, the plants, when in flower, should be placed in such a position that the blooms when open are in the line of vision, as in this manner the best effect is produced, and they can be the more easily inspected closely. "*Orchid Album.*"

The Orchid Houses.

Intermediate-house.—In this house grow Vandas of the suavis and tricolor sections, and those and Odontoglossum vexillarium should be very carefully looked over to see that no thrips are infesting them. When doing this, it is good practice to carry a camel-hair pencil, so that if a spot on a leaf catches the eye, it is easy to touch it with some saliva, and this, if carefully done, will keep down thrip; still, it is a good plan to dip the plants twice or thrice in a year—the first time when the flower-spikes are coming up, and again directly after they have done flowering.

Odontoglossum grande should now be kept very dry, as it is a plant which requires less water than any other plant of which I know. Plants of Masdevallia tovarensis which have done flowering may now be repotted, if that be necessary. The Pleionies which have been kept cool since being repotted should be brought in, and kept moist, but too much water must not yet be applied, or the tips of the leaves will be very likely to turn of a brown colour.

The new Vanda Amesiana, now in flower with us, is a very delicate-looking flower, and withal useful, and seems to do very well in the same house as the other Vandas. Temperatures for this house may range from 55° at night, to 60° by day.

Cool-house.—It has been my practice for several years past to repot all the Odontoglossums and the Masdevallias in the autumn, which is much more satisfactory than doing it in the spring. Plants repotted last September, are now furnished with roots running over the sides of the pots. However, no one who has plants of either species which were not repotted in the autumn, should lose time in ascertaining which of them requires it, and which may safely be left until next September. In re-potting, care should be exercised not to use a pot that is too large, and to fill it to three-fourths of its depth with clean potsherds, and put over this a sprinkling of sphagnum, and before placing the plant in the pot, to squeeze a firm lump of fibry peat into the centre of the pot as a firm basis for the plant to rest upon, holding it firmly in this position while packing the materials neatly around the plant. The temperature may be at night 45°, and by day 50°.

East Indian House.—Where plants of Phaius tuberculosus have done well, the flower-spikes will be showing freely; and the plant being one that is very subject to attacks of thrips, it is necessary to examine it daily. With us the plants grow in Teak baskets, hung up close to the roof, and near to the ventilators. I find that P. tuberculosus likes a compost of sphagnum moss, peat, and turf, in equal proportions, with a small quantity of silver-sand added to it. I have found that its congeners, P. Humboldtii and Henryii also, do well in the same compost. It is almost too soon to say with certainty in which temperature these latter varieties do best, but our plants seem to grow the strongest in the intermediate-house, though I am assured by some authorities that they come from a very hot region. I am, at any rate, trying both hot and intermediate-houses, and at present I like the plants that are in the cooler house the better.

Calanthe vestita oculata gigantea, now coming into flower, is the best of the deciduous Calanthes, and a free grower, that makes large bulbs and flower-spikes. Another good feature of the plant is, that it keeps its foliage perfect until the flowering is over. At the present time the plants require to be well supplied with water, but less will be required when the foliage begins to change colour. *A. G. Catt, Parkfield, Worcester.*

Florists' Flowers.

Specimen Chrysanthemums.

Much has been written of late against the method generally adopted at the present time of training specimen plants. A great fault is, I think, made by deferring the training and the final tying of the shoots too long after the flower buds are formed, and which in many instances does not allow of the leaves righting themselves before the flowers are expanded and the plants shown. Nothing looks worse than to see the blooms flattened down on the foliage, for in a properly trained Chrysanthemum every flower should stand clear of the leaves, and each shoot should be at least one foot from the place where the growths are bent, or even more than that in very large plants. The bending of the branches should be done as early in their growth, and as close to the pot, as may be practicable. Probably the best specimens seen this season were shown by Mr. J. S. Graham, gardener to G. Lawson, Esq., Newland Grove, Hull, at the show held in conjunction with the provincial exhibition of the National Chrysanthemum Society. Each of his plants measured about 3 feet in diameter, and so deftly were the growths manipulated, that it was extremely difficult to discover, without very close inspection, where the stems were bent, so abundantly were they clothed with the dark green foliage, completely hiding the stems. The varieties were of the Mrs. G. Rundle type, which adapt themselves to this form of training admirably, the blooms which are produced by the trio of sports from this variety, always incurve perfectly, not like some other varieties which are grown in this way, which though not being well adapted for producing so many flowers on one plant, show a tendency to be hollow-eyed; and an incurved Chrysanthemum in this state cannot be said to be a perfect flower, and sorts that are prone to be so should not be chosen for this mode of culture. It is the stretched-out 5-feet specimens of the flat cart-wheel type, with little foliage to hide the stems and sticks, bent shoots, and wires, that bring this form of training into disrepute, and draw down justly-merited censure, which falls, unhappily, upon the heads of all specimen-plant growers indiscriminately.

Specimen Chrysanthemum Jane.

It may not be generally known that this lovely single-flowered variety makes a fine specimen, when allowed to carry from forty to fifty blooms, one on each shoot. When such a plant is fully developed, it is a charming object, the pure white, graceful blooms having long drooping florets, with a delicate twist at their points, and a bright yellow disc. The foliage is profuse and when a plant is well done, it adds to its beauty. *E.*

Fruits Under Glass.

Melons should be made ready for planting out. We generally lead off with two or three kinds as a first crop; after that, we grow Blenheim Orange only, and I know of no better variety for all-round purposes. The present is a good time to sow a batch for a second crop, putting two seeds into a 60-pot, using a light, fine soil, with a bit of holding fibrous turf in the bottom of the pot. Road scrapings, if gritty and calcareous without further mixture, suit Melons well.

Peaches and Nectarines.—The early house, if the tree be not already in flower, should have two gentle fumigations, so as to prevent attacks of green or black aphis before the young fruit have set properly. All misplaced flower-buds should be removed, those, for instance, on the under sides of the branches at the very base of the shoots, or those appearing undersized or imperfect, as allowing the trees to bring forth every flower they show has a distressing effect upon them; but where bud dropping has been prevalent (and I have heard of several cases this year), Nature will right herself if it be not too serious. Some varieties of Peaches are much worse than others, principally the large flowering kinds, and notably Noblesse and Alexander, both of which have dropped with us this year. I attribute bud dropping generally to dryness at the root during autumn or winter after the crop has been gathered, to too much fire-heat in starting to force, or to the rooting compost being too loose, but the first is the most frequent cause. Later houses should be pruned, borders topdressed and otherwise prepared. It is advisable to dress both old and young wood with some insecticide. We use Gishurst's compound at 6 oz. to the gallon for the young wood.

Cucumbers.—It is sometimes difficult to maintain a supply through the month of February and during Lent, but if the winter plants have been grown thinly, neither stopped nor over cropped, the increasing daylight will soon work wonders. Keep up a good temperature, allowing 70° at night, with plenty of moisture, and little ventilation. Sow for successional plants.

Tomatos should also be forwarded, and seeds sown.

The Fig-house, if closed now, will give ripe fruit in May, but take every precaution to keep clear from scale or other insects. Use the syringe twice a day, using artificial means to dry the wood once each day. The temperature to start with should be about 45° to 50° for night, and 10° more by day. If it be convenient to have a bed of fermenting leaves in the house, there will be a considerable gain.

The Grape-room must be frequently looked over, and bad berries (if any) at once removed. Keep it as cool as possible, consistent with dryness, watch the evaporation from the bottles, and fill them up as may be required. We add two tablespoonfuls of syrup, as that is said to preserve the flavour. *Wm. Crump, Madresfield Court, Malvern.*

PLANT PORTRAITS.

Hypericum calycinum, and H. Moserianum *Moniteur Horticole*, January 10.

Nymphæa marliacea, *Chromatella Illustrierte Monatshefte*, January.

Ramondia pyrenaica alba, *Garden*, January 11.—A lovely variety of a particularly interesting alpine plant.

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

NEWSPAPERS. *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	JAN. 27	Lilium auratum and Hardy Bulbs, at Protheroe & Morris' Rooms.
TUESDAY,	JAN. 28	Roses, Trees, Plants, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	JAN. 29	Roses, Fruit Trees, Shrubs, Border Plants, Bulbs, at Stevens' Rooms. Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms. Seeds of Kentia Belmoreana and K. Forsteriana, at Protheroe & Morris' Rooms.
THURSDAY,	JAN. 30	Imported and Established Orchids, and Importations of Lilies, &c., from Japan, at Stevens' Rooms.
FRIDAY,	JAN. 31	Imported and Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	FEB. 1	Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—38°.8.

The Weather Plant.

FOR some time past, at intervals, the newspapers have entertained their readers with accounts of a "Weather-plant," reputed to do many wonderful things, but only under certain conditions, involving considerable outlay for apparatus, &c. Our own attention has been repeatedly called to the matter, both by members of the trade, and by ordinary correspondents, to whom we have inculcated the desirability of a little wholesome scepticism and caution. The matter has however, now come before the public in a more prominent manner by advertisements in some of the horticultural journals and seed catalogues, and especially by the publication in the last number of the Kew *Bulletin*, of a large number of experiments and forecasts made by the "discoverer," together with the results of independent observations on these so-called forecasts made by Dr. OLIVER and his assistant. According to the statement of the introducer of the Weather-plant, or his agents, the plant, by the movement in certain directions of its leaves or leaflets, forecasts the weather with absolute certainty forty-eight hours beforehand, whether sunshine, rain, wind, storm, &c., whilst subterranean disturbances are predicted three to eight days beforehand, according to locality. The pamphlet published by the inventor shows that the leaflets bend upwards for fine weather, down for rain, turn diagonally towards the stem for wind, cross for an approaching thunderstorm, and curl for a discharging thunderstorm, all forty-eight hours in advance; whilst for subterranean disturbances the branch drops down altogether in that direction where such disturbance may be expected. Such was in substance the story as first told. It was also stated that thousands of confirmatory experiments had been made, that the Austrian Imperial Observatories, as well as many public establishments in that country had adopted the plant as a barometer.

Bearing in mind the movements of leaves according to various conditions of illumination, temperature, and moisture, and, as in the case of the Sensitive Plant, actual contact, there was, of course, no reason to doubt the occurrence of the movements in question; indeed, similar ones are matters of every-day observation, it was the inferences drawn from them that were open to doubt. But what, after all, are merely physical indications such as these by the side of those more subtle powers possessed by the *herba sentiens* of the older writers? One Oxalis, we are told, shrunk abashed in the presence of vice, its leaves collapsed, and hence it was made to serve as a touchstone to eliminate the bad, to act as a love philter, to purge the guilty, and render them as free from taint as itself. No "weather-plant," even when cultivated under special apparatus, can compete with this Oxalis of Amboyna. Those, however, of our readers desirous of gaining, within short compass, a summary of the present state of knowledge on the subject, apart from romance, would do well to consult DARWIN'S volume on the *Power of Movement in Plants*. They must not, however, expect to find therein any such prophetic power attributed to plants as the Austrian observer claims for them.

Reverting to the weather plant it shortly transpired that it was none other than what is known to botanists as Abrus precatorius, the bead-like seeds of which are familiar to most people from their scarlet colour, tipped at one end with black. These seeds are used for necklaces, and, so it is said, as weights for diamonds in India. The plant producing them is a common plant in most tropical countries, so that there could be but little difficulty in procuring large supplies at small cost. The plant itself is a shrubby twiner, with pinnate foliage like so many other of the leguminous family to which it belongs.

When the identity of the weather-plant was thus made known, botanists might well be excused for indulging in a little scepticism. The plant is, indeed, just one of those in which leaf movements are most likely to be well-marked. But an air of mystery was diffused over it—the seeds could only be procured at a relatively high price. We are told in a letter before us that "it cannot be cultivated in ordinary hothouses or like Orchids!" that "the Professor" has patented the only mode of cultivating it in Europe; that the price of the apparatus is £5 5*s*., £12 12*s*., or £52 10*s*., according to the more or less elaborate style of apparatus—all that expenditure for a tropical weed that we should have supposed to have been cultivated with the utmost ease in any warm house! Further, we were informed that there were two distinct kinds of weather plants, the B and the T plants, of which the latter forecasts the temperature forty-eight hours in advance, while the former indicates only "the weather."

Such statements as these, and made in such a manner, were not at all calculated to win the confidence of gardeners or of botanists. Not even the names of the Emperor of AUSTRIA, Baron ROTHSCHILD, or Prince SCHWARZENBURGH were sufficient to destroy scepticism. The observatories and scientific societies of Austria, to whom we might fairly have looked for confirmation of the statements made, have been, so far as we have observed, silent. The Vienna Professors, among whom are some of the most eminent vegetable physiologists of the day, men whose opinion would have been of special importance in such a case, have not, so far as we know, lent their countenance to it. A similar reticence would probably have been maintained here had it not been for the fact that, owing to the good-natured interposition of the Prince of WALES, the authorities at Kew were induced to allow the inventor facilities for carrying on his experiments. The Prince had been interested in the matter by the late Crown Prince of AUSTRIA, who, as is well known, had considerable claims to rank as a naturalist. In due course the "inventor" consented to deposit some of his plants in the JODRELL laboratory at Kew, and "to demonstrate from day to day over a sufficiently long period to allow of a fair trial, the predictions which he believed their movements afforded."

From the scientific side the experiments and observations made were watched and recorded day by day by Dr. FRANCIS OLIVER and his assistant, Mr. WEISS. The results are given at length, as we have stated, in the last number of the Kew *Bulletin*. In it are detailed in full the several movements to which the leaflets and the midrib of the leaf are subject, and the indications thereby alleged to be afforded as to prospective weather, the advent of earthquakes and the escape of fire damp in mines. The older leaves, it appears, only indicate the condition of the weather in the immediate neighbourhood; middle-aged leaves are good for 5 or 10 miles, whilst the younger leaves are so sensitive and prescient as to serve as indicators for 50 miles! Since his arrival in England, the inventor has, we are not surprised to learn, been befogged. Fog or mist are, says he, "prophesied by irregular positions of the leaflets, indistinguishable from those indicating electricity in the atmosphere," so that the observer has found himself unable to distinguish between the effects of electricity and of fog.

Dr. OLIVER proceeds to give in parallel columns an illustrative series of forecasts made twenty-four or forty-eight hours in advance for eight different times of the day selected, and a record of the actual weather at the same hours on the days indicated. The critical examination of these forecasts (deduced, it should be said, in half the number of cases from the charts *after the event*), is given in full on pp. 14, 15, and at the end of the report are published some charts from the Meteorological Office which show little or no correspondence with those of the same days as prepared by Mr. NOWACK. It is hardly necessary to say that these documents afford little support to the statements we have recorded, and if we are to adjust our charts and forecasts after the event to make them correspond to the actual facts, it is obvious that we need not take the trouble to obtain seeds of Abrus precatorius and grow them under costly apparatus. The prophesying of events after we know what they are, can be done much more cheaply, and, as these observations show, with an equal amount of success! It is perhaps well, in order to satisfy popular curiosity, and obviate possible cavil, to have matters fairly tested, especially where, as in this case, there is a substratum of fact, else it would seem that the resources of the JODRELL Laboratory and the time of the skilled observers (but who, it should be said, are not Government servants, nor members of the Kew staff) might have been utilised

to greater advantage. All that Kew has done in the matter is to afford the requisite facilities. Kew cannot (any more than the Royal Horticultural Society, in whose gardens at Chiswick the experiments are being continued by the inventor) be held responsible for the correctness of the prophetic utterances.

Should the observations that have been made stimulate Dr. OLIVER or other observers to make experiments to ascertain the manner in which external agencies, especially light, act on protoplasm, the labour and time expended on these "prophecies" will have received positive as well as negative justification. In any case, the thanks of the community are due to Dr. OLIVER for his clear and disinterested statement of facts.

HALL FOR HORTICULTURE.—We are authorised to say with regard to the suggested hall, that the matter has been before the Council of the Royal Horticultural Society for the greater part of the past year. A committee of the Council was appointed in the autumn for the purpose of elaborating a scheme; and they hope soon to be able to bring something tangible before the Fellows and the general public. It will then altogether depend on the amount of financial support which the Council receive whether the project be carried to a successful issue or not.

——We have received a second letter on this subject from Mr. HIBBERD, from which we make the following extract:—Establish a handsome hall in a spot commanding a constant flow of traffic; here initiate daylight occupations for the scientific, and evening entertainments for the people, and you will not fail of your reward, which will doubtless correspond with your deserts, and will crown good management with complete success. Our fortnightly meetings would soon acquire renown in a place reasonably adapted for them, and a flower show under the electric light, with suitable accessories, would do for horticulture what has never been done yet—we should outdo the "palmy days of Chiswick," minus the dreadful weather that first abolished Vauxhall, and then applied the surplus of its savagery to the best flower shows of this nineteenth century. A thousand uses for such a hall would arise as it acquired a name and a place in the economy of society, and the life of the thing would be in its independence and respectability. As an arena for lions and lambs, as a home for the trapeze and the wire rope, as a mere shelter for so many drinking-bars, it would be a failure first, and finally a disgrace and a curse. That it would fail if perverted from the purpose for which it is proposed, cannot be doubted, and upon that assumption may be founded our expectation of success. We want a beautiful building, with sufficient space for half-a-dozen meetings to be held simultaneously, and a noble hall abundantly lighted both by day and night, with, perhaps, a bijou plant house, in which subjects requiring to be on the spot for a few days or more might be kept under observation, and flowered or fruited without disturbance, or danger of transit at unseasonable times. The Weather plant offers an example. It has been under operation for forecasting in a house in the Royal Horticultural Society Gardens at Chiswick, and has been seen by some dozen or score of persons only. In a conservatory on the Thames Embankment it would have been visited by hundreds, possibly by thousands. The kind of institution I have in view should be somewhat of a costly affair, and the requirements of the Royal Horticultural Society should have direct and primary attention in the original design and its several details. It need not be said that



FIG. 17.—VIEW IN THE BOTANIC GARDEN, NATAL. (SEE P. 116.)

under present circumstances the Royal Horticultural Society could not pay for such accommodation as it is proposed to provide, but it is a fair speculation that it soon will be able to do so. In the meantime I wish this point to be kept in view, that the edifice suitable for horticulture will be suitable also for many other purposes that may be honourably and usefully associated with horticulture. There is no such hall as we require, but there are a thousand uses for such a thing from the moment you have established it. To be safe against perils that are better understood than explained, you have but to adopt as the foundation of the business that the edifice shall be used only for such purposes as consist with the advancement of science, art, and literature, and all the rest will turn on management. *Shirley Hibberd, Kew, January* 21, 1890.

THE SELBORNE SOCIETY.—The objects of this Society are stated to be, to preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare; to discourage the wearing, and use for ornament, of birds, and their plumage, except when the birds are killed for food, or reared for their plumage; to protect places and objects of interest or natural beauty from ill-treatment or destruction; to promote the study of natural history. The Society intend to publish a monthly periodical called *Nature Notes*, and devoted to natural history in general, and to the purposes of the Society in particular. The Rev. PERCY MYLES and Mr. JAMES BRITTEN are to be the editors of the magazine, which has our hearty sympathies and good wishes for the success of each and all of its aims.

OPEN SPACES AND THE BUILDERS.—The President of the Royal Academy has given welcome and weighty assistance to the movement for the preservation of open spaces in a letter to the Editor of *The Richmond and Twickenham Times*, who is one of the Vice-Presidents of the Lower Thames Valley Branch of the Selborne Society. Sudbrook Park, which joins Richmond and Petersham Parks, Petersham village, and Ham Common, is in the market for building purposes. The vendors are the Commissioners of Woods and Forests. The Thames Valley Branch of the Selborne Society is about to memorialise the Government to dedicate the park to the public use and enjoyment. Sir FREDERICK LEIGHTON earnestly wishes them success, and says:—"Your lovely park, with its wide wild spaces, and its sweet fresh air, is, and is daily more and more becoming, a priceless possession to the inhabitants of this black and monstrous metropolis; and it is so in its most frequented parts, perhaps in great measure from the fact that Sudbrook Park shields it as a bulwark against smoke and bricks and mortar. I sincerely trust it may never lose that protection, for I feel that the breaking down of this barrier would have most mischievous results in many ways. I think public opinion will be warmly in your favour, and will strengthen your hands. Certainly my very best wishes follow you in your present endeavours."

EALING DISTRICT GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—On one of the recent weekly meetings of this Society, an interesting paper was read by Mr. RICHARD DEAN, entitled the "Romance of Plants," which appeared to be appreciated by the members as being in subject-matter a change from the papers of a practical character usually read at these meetings.

A YEAR'S TRADE.—As every reader of this journal is in one way or another interested in our monthly stock-taking paragraph, it is a natural conclusion that the presentation of a summary of the year's trade must be at least equally interesting. No better idea of the vastness of British trade can be gained than the following figures present, and one rises from a perusal of them with a feeling of wonderment and pride. Our survey is, of course, naturally limited, but the eye of the Briton must rest with pardonable pride, for a moment, on the line containing the "total values," in the short table appended, which contains extracts from the "summary of the imports of produce from foreign countries and British colonies for the year ended December 31, 1889":—

	1888.	1889.	Difference.
	£	£	£
Total value of imports	386,582,026	427,210,830	+40,628,804
II.—(A.) Articles of food and drink—duty free	124,281,097	134,860,525	+10,579,428
(B.)—do., dutiable ...	24,958,798	26,210,774	+1,251,976
VI.—Raw materials for textile manufactures...	80,468,675	91,307,086	+10,838,411
VII.—Raw materials for sundry industries and manufactures..	36,722,501	43,694,671	+6,972,170
IX.—Miscellaneous articles	14,018,458	14,697,130	+678,672

There was only one instance of decrease to note—in metals—and that amounting to only a few thousand pounds; and it ought to be recorded here that the above totals are exclusive of the value of the imports for the parcel post. In 1888 the value of such imports was £368,776; and in 1889, £374,612. The exports for the year constitute wonderful items in these returns; the following extracts will certainly interest even the most general reader:—

Extracts from the Summary of the Exports of British and Irish Produce and Manufactures.

	1888.	1889.	Difference.
	£	£	£
Total value of exports	233,842,607	248,091,959	+14,249,352
II.—Articles of food and drink	10,238,121	10,718,662	+480,541
III.—Raw materials	13,979,881	17,357,920	+3,378,039
IV.—Articles manufactured and partly manufactured, viz.:—A. Yarns and textile fabrics	108,870,150	110,210,484	+1,340,334
F. All other articles, either manufactured or partly manufactured ...	30,989,012	33,073,187	+2,084,175

Exports of Foreign and Colonial Produce.—Total value (partly estimated), 1888, £64,042,629; 1889, £64,939,775; +£897,146.

A few interesting sums in arithmetic may be derived from these gigantic totals; thus, the value of goods all round being taken at £10 per ton, divide the totals therewith; then, taking the average storeage capacity of our ships at 1000 tons, to find the number of ships employed in our carrying trade. Then you go to the amount of insurances effected, and then—but where to stop?

PINUS PALUSTRIS.—The tops of young Southern Pines (Pinus palustris), from Georgia or Florida, were, says *Garden and Florist*, conspicuous objects in the shops of New York florists recently. Stems of young, vigorous saplings, 4 or 5 feet long, with the terminal cluster of leaves, are cut and stuck into flower-pots filled with earth. As the leaves remain fresh for a considerable time, the cut stem has every appearance of a living plant. The long, bright green leaves and the white scales of the large terminal bud, which are peculiar to this tree, make the young plants ornamental and attractive objects, well suited for the decoration of churches—for which they are used principally in this city—or other large buildings.

THE LATE MR. BREBNER, OF WINDSOR—This gentleman, who for many years was Her MAJESTY'S bailiff at the Norfolk Farm, Windsor Park, and whose death took place on the 14th inst., at the advanced age of eighty-five years, was in early life a gardener. We learn from a correspondent, Mr. W. TRUSLER, of Feltham, who went into the gardens at Marelands, just below Farnham, Surrey, in 1840, as a youth, that Mr. BREBNER was at that time the head gardener, having been in the place several years. About 1846, Mr. BREBNER left to take the position of gardener and bailiff at Bagshot Park, and later was transferred to the important post of bailiff at the Norfolk Farm, in Windsor Great Park. It may not be generally known that another gardener, formerly well known in West Middlesex, Mr. PEEL, who was for several years at Cambridge House, Twickenham, holds an important post in Windsor Park now.

FORCED HOLLY.—Some of our readers may smile at this heading, yet what we have to say will show that the thing is feasible. Some sprays of Holly with berries were cut for Christmas decoration, and placed in a vase of water. The berries occupied the centre of the shoot, the upper part being decked with leaves and flower-buds. The flower-buds, however, were not observed until the leaves fell off, when the buds rapidly developed, so that in the specimens before us the upper part of the shoot is now thickly covered with tufts of white flower-buds; each bud is of the size of a small shot, creamy-white, as also is the stalk supporting it. The tufts of buds thus form a marked contrast to the crimson berries. It seems hardly likely that the flowers on these particular specimens will expand, but under other circumstances it is clear they might do so.

WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—A meeting of this Society was held on the 13th inst., the Rev. A. E. W. LOFTS in the chair. There was a good attendance of members present. Some excellent plants were staged, comprising Primulas, Ferns, Roman Hyacinths, and Primula obconica, also some bunches of Lady Downes' Grapes. A paper was read by Mr. H. A. SMITH on "Adiantums." The essayist illustrated his paper with living and dried specimens.

PETER HENDERSON, OF NEW YORK.—Our correspondent in New York telegraphs to us the announcement of the death of Mr. P. HENDERSON, nurseryman, of that city, on the 17th inst., of pneumonia. Mr. HENDERSON went to the United States more than a quarter of a century ago, and engaged in market gardening for a time, but afterwards deserted that for a general nursery business, with offices and warehouses at 35 and 37, Courtlandt Street, New York, and where he amassed a very large fortune. We hope shortly to give a fuller account of his life.

BRUSSELS CHAMBER OF HORTICULTURE.—The close of the first session of this Institution was celebrated by a banquet given on the 7th inst. in honour of M. LUCIEN LINDEN, and in recognition of his services to the Institution. MM. VANDERMEULEN and GILLEKENS in toasting the "hero of the fête," alluded to his personal qualities, and to the good service he has rendered to horticulture.

"THE ROSARIAN'S YEAR BOOK."—With a portrait of Mr. R. N. G. BAKER, by way of frontispiece, this annual makes it wonted appearance. It is full of gossiping narrative dear to the rosarian mind—a summary of the year's proceedings, among which Rose jottings, by Mr. A. H. GRAY, may be mentioned as particularly interesting. At the time of the SHAH'S visit in the past summer, regret was expressed that he did not visit the Rose Conference at Chiswick, whereat one of the most interesting exhibits was the simple-leaved Rose, A. berberidifolia, and one of the most characteristic of his Majesty's floral subjects. Seeing the confusion occasioned by his Shahship's visit to the Crystal Palace on the occasion of the National Society's show, there is, however, rather reason to congratulate the Chiswick Conference that his Majesty did not honour it with his presence. Mr. GRANT tells us an amusing story how, in 1863, he was in Teheran, and was presented to the SHAH, but sickness overpowered him in the august presence of the SHAH himself, and he had to retire summarily, when the Persians standing by

exclaimed, "Behold the sight of the King of Kings has well-nigh killed the infidel." Little did that infidel then think that the next time he was to see the King of Kings would be at a Rose show in merrie England. Mr. MAWLEY'S summary of the weather from a cultural point of view is, as usual, of great value.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The first annual meeting of this Association was held on the 6th inst. Mr. J. POUND, jun., read the annual report, which stated that the Association numbered 120 members. Fourteen meetings had been held during the year, and had been well attended. The Committee wished to thank Mr. A. SUTTON for his kindness in granting the use of the room for meetings, those who had contributed to the success of the meetings by reading papers, and by exhibiting plants and various other produce, and those who had helped financially. The financial statement showed the receipts to have been £27 17*s.* 6*d.* and the expenditure £10 5*s.* 6*d.* At the opening meeting of the Association next session, Mr. WILDSMITH will read a paper on "Grapes."

FLOWERS IN SEASON.—We have seen recently some flowers of a fine large strain of Chinese Primula grown by Mr. W. BULL, New Plant Nursery, Chelsea, in which the colours were vivid and decided. The so-called blue was of a very deep hue, and the crimson and scarlet varieties excellent. The apparently finest novelty was one named oculata lutea, a flower with a large octagonal eye of a greenish sulphur tint, the lobes being white, spotted and flaked with crimson. The margin was boldly frilled. We cannot speak of the habit of the plants, flowers alone being observed. Some Bulbocodium Narcissus grown thickly in pans have been sent for our inspection by Mr. T. WARE, Hale Farm, Tottenham. Pretty things grown and flowered with little or no forcing, early potting being the chief secret of getting the bulbs to flower early. These slender plants always seem to want a carpet of something to spring from—say of Saxifrage, living moss, or the almost hardy Selaginella denticulata; some seeds of dwarf grass sown at the time of potting would be better than the bare mould. Has anyone tried these in water like the Tazetta Narcissus mentioned recently in these pages?

CHINESE GARDENS.—Moving onwards, says the Hon. LEWIS WINGFIELD, in his recently published book, *Wanderings of a Globe Trotter*, the traveller finds himself in a garden, with two or three small houses and some kiosks dotted among the foliage. Each house, it was explained, is for the use of a branch of the family, so that all may dwell together, and yet be in some sort independent. The garden is cut up into various levels by a tortuous and labyrinthine rockery, made of clinkers and pieces of rough stone, varied by pools and canals, or, rather, puddles and gutters of dirty opaque water. There is no attempt at lawn, or sward, or flower-bed. Flowers there are, and beautiful ones, in pots, and some of the shrubs bears blossoms. The landscape gardener seems to have set himself the task of seeing how many ups and downs he could introduce, how many funny little bridges, and passages leading nowhere. There is a kiosk at the extreme end of the pleasure-ground, poised on a height, in which is a valuable collection of vases of the Ming period, dusty and neglected. To arrive at this kiosk, it is necessary to cross at least half-a-dozen bridges, and to make as many *détours* on a space of ground which you should be able to cover in a dozen steps.

GARDENERS' ROYAL BENEVOLENT.—Our notice of the annual meeting of this Society last week was written when the meeting was still in progress, and before it was brought to a pleasant termination by a "friendly dinner." The Committee and the members had honestly won their right to enjoy themselves, and this, under the genial Chairmanship of Mr. EDMUND YATES, they managed to do. Nor were they so ungrateful as to omit their tribute of gratitude to "CUTLER." Alike at the formal and at the friendly meeting, the extraordinary services of the irrepressible Secretary were warmly—but by no means too warmly—acknowledged. Anyone who will take the trouble to read what we published last week, as to the progress of this institution, especially during the last year, must be struck with astonishment at the amount of success which the Secretary, though now in his fiftieth year of service, achieved in promoting the interests of the Institution.

RAILWAY RATES.

ON Monday last a representative meeting of the trade was held at the Hotel Windsor, Victoria Street, Westminster, to hear from the Secretary to the Nursery and Seed Trade Association a report on the progress of this inquiry, and to decide on what evidence should be given on behalf of the trade before the inquiry. Mr. John Harrison (Leicester) occupied the chair. He said that the present day was one eminently for trade combination, especially when trade interests were so seriously attacked as in the present instance. The powers possessed by the railway companies were very great, and their importance could be gathered from the fact that over 900 Acts of Parliament had been obtained by railway companies which possessed a mileage of 20,000 and a capital of £846,000,000. The object of the opposition which was being carried on was not so much to reduce the present rates as to prevent the railway companies obtaining the power to charge 20 to 50 per cent. more than they now did. With reference to "smalls," and the constitution of a "perishable merchandise class," he congratulated the meeting on the progress which had been made in favour of traders, and referred to the original claim of the railway companies to charge whatever they thought proper for the former. The question of terminals was a difficult problem to solve. When a tradesman's business increased so that he had to enlarge his premises, he did not charge his customers with the cost, but this is what the railway companies were endeavouring to do, and that, whether the accommodation was required or not. He appealed to the trade to show, by their united action, that they did not intend to allow their interests to be injured.

Mr. Goodchild, the Secretary of the Association, reminded the meeting that when they met on May 14 last the matter was in its infancy, and no one could then tell what procedure would be adopted. The inquiry had by this time settled down into something like regularity, and so great was the progress made, that although the case for the railway companies had not yet been fully opened, nearly 12,000 questions had been asked and answered, besides numerous speeches made by counsel. The question resolved itself into three branches:—(1) classification, (2) rates, and (3), terminals. The second and third were of interest to all traders alike, whereas the first affected traders individually. It depended on the class in which an article was placed what rate would be applicable thereto, and it was upon this branch of the question that evidence would be required to be given, and considerable attention would have to be given to it. When once this was definitely settled, they would have the united opposition of all sections of traders to the amounts of rates proposed as maxima. He quoted from the evidence given at the inquiry to show the reasons alleged by the railway companies for naming such high rates, whilst they professed their intentions of never charging them, and pointed out the danger which traders ran if rates, admittedly unreasonable, should ever be sanctioned. After he had referred to various matters in connection with the inquiry, and suggested the course to pursue, the discussion was continued by Mr. William Paul, Mr. G. Bunyard (Maidstone), Mr. W. C. Slocock (Woking), Mr. John Perkins (Northampton), and Mr. Poupart (Twickenham), and the following resolutions were carried:—"That this meeting, representing the nursery and seed trades of the kingdom, having heard the report of the Secretary to the Nursery and Seed Trade Association on the progress of the Enquiry now being held, hereby confirms the action taken by him, and instruct him to do all that is necessary with a view to protecting the interests of the trades, and also to instruct the solicitor to the Association to employ counsel before the inquiry."

"That this meeting urges upon all the members of the trade the necessity of contributing to the guarantee fund for the purpose of meeting the expenses consequent upon the opposition to the increasing of railway rates and charges."

"That this meeting stand adjourned until February 11 next, or to such earlier date as the Secretary in his discretion may think necessary."

A vote of thanks to Mr. Harrison for presiding at the meeting concluded the business.

THE KITCHEN GARDEN.

ASPARAGUS.—Where a supply of Asparagus is in demand from the end of the year, it is necessary to make new plantations annually, and for forcing purposes it is not essential that the land should be so thoroughly prepared, as if permanent beds were intended to be planted. It should, however, be dug deeply and manured heavily with farmyard dung in a decayed state, and if it be light and well drained naturally, the young plants should be planted on the level at the proper time, or seed be sown in due season. Heavy or wet soils should, however, be well drained and deeply trenched, mixing in abundance of road scrapings, half-decayed manure, and rough rubbish heap stuff, and the beds should be raised several inches above the ground level by throwing out alleys of 2 feet in width, the beds being 4 feet in width. If the land has not yet been prepared, there should be no delay in putting it in readiness.

Onions.—The ground for the main Onion crop should be deeply dug and well manured, the surface being left in a rough state; and where the maggot is troublesome, give the surface a dressing of fresh soot occasionally, before finally preparing it for seed sowing.

Hotbeds for Potatos, Carrots, &c., should be made up, taking care to make them as firm as possible, and when their warmth has begun to increase put in the soil in ridges, but leaving the planting of Potatos and the sowing of seeds until the heat has declined to a safe point. Early Nantes is one of the best of the early Carrots for frame purposes. Potatos which were planted in the early part of the present month should get ventilation in favourable weather to secure sturdiness of growth, but the operation must be cautiously done, and in quantity accordingly as the outside temperature is mild or otherwise. If the soil should get dry, afford tepid water, but on dung beds the soil will require no water for some time to come. Carrots now coming up will demand much attention as regards airing the frame, covering up at night, keeping the glass clean and stirring the soil between the rows. Thinning should be done early, otherwise crowding will ensue, and the plants become drawn and weak. Leave a chink of air on at night, to let out steam, and thus prevent damping. The temperature in these hotbeds need not exceed 50° at night with air.

Mustard and Cress should be sown at intervals according to the demand, and sowing may be made in shallow boxes of light sandy soil, which should be pressed firmly, and a piece of board or slate put over the seed till it germinates. The boxes may stand in any house that is being forced, and removed to a cooler one as soon as the plants are fit for use. Chicory may be put into the Mushroom-house or a darkened frame, or, indeed, in any place having a temperature of not more than 60° and that is quite dark. A sowing of Lettuce to be cut or pulled when quite young will afford a grateful change in salads.

Horseradish.—In most gardens a fresh planting should be made annually, and the earlier in the year this is done the finer will be the roots at the end of the year. The ground for the crop should be deeply trenched, and enriched with well-decayed manure put at the bottom of the trenches, the pieces being planted at 14 inches apart each way. The sets may be straight pieces 10 inches long, and furnished with a crown. After letting the ground settle, tread it lightly when dry on the top, make holes with a dibbler, push in the pieces to the bottom, and fill up the holes with some fine soil, making all firm. *H. Markham, Mereworth Castle Gardens, Maidstone.*

HOME CORRESPONDENCE.

HELLEBORUS NIGER V. ANGUSTIFOLIUS.—The fine variety of Christmas Rose alluded to by "R. P." on p. 87 of your last issue under the above name is not, I believe, the plant made famous years ago by the late Miss Hope, of Wardie Lodge, Edinburgh, and named H. niger v. angustifolius by the late Mr. James McNab of the Edinburgh Botanical Garden. The Manchester plant has been largely distributed of late years by Messrs. Clibran & Son, and is, as your correspondent says, a very handsome plant. Grown in deep moist sandy peat, it is one of the very best of Christmas Roses. The true H. niger angustifolius of McNab is a plant now known as H. niger intermedius (= H. n. scoticus), a variety with red-dotted leaf petioles and flower stems, whereas the Manchester variety like the "St. Brigid" Christmas Rose of Ireland, has stems of a pale apple-green tint, without any red dots whatever. "R. P." is quite right in recommending H. altifolius (= H. n. maximus) as the best Christmas Rose for cold or heavy soils, but the Riverston variety runs it very closely, being very vigorous, and producing whiter flowers; those of H. altifolius being generally rosy tinted behind the sepals, i.e., rosy in bud. Some imported wild H. niger from Italy are very free and floriferous, as also is the French garden form known as Madame Fourçade, but one of the most distinct is Ware's H. niger rubra (Apple Blossom), which has narrow dark green leaflets and delicate rose-tinted flowers. Mr. Walter Ware grows large quantities of a very fine variety, free and profuse in its snow-white flowers, under the name of Bath Major, and there are now numerous fine garden seedlings which will become much appreciated when better known. Max Leitchlin has sent me several very fine seedlings, one of which begins to bloom in August, or six weeks before H. altifolius, which was before this our earliest Christmas Rose, flowering in October. I saw a batch of fifty fine seedlings flowering for the third season the other day, and some of them are very beautiful and distinct. We have a good many seedlings here, and find that they bloom at from twelve to twenty months after germination, so that one has not very long to await results; as well grown in deep moist peaty or loamy soils in full sunshine, but with shelter from rough winds, but few winter blooming evergreen plants can compete with the hardy Christmas Roses. Two years ago I made a collection of twelve or fifteen varieties, and from these plants we have this season gathered thousands of fine blooms, from the shelter of frame lights overhead only, some nearly as pure as Eucharis blooms. We also had a few hundred imported roots collected in Austria, and among these there are some distinct forms, probably natural seedlings, at any rate far superior to the common old H. niger. There is just now a large demand for well-grown plants of the choicest variations of this species, and it is likely to be a growing one. *F. W. Burbidge.*

THE SILVER LEAF DISEASE OF PLUMS.—At the end of the summer one often observes on walls and Orchard trees, branches on which the leaves have become whitened, as if milk had been poured over them. It is a very unhealthy symptom of a disease peculiar, so far as I know, to the Plum, Cherry, Portugal, and other Laurels, Apricots, Almond and Peach, and effects the death of the affected branch, and often of the tree or bush. The disease appears in various localities, and under quite different conditions of soil, elevation, and exposure. It is probable that it is of fungous origin, the fungus causing this disarrangement of the sap vessels, for on examination of the roots of two standard Plum trees two years ago, I found the root knotty, and of a foxy colour—a sure indication of disease. These roots were carefully cut away, the cuts dressed with the knife, the branches which showed signs of sickness being cut back, and the wounds sealed over. The soil was taken away and burned, fresh soil being placed around the trees, and now these are vigorous, and show no symptoms of former sickness. I operated in the same way on a fan-trained Victoria, 18 feet diameter, on a north-east wall, but less successfully, owing, I think, to my not having taken measures in time. On this tree the diseased branches were cut out annually, but nothing further was done. After operating on this, as previously mentioned with the standards, the side which was denuded of branches broke away very strongly, but gumming set in, which seemed to show that the roots were not capable of sustaining it when the diseased sections of the tree were examined. Only a very small portion of wood or bark was found to be quite sound. If the leaves on diseased branches are dissected, it will be found that the skin is separated from the inner tissue. This, I conclude, is brought about by shrinkage of the green chlorophyll cells possibly from defective nutrition. I have come to the conclusion that once a tree is seriously attacked by silver leaf disease, the case is hopeless; but on the other hand, if taken in hand when the first symptoms show themselves, the trees lifted, roots pruned and dressed, and fresh soil added, the trees will be restored to health. This overhauling of the roots should be done in early autumn. *A. Evans, Lythe Hill, Haslemere.* [We have never detected any fungus, and a far more competent observer, the late Rev. M. J. Berkeley, was, as we know, equally unsuccessful. ED.]

THE EUCHARIS (BULB) MITE.—That plants infested with the insect known generally as the bulb mite may be cured I am convinced, for in two instances plants under my care which were infested with them recovered their healthy appearance. When I took charge of these gardens, the Eucharis (18 large pots) were greatly suffering from the insect, some having no leaves and others only four or five; but now they are growing vigorously, sending up flower spikes. The plan I adopted was to shake out those bulbs which were without roots from the soil, the outer scale of the bulbs being removed. I then took powdered unslacked lime and fresh soot, in equal quantities; and the bulbs after being washed thoroughly in warm water were rolled in this mixture. Those bulbs with roots had the soil carefully picked out from amongst them, were washed like the others, and then dusted over with the mixture. They were all of them potted in good loam, peat, and a little charcoal, only burying them just beneath the soil. After the potting was finished the pots were watered with warm water, and plunged in a bed of leaves in a warm house, and in watering them afterwards, manure was not afforded. I believe these bulbs are now quite free from the mite. The Eucharis suffers from attacks of mite as a result of improper cultivation. Sometimes the bulbs are allowed to remain in the soil until the pots become crammed with offsets and roots without any additional soil or pot-room being afforded, and in that state they are supplied with strong manure water which may and often does tend to render the soil unfit to support plant life. The roots then decay and the bulbs become diseased, soon forming in that condition a ready prey to insects. *W. H. Stephens.* [The mite is common on other bulbs, and is not found only on the Eucharis.—ED.]

THE GARDENERS' ORPHAN FUND.—Mr. Deal invites practical suggestions as to the point raised by "G." in connection with the investment of so large a sum as £2525 in the funds, whilst orphans accepted by the committee as deserving cases for the fund are left uncared for. At the first election of orphans, ten were nominated and six elected, although five others were eventually put on the fund. Last year, out of fourteen candidates, only five could be elected, and nine were sent away empty and disappointed; yet the committee had all this sum resting in the bank at the time. It is true that through a special effort later a sixth child was put on the fund last year, but still eight remained out in the cold. Is it the duty of the present generation to provide for its own orphans, or for those of the next generation; or shall each generation provide for its own? That is the problem for the committee to solve, and I hold that as long as there remains one accepted candidate unprovided for, the burden lies with the apologists for the funding principle to show the reason why Mr. Deal is strong upon having a reserve fund. What for? The committee have not a penny of responsibility beyond any one year. They have no costly institution, no staff of officers, no burden of any kind, beyond the orphans' weekly payments, and the responsibility for those continues only so long as funds are forthcoming, and those will come all the readier that it is shown that the committee are spending their income for the maintenance of the orphans of our friends and fellow gardeners, and are not hoarding it up for the benefit of generations yet unborn. Let the committee remember how, in the past, trust funds have proved to be either curses to those originally intended to benefit, and have been easily misappropriated or misapplied. If we spend as we go, we shall leave nothing to promote corruption, besides which we shall care for our little ones, and leave the future, which every year shows is becoming richer and richer, to care for its orphans. But as a "practical suggestion" I invite the committee at the next general meeting to enable discussion to be raised upon rule 5, to which Mr. Deal draws our attention; and permit amendments to it to be submitted. If that were the case, I should be prepared to submit an amendment of the rule, inserting just before "all donations," the words "subject to a deduction of 25 per cent. to be applied to ordinary expenditure." All donations and legacies shall be invested, &c., omitting all reference to any portion of the annual subscriptions being invested, because no such clause should exist so long as there were more orphans nominated than could be elected. When the income from annual subscriptions exceeds the demands upon the fund, then some method of otherwise applying the surplus may be considered. The 25 per cent. should go a good way to help maintain several orphans, indeed last year's deduction should have been some £260. *Alex. Dean.*

A PRECOCIOUS NUT TREE.—So early as January the 10th, I found here a Nut tree, literally in full bloom. It is a chance seedling, some ten years old, and growing in rather cold soil, so that this precocity is not induced by soil or situation. Close by are some Kentish Filberts, but these bid fair to be some two or three weeks later. Neither tree has a catkin upon it, whilst my seedling tree is full of these, and in the bright sunlight they glow with a golden hue. The absence of catkins in the Filbert bushes is unpromising, but still we have plenty of evidence that female flowers may become fertile when pollen is absent. [Will our correspondent please explain? ED.] The later catkins on the seedling Nut may, however, furnish ample pollen, as the bush is but a few yards from the others. I should like to learn whether the comparatively mild winter is making Nuts to bloom unusually early everywhere; or whether it is not uncommon for some bushes to bloom freely as early as the 10th of January. It is true the prevailing mild weather may serve to fertilise the flowers, and perhaps prove more propitious in January than it will be in February. I have been looking over a short essay upon Filberts in a fruit book, and failed to find in it any mention of the blooming period. Probably it varies considerably according to season. The female blooms are large and rich coloured; the catkins are fine also, so that evidences so far as they go are in favour of good fruit production. The late hardy fruit agitation has taken little notice of Nuts, and yet there is considerable profit attached to them if the soil and situation be fitting, and the trees are properly pruned and cultivated. It is not essential that chalk should be the subsoil, they will do well on clay and gravel if good cultivation be given. It is chiefly in Kent where very high cultivation is afforded, as in ordinary gardens Nuts are grown as free bushes. The fruit on the latter, however, is less valuable. *A. D.* [The earliest date cited in Roberts' Naturalist's Diary, p. xix, is January 14, for the common Hazel. The average of ten years from 50 localities, being January 27. ED.]

ROYAL HORTICULTURAL SOCIETY.—I read the notes on the Committees, especially on the Floral Committee, as they appeared in your paper, and determined to take no part in the discussion, for having retired from the Floral Committee and its chairmanship, I have no longer responsibility; but as Mr. Dyer (page 85) goes back to the reasons for the introduction of compulsory fellowship, I should like to state, as shortly as may be, the reasons why I and those who thought with me objected to this. I look upon the work of the Committees as the most valuable part of the society's operations, and as affording the best ground on which to ask new fellows to come in, and I think therefore that they should be as efficient bodies as possible, not only as judges, but also such as will command the confidence of the country, and that therefore they should consist of a fair proportion of amateurs, nurserymen, and gardeners, thus representing all classes of horticulturists, allowing the exhibits to be considered from all points of view, and preventing ill-natured remarks, such as were not uncommon some years ago, as to the preponderating influence of some great London firms and authorities. To get the best Committeemen it is desirable to have as large a number as possible to choose from. A very large acquaintanceship with gardeners of all classes makes me, I am sorry to say, know that there are really valuable men, not only professional, but amateurs, to whom a guinea subscription, in addition to other calls upon them, is what they cannot afford, and others who object to the

demand. I think if the society gets first-class unpaid judges to give their time and pay their own travelling expenses, that a complimentary admission ticket is well earned, and that it is shortsighted policy trying to get extra fellows by making the members of the committees subscribe. As a matter of fact, the Committees lost some good members who attended, on account of the compulsory fellowships. *George F. Wilson.*

——I ask permission to make a few remarks on one or two points in the Rev. W. Wilks' communication of January 11. He states that "many" of my assertions are utterly groundless. Let us see. By a "tax," I meant that no person can now sit upon the Floral Committee unless he first becomes a Fellow of the Society. From the very first establishment of the Committees of the Royal Horticultural Society down to the end of 1888, the Council did not insist upon a Fellowship being an indispensable qualification to a seat on the Floral Committee. Not a few members of the Committees have to come from a distance, to bear the expense of travelling, and in some instances,to lose a day's business, in order to attend the meetings. The privilege of nominating to vacancies on the Committees did undoubtedly exist as you stated in your editorial footnote, and these nominations were made openly at the last meeting in the year. Nothing of the kind happens now. Mr. Wilks states that a special ticket was supplied to the members of the Committees. It is a singular fact that while I have heard of only some two members of the Floral Committee who received this ticket in 1889, I know several—myself among them—who never had it. One member informed me that he received the ticket only on making application for it through a member of the Council. Considering that many members of the Committee come from a distance at their own expense, I think the privilege of a modest luncheon was one honourably obtained. It had certain social advantages; one was that it tended to hold the members together until later in the day. Now the great bulk of the members disperse as soon as the labours of the Committees are over, and a sense of desolation prevails in consequence. It is the general custom with horticultural societies to give a luncheon to their judges, even when they pay them a fee. In the case of the members of the Committee at the present time, not only do they not partake of the hospitality of the Council as of old, but they actually have to pay to sit on the Committee. *R. Dean, Ealing.* [We think enough has now been said on this subject. The annual meeting will afford an opportunity for its full discussion. Ed.]



Fig. 18.—PYRUS HETEROPHYLLA.

LILY OF THE VALLEY FOR FORCING.—Which are the best, English or Continental grown crowns? This is a question frequently put; and having forced the English grown crowns for some five years, I must say, that in my experience, they are more generally reliable than those from the Continent. I enclose a photograph of a pot of Lily of the Valley—English—just as they turn out from the forcing frame, and we put about twenty-five crowns in a 48-pot, and it will be seen that there are very few faulty ones amongst them. I may add that our crowns are got from Jannoch's Lily Nursery, Dersingham. *W. Harrow.* [Very good potful. No need to buy from the foreigner when such excellent roots can be grown here. Ed.]

BIGNONIA RADICANS.—One of the best plants of this climber that I have seen, is growing in the garden of Mrs. Smith, The Oaks, Emsworth, and is trained up the corner of the kitchen garden wall, which has a southern aspect. The plant is about 10 feet high, and flowers very freely every year, and makes vigorous shoots. The soil is light and sandy. *E. M.*

PYRUS HETEROPHYLLA.

This new plant (fig. 18) from the high mountains of Eastern Turkestan is not to be confused with the older P. (Sorbus), heterophylla of gardens, which is a bastard of S. arbutifolia, and S. aria. The plant was discovered by Albert Regel, who sent fertile seeds to Dr. Dieck of the Zoeschen arboretum. The plants grew well, but have not yet borne flowers, so that the proper position of the species has yet to be determined. The plants raised from this seed show great variety of form in the leaves, some of them having leaves that are smooth at the margin; others are slit and almost of thread-like form; but the majority exhibit forms intermediate between these two extremes. If in stature the tree should reach to the height of the Mountain Ash, or other treelike Sorbus, an acquisition of considerable value will have become available to the landscape gardener. The tree having proved hardy in Northern Germany, will succeed in any part of these islands. We are indebted to the courtesy of Dr. G. Dieck for the illustration.

Societies.

ROYAL HORTICULTURAL.

Scientific Committee.

January 14.—Present: D. Morris, Esq., in the chair; and Professors A. H. Church, H. Marshall Ward, Drs. Hugo Müller, M. T. Masters, Messrs. G. F. Wilson, W. H. Blandford, R. McLachlan, F. Pascoe, and Albert Michael.

Seakale Roots.—Professor Ward reported that the specimens submitted to him at the last meeting were affected with the slime-fungus (Plasmodiophora), a fungus which does great damage to the roots of Cruciferous plants.

Canker in Apple Trees.—The same gentleman reported on the specimens referred to him at the last meeting, but which presented no unusual features.

Acari of Sugar-cane.—Mr. Michael reported on mites affecting Sugar-canes in Barbados. Contrary to anticipation, the acaroids belong to the family Oribatidæ, and either to the genus Notaspis or to Damæus, having the appearance of the former, while the internal anatomy is more like that of the latter genus. The species is allied to the English N. lucorum, but is probably undescribed. The creatures in question are strictly vegetable feeders, but have not hitherto been considered as inflicting any material damage to living flowering plants, being found more particularly on moss and lichens. Mr. Michael recommended that specimens of the infected cane slightly moistened, with the living Notaspis on them, should be put into a tin box, sealed down to prevent drying, and thus forwarded in a suitable condition for further examination; other Acari, of the genus Tarsonymus, and of extremely minute size, are known to be injurious to

Sugar-cane. The species of Damæus are found under the bark of trees. Judging from analogy only, the mites in question would not seem likely to do much injury to living canes.

Dactylopius (*Mealy-bug*).—Referring to a communication made to the committee on December 10, Mr. Morris now read a letter from Professor Riley on the use of rosin washes for bark-lice. "If," says Mr. Riley, "the insect is a Dactylopius, the Alexandrians cannot do better than use one of the rosin washes with which we are spraying Icerya so successfully in California." The following extract from *Insect Life* contains a good formula for the purpose:—

"*Rosin Wash for Red Scale.*—In accordance with instructions, Mr. Coquillet has been making experiments with this wash against red-scale (Aspidiotus aurantii), and after twenty different tests made with various preparations, from July 17 to August 8, the one which gave the best results was found to be composed of rosin, 20 lb.; caustic soda (70 per cent. strength), 6 lb.; fish oil, 3 lb.; and water to make 100 gallons. In preparing this wash the necessary materials were placed in a boiler and covered with water, and then boiled until dissolved, and stirred occasionally during the boiling. After dissolving, the preparation was boiled briskly for about an hour, a small quantity of cold water being added whenever there was danger of boiling over. The boiler was then filled up with cold water, which mixed perfectly well when added slowly and frequently stirred. It was then transferred to a strong tank and diluted with water to 100 gallons. Neither the leaves nor the fruit was injured, while a large proportion of the scales were destroyed. Those which escaped were either on the fruit or the underside of the leaves. The cost of the wash is 80 cents per 100 gallons, or four-fifths of a cent per gallon. An Orange tree 16 feet tall by 14 feet in diameter was given 14 gallons. This, however, seems to us to be an unnecessarily large amount, but upon this basis the cost of spraying per tree is 11·2 cents." *From "Insect Life," Oct.*, 1889, *p.* 92, *U.S. Department of Agriculture.*

The Winter Moth.—Mr. Wilson called attention to a communication in the *Hereford Times* of November 9, 1889, as to the efficacy of greased bands as a check to the insect, and wherein Mr. Cranston says:—"I consider that the greasing process which is being adopted is injurious to the bark of the trees, especially to young trees. To the older trees it may possibly not do much harm, but I believe the old plan of painting the trunks of the trees with a solution of quicklime is the best. Some use soot with the lime, but I don't know that the soot is of much consequence except to dull the white glare of the lime. The painting should be done in the autumn."

Mr. McLachlan pointed out that the proposed trap to be affixed to the lamp-posts, in the case of suburban fruit plantations, would be practically useless, as only the male insects would be thus captured, the females being nearly destitute of wings, and incapable of flight. All attempts at stamping out the winter moth should be directed to the destruction of the females, which are capable of depositing eggs for many generations in succession without the intervention of the male. The capture of myriads of males would not have the slightest appreciable effect on the fertility of the untrapped females.

Monstrous Cypripediums.—Dr. Masters showed drawings of two Cypripedia, in one of which the three sepals were separate, as in most Orchids, whilst in the others there was an adhesion between the median sepal, the lateral petal on the left side, and the lateral sepal on the same side, the adhesion of these parts being accompanied by corresponding adhesion of the labellum to the right lateral petal. The median stigma, G, 1, of the Darwinian notation, was also petaloid.

Keteleeria Davidiana.—Dr. Masters showed a cone sent by Dr. Henry to Kew, from Ychang, and which has special interest as being intermediate in character between the Spruces (Picea) and the Silver Firs (Abies). It is congeneric with Keteleeria Fortunei, a tree introduced to this country from China, but which is too tender for general cultivation.

It was announced that the next meeting will be held on February 11, after the annual meeting, and therefore, possibly, a little later than the usual hour, 4 P.M.

EDINBURGH BOTANICAL.

JAN. 9.—The Society met in the evening on the above date at 5, St. Andrew Square, Mr. Lindsay, President, in the chair. Professor Bailey Balfour gave a preliminary notice of the new Maine station instituted by the Scottish Fishery Board at Dunbar, where biological observations on plant, as well as on animal life, are to be prosecuted, and thus introduced a paper on the "Marine Algæ of Dunbar," by Mr. G. W. Traill. Dr. G. M. Macfarlane then gave a communication, "On the Structure and Development of the Glands of Nepenthes.

The following are the weather reports for the month:—

"Report for December, 1889, on Temperature, at the Royal Botanic Garden, Edinburgh," by R. Lindsay, Curator.

Like the preceding month, December has been remarkable for the extreme mildness of weather which prevailed. The thermometer was at or below the freezing point on eighteen occasions, the aggregate amount of frost registered being 70° as against 57° for the same month of 1888. The lowest readings occurred on the 4th, 23°; 12th, 23°; 22nd, 25°; 28th, 25°; 30th, 25°. The lowest day temperature was 35° on the 12th, and the highest, 55° on the 17th.

On the rock garden the following species came into flower during the month, viz.: Iris sophonensis, Schizostylis coccinea, and Helleborus purpurascens var.

The total number of alpine and dwarf-growing herbaceous plants which have flowered during the past year in the rock-garden, amounts to 1484, being 58 less than during 1888. The number of species which came into flower each month was as follows: January, 20; February, 27; March, 60; April, 134; May, 380; June, 444; July, 258; August. 99; September, 38; October, 13; November, 8; December, 3; total, 1484. Tussilago fragrans, one of the forty plants whose dates of flowering are annually reported to the Society, came into flower on the 12th of the month.

"Report on the Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, for December, 1889," by R. Bullen, Curator.

This has been a comparatively mild month, for although the thermometer has been at or below the freezing point on nineteen nights, the mean readings have been high for the month, varying from 32° to 22°, the latter being the lowest reading on the night of the 27th. Total readings, 61°. The day temperature was invariably high, so that, although light frosts were frequent, vegetation is in an advanced state. A plant of Cydonia japonica against a west wall has many fully developed leaves. Fruit of hardy trees and shrubs have rarely been so scarce as this year.

VEGETATION IN NATAL.

THE illustration, fig. 17, from the Natal Botanic Garden, Durban, and which has been kindly sent us by Mr. Medley Wood, supplies food for reflexion. Looked at from the mere point of view of æstheticism it is sufficiently striking, and may furnish hints as to grouping plants in winter gardens and similar large structures. It is interesting also in relation to the discussion going on in our columns at the present time. What would the rule-of-thumb gardener who had never seen one of these plants before in his life, one ignorant of Aloes and Encephalartos, Dracænas and Agaves, knowing nothing of their nature, of their construction and powers of adaptation, or of the conditions under which they grow naturally, what would such a man do if suddenly called on to undertake their cultivation in this country? How could he find out for himself the treatment under which these plants would best adapt themselves to the means at his disposal?

On the other hand, supposing him to have a general knowledge of the conditions under which the plants grow in Natal, supposing him capable of appreciating the obvious relations between structure and function which these plants possess, would he not undertake the culture of these plants with a self-confidence which no mere empiricism could justify, and would he not arrive at a satisfactory result long before his purely empirical brother had finished his experiments, or his plants? The best gardener, as we have often insisted in these columns, especially when dealing with matters pertaining to vegetable physiology, is not he who slavishly and often vainly attempts to copy Nature, but he who knows best how to make the plants under his charge grow under artificial conditions, and fulfil the purpose for which they are cultivated, an end often widely different from that which the plant in Nature strives to attain.

A GARDENERS' PROBLEM.

I BELIEVE Mr. Dyer's convictions in this matter are a good deal the result of experience at Kew, in the cultivation of what I may term good test plants, *i.e.*, plants which are found wild under exceptional conditions which cannot be even approximately imitated artificially, and for which other and suitable conditions must be found.

It will help us to understand the whole question better, I think, if the whole of the gardener's equipment for the management of all his plants is briefly stated. A complete garden contains a stove in which the maximum summer temperature is about 80°, and the minimum winter temperature 60°; an intermediate house, maximum temperature, 75°, minimum temperature, 55°; a greenhouse, maximum temperature, 65°, minimum temperature, 45°; and a few unheated frames. There are also rockery, beds, and walls out-of-doors. So far as temperature is concerned these are all that the most complete gardens contain; we have nothing more at Kew. Light can only partially be controlled; we can reduce it by shading, but we cannot intensify it. On the other hand, all plants grown under glass obtain less light than those out-of-doors. Moisture can be to some extent controlled, but it is impossible to keep a perfectly dry atmosphere in winter without introducing other conditions, almost, if not quite as harmful, as moisture. Soils are made up of loam, peat, leafmould, sand, manures, and sphagnum. All plants in cultivation in England must necessarily thrive in one or other or a mixture of these.

If the way to success in horticulture were only through a close imitation of Nature, then the number of plants capable of thriving under the artificial conditions provided in an English garden would be very limited. The fact is, horticulture so long as it was restricted to an attempt to reproduce natural conditions for cultivated plants, made a sorry mess of it. The history of Orchid culture in England is the best proof of this, and the same applies to all other departments of the garden. Horticulture is built up of traditions; it is, as Mr. Dyer said, an empirical art. The men who have made the art of gardening what it is now, were gardeners, not botanists, nor men learned in the ologies, but practical men, who by dint of long practice and observation among garden plants, hit upon the best methods for their cultivation. If one is uncertain as to the best treatment for a plant, he does not apply to a botanist for help, but to some one who is known as a successful cultivator. Even the cabbage is found wild only by the seaside; Armeria maritima is likewise a seaside plant. Mertensia maritima grew splendidly in an ordinary border at Kew until a weak dose of salt was supplied, which killed it.

I know Lindley's *Theory of Horticulture* better, perhaps, than any other work on gardening, and I quite agree with Mr. Burbidge when he calls it "the book in which the very first principles of gardening are enshrined." Lindley's book is a sweeping together of all the traditions of good horticulture by one who in his long connection with the Royal Horticultural Society, of which he was Secretary, and also as founder and for many years Editor of the *Gardeners' Chronicle*, acquired a vast amount of information on cultivated plants. Anyone who reads the book can easily see where the gardener speaks, and where the botanist. This book is of the greatest value as containing explanations of what the gardener accomplishes, an exposition of the art as it was, certainly not any attempt to say what it should be; it is in fact the work of a gardener.

There are many men who combine botanical knowledge with horticultural skill, but I do not know that one of these can be called a better cultivator

than many who know nothing or very little of botany. One need not mention names, but it would be easy to single out a dozen of the very best cultivators in all departments of horticulture, who know little if anything of physiology or geographical botany. A knowledge of the principles of botany would be useful to a gardener, just as all knowledge is useful, but I doubt if gardening as an art would be a gainer. I know something of the two classes of gardeners, viz., those with a training more or less botanical—such as for instance the continental gardeners, trained in schools of gardening, and those whose training has been in good gardens and limited to cultivation, and I know that as a rule the latter is a much better gardener than the former. It will be understood that I am dealing only with the *essentials* to good gardening, and not with the gardener as an educated man. Botanists ignorant of the principles of horticulture, are often a positive hindrance to the gardener. There appears to be a tendency to call everything botany that is not merely routine gardening—I call that nonsense. Knight was a gardener, as also were Herbert, Miller, the McNabs, and Dr. Moore, in all their work among living plants; whilst among living men, who does not recognise in Professor Foster, Sir William Bowman, Dean Hole, Canon Ellacombe, Mr Elwes, and Mr. Dyer, the gardener, setting about the work of cultivation just as empirically as the man who first planted Saxifraga umbrosa in a London backyard.

I wonder if Mr. Heale, who is so successful with the new plants introduced by Messrs. Veitch, bothers much about geographical botany?—or Mr. Bull's new plants man, or Mr. Low's, Mr. Williams', or, indeed, anyone who has to treat a new and untried introduction? At Kew we receive dozens of new plants every year, but beyond the information that the seeds or plants are from China, or Java, or India, or the West Indies, or Brazil, we know nothing. Indeed, if one goes to the Herbarium, and looks up all the information to be obtained from specimen-sheets or books, it is rarely of any practical value. There are certain fundamental facts which we must know, such as whether a plant is aquatic, or terrestrial, or epiphytal, although even this last has proved of little moment. Does anyone pretend to say that a flower-pot half filled with crocks and then filled up with peat is anything like an imitation of the naked bough or trunk of a tree, such as most epiphytal Orchids are found growing upon? Almost all Bromeliads are epiphytes, but we grow them in a strong soil such as suits Dracænas. Anyone who cares to, may trace the gradual development of the present principles of Orchid culture from all kinds of experiments and blunders.

Mr. Elwes thinks the opinion of gardeners who have travelled will differ from that of gardeners who have not; I do not think it will. If a gardener has been properly grounded in the principles [practice?] of English horticulture, they will stick to him. Amongst Orchid cultivators I may name Mr. Shuttleworth, Mr. Horsman, Mr. G. T. White, who have seen Orchids in a wild state, but who nevertheless cultivate them here in the usual way. A botanist who has travelled and returns full of Nature's gardening, will probably do a frightful amount of mischief in his attempts to imitate Nature before he comes to know that "Nature and cultivation deal with problems which have scarcely anything in common."

It is significant that even in the tropics where orchid cultivation is attempted, English peat and sphagnum are imported for the purpose. Mr. Pantling, of Darjeeling, now on a visit to Kew, informs us that Vanda cœrulea cannot be cultivated as well in India as it is grown in England. We are more successful at Kew in the cultivation of Dendrobium McCarthiæ than Dr. Trimen is in Ceylon, the home of this grand species. The treatment of this plant leads me to the question of rest, discussed by Mr. Dyer. The Brainea mentioned by him is only one out of hundreds of cases in which the treatment of Ferns with regard to rest is just the opposite of what Nature affords. Mr. Morris is astonished to find so many West Indian filmy Ferns growing under cool treatment at Kew.

The following are examples of plants recently introduced to Kew, and grown and flowered here under conditions very different from the natural:—

Narras (Acanthosicyos horridus). In vol. i. of the *Journal of the Horticultural Society*, p. 201, will be found an account of this plant by Dr. Lindley. It is a native of Walvisch Bay, and grows in hot, dry sand. Seeds of it were procured and sown at Chiswick, and the treatment was as near that of Nature as could be devised. Several sowings were made, but all the plants died when a few days old. Dr. Lindley wrote, "There now remains no problem in horticulture more difficult to solve than the way of preparing skilfully our artificial climates for the inhabitants of that heated atmosphere, intense light, heavy dews, and barren soil of South Africa, where the nails of the hand curl back and split in the season of dryness." Let me commend this extract to those who say a knowledge of natural conditions is indispensable. By the side of it I will place for comparison the details of Kew treatment for the Narras: house running north, south; temperature, summer 75° maximum, winter, 55° minimum. Narras sown in a bed of sandy loam, which is moist all the year round. The plant is now five years old, and in perfect health. I believe myself that age only is necessary to its flowering.

Welwitschia mirabilis. Plants of this at Kew are now nine years old. They were obtained from seeds sown in a hot, moist house, and afterwards removed to where the Narras now stands. This plant grows only in the sandy deserts of Damaraland, where the conditions are similar to those of the Narras. Mr. Monteiro had lived amongst the Welwitschia, and knew well its natural conditions. He took seeds of it to Portugal, and tried to grow them there, but his seedlings died soon after germination.

Mucuna sempervirens is a Chinese climbing legume, with immense clusters of cream-coloured flowers, 17 inches long by 10 inches through. Mr. Westland, of Hong Kong, who found this plant and sent it to Kew, remarked that "it would make a grand creeper for the Kew Palm-house." We planted it there and it died, killed evidently by heat. A second plant was then tried in the temperate house, where it is now over 20 feet high, and in perfect health.

Cassia mimosoides is a magnificent legume from West Tropical Africa, which has not yet flowered in Europe. At the request of Sir Joseph Hooker, I looked up all the information available at the Herbarium, with a view to imitating the natural conditions of this plant. Possibly failure resulted from my stupid attempt to reproduce natural conditions; at any rate, the plant languished and died. Then I tried rich garden treatment for a stove climber, with the happy result that we have now a grand plant of much promise.

Begonia socotrana was introduced from Socotra to Kew by Dr. B. Balfour in 1880. The few scraps of bud-like tubers were planted at once in good Begonia soil, and eventually the plants flowered. They had been all the time in a moist stove. I confess that I did not then know, nor do I now, the natural conditions under which this plant grew; but when Dr. Balfour saw the Kew plants, he was astonished at the conditions under which we had produced plants larger and finer than any he had seen wild.

Impatiens Sultani proves to be a good greenhouse plant, but it came as a waif to Kew from Zanzibar, and we grew it in a dry stove. A comparison between the figure in the *Bot. Mag.* and a plant grown in the greenhouse will show that we were wrong.

Xanthorrhœa quadrangulata had often been sent from Swan River Territory to Kew, and killed by treatment which was an imitation of the hot arid sandy conditions of that region. In 1884, plants were again received; these may now be seen luxuriating in the winter garden under precisely similar treatment to that of Sikkim Rhododendrons.

Ranunculus Lyalli, Streptocarpus Dunnii, Rosa berberifolia, Aristolochia Goldieana, Anemone Fanninii, Gerbera Jamesoni. — These are plants whose treatment at Kew has been successful, though quite different from that afforded them in a wild state. One might almost challenge any of the sticklers for Nature as a guide to show a single case of an exotic plant in cultivation receiving treatment identical with the natural.

If I might be allowed to venture an opinion on a subject not exactly in my line, I should say that the great lesson taught by the horticulture of to-day is this: Plants in a state of Nature appear to be restricted to certain areas prescribed by certain conditions, the variety of such conditions being almost as endless as the variety of plant life. At first sight it might be thought that the conditions peculiar to each plant were essential to its well-being, but horticulture has proved that almost all plants may be accommodated in a garden in a comparatively small island under conditions which can only be varied materially in regard to temperature. Even in temperature it has been proved that Nature is extravagant. We grow better Ericas in England than Nature does in Africa, in spite of her temperature of 90° or more in the shade, her burning sands, and her clear atmosphere. *W. Watson, Kew.*

MARKETS.

COVENT GARDEN, January 23

BUSINESS very dull, and prices of imported goods much lower. Grapes realising better values. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve	1	6– 7 0	Lemons, per case	12	0–20 0
Nova Scotia, bbl.	12	0–25 0	Pine-apples, Eng., lb.	1	0– 1 6
Cobs, per 100lb.	110	0– …	— St. Michael, each	2	0– 6 0
Grapes, per lb.	2	0– 4 0			

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6	0–18 0	Ericas, various, doz.	8	0–24 0
Aspidistra, doz.	18	0–42 0	Ferns, in var., per		
— specimen plants,			doz on	…	4 0–18 0
each	…	7 6–10 6	Ficus elastica, each	1	6– 7 0
Azaleas various, each	2	6– 3 6	Foliage plants, vari-		
Begonias, dozen	4	0–12 0	ous, each	…	2 0–10 0
Cinerarias, doz.	4	0–24 0	Hyacinths, p. doz	…	9 0–12 0
Chrysanth., dozen	6	0–15 0	Lily of the Valley, p.		
Cyclamen, doz.	15	0–24 0	doz. pots	…	18 0–24 0
Cyperus, per dozen	4	0–12 0	Marguerites, doz.	…	6 0–12 0
Dracæna terminalis,			Palms in var., each	2	6–21 0
per dozen	…	30 0–60 0	Pelargoniums, scar-		
— viridis, per doz.	12	0–24 0	let, per dozen	…	6 0– 8 0
Epiphyllum, per doz.	12	0–18 0	Roman Hyacinths,		
Euonymus, in var.,			per dozen pots	…	9 0–12 0
per dozen	…	6 0–18 0	Solanums, per dozen	6	0–12 0
Evergreens, in var.,			Tulips, doz. pots	…	8 0–10 0
per dozen	…	6 0–24 0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2	0– 4 0	Marguerites, 12 bun.	3	0– 6 0
Azaleas, doz. sprays	0	9– 1 6	Narcissus, paper-white,		
Bouvardias, per bun.	0	8– 1 0	French, doz. bun.	3	0– 6 0
Calla æthiopica, 12 bl.	4	0– 8 0	— Eng., doz. sprays	0	9– 1 0
Camellias, white, doz.	2	0– 4 0	Pelargoniums, scariet,		
— various, per doz.	1	0– 2 0	12 spr.	…	0 9– 1 6
Carnations, 12 blms.	1	0– 2 0	Primulas, double, 12		
Chrysanth., 12 bun.	4	0–12 0	sprays	…	1 0– 1 6
Chrysanth., 12 blms.	0	6– 3 0	Roman Hyacinths,		
Cyclamens, 12 blms.	0	4– 0 9	Eng., doz. sprays	…	0 9– 1 6
Daffodils, doz. blooms	1	0– 2 0	Roses, Tea, per doz.	1	0– 3 0
Eucharis, per dozen	3	0– 5 0	— coloured, dozen	2	0– 4 0
Gardenias, 12 blooms	12	0–24 0	— French, dozen	1	0– 2 0
Heliotropes, 12 spr.	0	6– 1 0	— red, per dozen	2	0– 3 0
Lilac, white, Fr., bun.	5	0– 7 0	— Safrano, dozen	1	6– 2 6
Lilium, var., 12 bl.	2	0– 6 0	Spirea, doz. sprays	1	0– 1 6
Lily of the Valley,			Stephanotis, 12 spr.	9	0–12 0
doz. sprays	0	6– 1 0	Tuberoses, 12 buds	1	6– 2 0
Maiden Hair Fern,			Tulips, doz. blooms	1	0– 2 0
12 bun.	4	0– 9 0	Violets, 12 bun.	1	0– 2 0
Mignonette, 12 bun.	2	0– 4 0	— French, bunch	1	6– 2 0
— French, per bun.	1	6– 2 0	— Parma, bunch	3	6– 5 6

ORCHID-BLOOM in variety.

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English,			Mustard and Cress,		
per bundle	…	8 0–10 0	punnet	…	0 4– …
Beans, French, lb.	0	9– …	Onions, per bunch	…	0 5– …
Beet, red, per dozen	1	0– 2 0	Parsley, per bunch	…	0 6– …
Carrots, per bunch	0	6– …	Rhubarb, per bunch	…	0 6– …
Cauliflowers, each	0	3– …	Seakale, punnet	…	2 0– …
Celery, per bundle	1	6– 2 0	Shallots, per lb.	…	0 6– …
Cucumbers, each	1	0– 1 6	Spinach, per bushel	…	4 0– …
Endive, per dozen	2	0– …	Sprue, per bundle	…	1 6– …
Herbs, per bunch	0	4– …	Brussel Sprouts, per lb.	0	3– …
Leeks, per bunch	0	3– …	Tomatos, per lb.	1	0– …
Lettuces per dozen	1	6– …	Turnips, per bunch,		
Mushrooms, punnet	1	6– …	new	…	0 4– …

POTATOES.—Market quiet, but no alteration in prices since last report.

SEEDS.

LONDON: *Jan.* 22.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that there is now greater disposition shown to purchase farm seeds. The chief inquiry has lately run upon fine home-grown red Cloverseed, of which the supply is short. American and Continental samples continue exceedingly cheap. Alsike and white now exhibit a substantial advance from the lowest points. Rye-grasses are cheaper than ever before known. For winter Tares there is an improved trade. Good black Rapeseed is wanted. Canary and Hempseed offer at tempting rates. For blue Peas and Haricot Beans values are steady.

FRUITS AND VEGETABLES.

STRATFORD: *Jan.* 22.—The supply has been good during the past week, and a fair trade was done at the following prices:—Cabbages, *1s.* to *2s.* 6*d.* per tally; Savoys, *3s.* to *5s.* do.; Cauliflowers, *3s.* to *7s.* do.; Turnips, *2s.* to *3s.* per ton; Carrots (household), *30s.* to *40s.* do.; do. (cattle feeding), *20s.* to *24s.* do.; Parsnips, *40s.* to *50s.* do.; mangolds, *14s.* to *18s.* do.; Swedes, *15s.* to *18s.* do; Onions, English, *180s.* to *200s.* do; do., Dutch, *6s.* 6*d.* to *7s.* 6*d.* per bag; Apples, English, *2s.* to *6s.* per bushel; Watercress, 6*d.* per dozen; Brussel Sprouts, *1s.* 6*d.* to *2s.* 3*d.* per flat; do., *1s.* to *1s.* 6*d.* per half sieve; Celery, *3s.* to *8s.* per dozen rolls; Spanish Onions, *6s.* to *7s.* 6*d.* per case.

SPITALFIELDS: *Jan.* 22.—Good supplies of all kinds, but a heavy demand. Potato trade exceedingly quiet. Prices were as follows:—English Apples, *4s.* to *8s.* per bushel; Nova Scotian do., *14s.* to *21s.* per barrel; Bordeaux do., *7s.* to *9s.* 6*d.* per case; foreign Tomatos, *2s.* per box; forced Rhubarb, *1s.* 6*d.* to *2s.* per dozen bundles; Seakale, *10d.* to *1s.* 6*d.* per punnet; Curley Kale, *9d.* to *1s.* 3*d.* per bushel; Cabbages, *1s.* 3*d.* to *3s.* per tally; Savoys, *2s.* to *4s.* do.; Cauliflowers (Cornish), *4s.* to *4s.* 6*d.* do.; Guernsey do., *9d.* to *1s.* per dozen; Guernsey Radishes, 6*d.* to *1s.* per dozen bunches; Turnip-tops, *1s.* 6*d.* to *2s.* 6*d.* per sack; Brussels Sprouts, *1s.* to *1s.* 6*d.* per half sieve; Turnips, *1s.* 9*d.* to *2s.* 6*d.* per dozen bunches; Carrots, *1s.* 6*d.* to *2s.* 6*d.* do.; Parsley, *1s.* 6*d.* to *2s.* do.; Horseradish, *1s.* to *1s.* 6*d.* per bundle; Celery, *4s.* to *10s.* per dozen bundles; Parsnips, *8d.* per score; Beetroots, *3d.* to 6*d.* per dozen; English Onions, *6s.* 6*d.* to *8s.* 6*d.* per cwt.; Spanish do., *6s.* 6*d.* to *7s.* 6*d.* per case; Dutch do., *5s.* to *6s.* per bag of 110 lbs.; Leeks, *1s.* to *1s.* 6*d.* per dozen, Mustard and Cress, *1s.* to *2s.* per dozen baskets; Endive, *1s.* to *1s.* 6*d.* per dozen; Carrots, *20s.* to *28s.* per ton.

POTATOS.

BOROUGH AND SPITALFIELDS: *Jan.* 21.—Supplies continue large and trade very dull. Best qualities steady; other sorts irregular. Regents, *45s.* to *85s.*; Hebrons, *40s.* to *100s.*; Magnum Bonums, *40s.* to *100s.*; Imperators, *45s.* to *75s.* per ton.

STRATFORD: *Jan.* 22.—Quotations:—Scotch Regents, *50s.* to *70s.*; do., Magnums, *55s.* to *80s.*; light English do., *50s.* to *65s.*; dark, do., *45s.* to *50s.* per ton.

SPITALFIELDS: *Jan.* 22.—Quotations: Hebrons, *40s.* to *90s.*; Regents, *45s.* to *80s.*; Imperators, *45s.* to *70s.*; Magnums, *45s.* to *70s.*; Early Rose, *40s.* to *50s.* per ton.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending January 18, is furnished from the Meteorological Office:—

"The *weather* has continued in a very unsettled condition generally. In Ireland and the greater part of Scotland a good deal of rain has fallen, but in most of the English districts the rainfall has been slight and some fine, bright days have been experienced. Towards the end of the week thunder and lightning occurred at many of our more western and northern stations.

"The *temperature* has again been much above the mean, the excess having ranged from 4° in 'Ireland, N.,' and 5° in the 'Channel Islands,' to 6° or 7° in most other districts, and to 8° in 'Scotland, E.,' and the 'Midland Counties.' The highest of the maxima which were registered on somewhat irregular date ranged from 53° in 'Scotland, W.,' to 57° in 'England, N.W.' and 'Ireland, S.,' and to 59° in 'Ireland, N.' The lowest of the minima were generally, recorded either on the 14th or 15th, and varied from 30° in 'England, E.' and 'Scotland, W.,' to between 31° and 34° degrees in most other districts, and to 39° in the 'Channel Islands.'

"The *rainfall* has exceeded the mean in Ireland, and the north and east of Scotland, and has equalled it in 'England, S.W.,' but in all other districts a deficit is shown.

"*Bright sunshine* has been more prevalent generally than for some time past. The percentage of the possible amount of duration ranged from 3 to 18 in Scotland, from 21 to 25 in Ireland, and from 18 to 31 over England.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Accumulated. Above (+) or below (−) the Mean for the week ending January 18.	Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	6 +	27	10	+ 18	— 58	3 +	18	4·1	3	1
2	8 +	33	11	+ 11	— 67	6 +	15	3·1	18	12
3	7	29	8	- 11	— 42	2 —	10	0·8	31	14
4	7 +	39	11	- 11	— 41	3 —	11	0·9	21	19
5	8 +	37	9	- 47	— 41	2 —	13	1·0	22	17
6	7	32	3	- 42	— 43	3 —	11	1·3	21	17
7	7 +	29	3	+ 40	— 69	3 —	19	5·3	17	12
8	7 +	31	3	- 11	— 55	1 —	17	2·4	21	13
9	6 +	30	0	+ 12	— 2	over	16	2·3	18	17
10	4 +	26	8	- 11	— 47	5 +	19	3·3	21	21
11	6 +	30	1	+ 18	— 52	2 +	18	3·7	25	21
12	5 +	29	0		— 53	3 —	17	1·7	22	19

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

LAW NOTES.

THE PROSECUTION OF A SALESMAN.

FREDERICK WISE, late of the Flower Market, Covent Garden, was again charged at Bow Street before Sir James Ingham on Thursday last, with having obtained goods by means of false pretences from various people. Further evidence was gone into with regard to the two cases already mentioned (p. 89), after which evidence was taken with reference to goods obtained under similar circumstances from Mr. Simmons, of Sandbeck Park, Rotherham. The case was ultimately again adjourned till next Tuesday.

NOTICES TO CORRESPONDENTS.

BOOKS: *J. B.* Hood's *Warming and Ventilating of Buildings* is published by Messrs. Simpkin Marshall & Co., London. We do not know the price.

CYPRIPEDIUM LEEANUM×: *R. T.* Both specimens are referable to this hybrid variety. Scarcely two individual plants are quite alike.

DISTANCE APART FOR GROS COLMAR VINES.—For such a vigorous Vine the greater distance you name would be preferable. Crowding Vines does not result in heavy crops.

FRENCH ASTERS: *Aster chinensis.* Apply to M. Truffaut, Versailles.

"LONDON PURPLE": *R.* This is stated to be the arsenical residue left in the manufacture of magenta dyes. Paris green is an aceto-arsenite of copper. Both are dangerous poisons, and their use should be attended with the utmost care.

MUSCAT OF ALEXANDRIA VINES IN BLOOM: *H. B. P.* The temperature in which the best "set" may be obtained is one of about 65° as the maximum, and 62° as the minimum at night, and during the day 70° to 75°, the higher temperature on sunny days with air.

NAMES OF FRUIT: *J. C. Apples:* 1, Winter Peach; 2, Hambledon Deux-ans. Pear not recognised.—*J. M.* Pear very much bruised—probably Chaumontelle.

NAMES OF PLANTS: *Guernsey.* Parietaria officinalis, said to contain nitre.—*H. J. R.* Gomesia crispa and G. planifolia belong to Vandæ, and are not found in gardens. Humboldtia, a synonym of Pleurothallis The Bulbophyllum named is not found in gardens. Bifrenaria inodora, B. tenuiglossa, order Vandæ, are not worth growing.—*E. A. M.* 1, Agropyrum cristatum; 2, Danthonia curvifolia; 3, Danthonia trichotoma; 4, Bigelovia graveolens. The other plant you mention is, no doubt, Panax longissimum. — *F. S.* Cyperus Meyerianus.—*R. B. E.* Antholyza æthiopica var. bicolor. Gaspar.—*A. F.* Pteris longifolia.—*F. S. M.* Lycaste costata, not uncommon.

NARCISSUS BULBS: *D.* They are affected with a common pest, the grub of a two-winged fly, called Merodon narcissi. Destroy the affected



FIG. 15.—MERODON NARCISSI—THE NARCISSUS FLY.

bulbs. We do not know how else to cope with the enemy.

OFFICERS OF ROYAL PARKS IN AND ABOUT LONDON: The names of these officials are to be found in *Whitaker's Almanack*, but not in the horticultural directories.

SUPERPHOSPHATE OF LIME, CARBONATE OF POTASH, &c.: *J. T.* These manures, and the others named in your note, may be bought of any dealer in artificial manures. The prices vary somewhat, and may be ascertained from the dealers.

TO TURN A STANDARD ROSE INTO A CLIMBING ONE: *H. B.* Select a few of the strongest shoots of a rampant-growing variety, cut away the remainder, and train them to the fence or trellis after cutting off their tips. Keep all weak shoots that may spring from the old wood at the base cut away. The leading shoots will then make good progress, and in future years they may be shortened back somewhat, and allowed to develop to the desired extent.

*** *G.* should send his name and address.

CATALOGUES RECEIVED.

DICKSONS (Limited), Chester—Vegetable and Flower Seeds.

CLUES BROS., 23, Market Street, York—Seed List.

WILLIAM FELL & Co., Wentworth and Fellside Nurseries, Hexham—Spring Seed Guide.

BARR & SON, 12, King Street, Covent Garden, London, W.C.—Hardy Herbaceous Perennials, &c.

FISHER, SON, & SIBRAY, 4, Market Street, Sheffield—Seeds.

JOHN GREEN, Norfolk Nurseries, Dereham—Seeds and Plants.

JAS. WM. MACKEY, 23, Upper Sackville Street, Dublin, Ireland—Seed Catalogue.
DANIELS BROS., Royal Norfolk Seed Establishment, Norwich—Amateurs' Guide.
BEN. REID & Co., Aberdeen, N.B.—Spring Seed List.
J. CARTER & Co, 237 and 238, High Holborn, London, W.C.—New Chrysanthemums.
ALEX. LISTER, Meadow Bank, Barone Road, Rothesay, N.B., Vegetable and Flower Seeds.
WILLIAM ROSSITER, Paignton—Garden Seeds.
IRELAND & THOMSON, 81, Princes Street, Edinburgh, N.B.—Vegetable and Flower Seeds and Hybrid Gladioli.
F. C. HEINEMANN, Erfurt, Germany—Seeds and Plants, Novelties, &c.
J. E. BARNES, Great Eastern Seed Stores, 9, Exchange Street, Northwich—Seeds.
KENT & BRYDON, Darlington—Seeds.
OAKENHEAD & Co, 86, Patrick Street, Cork—Spring Catalogue.
HOWDEN & Co, Inverness, N.B.—Vegetable and Flower Seeds.
W. SMITH & SON, 18, Market Street, Aberdeen, N.B.—Seeds, Plants, &c.
THOMAS LAXTON, Bedford—New Seeds, Potatos, &c.
DICKSONS & Co, 1, Waterloo Place, Edinburgh, N.B.—Seeds.
LITTLE & BALLANTYNE, Carlisle—Flower and Vegetable Seeds.
W. B. HARTLAND, 24, Patrick Street, Cork—Seeds.
WOOD & INGRAM, Huntingdon—Vegetable and Farm Seeds.
BETTS, BARKER & Co., Burton-on-Trent—Vegetable and Flower Seeds.
CHARLES TURNER, Royal Nurseries, Slough—Vegetable and Flower Seeds, &c.
PETER HENDERSON & Co., 35 and 37, Cortland Street, New York, U.S.A.—Everything for the Garden; Farm Manual.
THOMAS IMRIE & SONS, 137, High Street, Ayr, N.B. Seed List.
WM. CUTBUSH & SON, Highgate Nurseries, Highgate, N.—Garden and Farm Seeds, &c.
MCNATH BROS., Accomack Nurseries, Onley, Accomack Co., Va.—Plants, Roses, Fruits, &c.
CLARK BROS. & Co., 65, Scotch Street, Carlisle—Garden Seeds.
M. CUTHBERTSON, Rothesay, N.B.—Annual Catalogue.
J. BACKHOUSE & SON, The Nurseries, York—Seeds.
JOHN PERKINS & SON, 52, Market Square, Northampton—Vegetable and Flower Seeds.
SAMUEL YATES, 75, Shudehill, Manchester—Seeds, &c.
BOURNE & SON, Beckington, Somerset—Garden and Farm Seeds, Plants, &c.
JARMAN & Co., Chard, Somerset—Seed Manual.
OAKSHOTT & MILLARD, Royal Counties Seed Establishment, Reading—Seeds.
ARCHIBALD FINDLAY, Markinch, N.B.—New Potatos.
W. THOMPSON, 34 and 36, Tavern Street, Ipswich—Supplement to Flower Seed Catalogue.
DOBBIE & MASON, 66, Deansgate, Manchester—Seeds.
WILLIAM BULL, 536, King's Road, Chelsea, S.W.—Vegetable and Flower Seeds.
W. P. LAIRD & SINCLAIR, 73, Nethergate, Dundee, N.B.—Vegetable and Flower Seeds.
ALEXANDER LISTER, Meadow Bank, Barone Road, Rothesay, N.B.—Vegetable and Flower Seeds.

COMMUNICATIONS RECEIVED.—D. S.—D. D.—W. T. T. D—R. R.—Our New York Correspondent.—J. R.—O. L.—W. T.—F. W. Ghent.—H. H. D'O.—W. W.—W. R. H.—J. O. W.—L. R.—L. R. J.—H. V.—G. J. B.—A. C. H.—C. S.—R. E., Montpellier.—G. P.—T. R.—G. N.—W. G. S.—M. D.—L. L., Brussels.—G. S., Brussells.—J. A.—Ch. D. B.—G.—Sir C. Strickland.—H. W. W.—D. S. M.—J. S.—J. R.—A. D.—W. R.—J. Martin Hall.—W. R.—T. C.—Observer (next week).—W. W.—H., Canterbury.—N. Zealand.—A. H.—Albreda, W. E., next week.—MAX Leichtlin.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

PILULARIA.—Can anyone tell me where I could procure some specimens of Pilularia? *D. H.*

NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY.—We learn that the annual dinner of this Society is to be held on Thursday, January 30, at the Arboretum, Nottingham, at 6.30 p.m.

CHOICE ORCHID PEAT.

Prepared ready for use, free from all waste, 12*s.* per cask.
Selected, in Turves, 10*s.* per cask.
Specially selected for **HARDWOOD** and **STOVE PLANTS**, 8*s.* per cask.
For **FERNS** and **GENERAL USE**, from 5*s.* per cask.
By the yard or truckload. Special Prices, Carriage Paid to any Station.
Splendid Yellow Fibrous Loam, F.O.R. Surrey, 16*s.* per ton, in truckloads.
BONES for **VINE BORDERS**, fresh, raw, crushed, ½ to ¼ inch Meal and Flour, Charcoal, Peat and Wood Ashes.
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INVIGORATOR
TRADE MARK.

FOR PLANTS.
QUICK. LASTING. ECONOMICAL.

This is a Plant Food of great excellence, carefully prepared with the view of supplying a mixture which shall contain all the elements necessary for the Perfection of Plant Life, and at the same time be QUICK IN ACTION, LASTING, AND ECONOMICAL.

The proportions have been so arranged that, whilst accelerating luxuriant growth, permanent benefit is secured by a cool, steady nourishment to the plant.

It is safe and clean, and suitable for every purpose where a manure is required.

Sold by Seedsmen, Ironmongers, and Nurserymen, in **6d.** *and* **1s.** *Packets, and in SEALED BAGS—*

7 lb. 14 lb. 28 lb. 56 lb. 112 lb.
2s. 6d. 4s. 6d. 7s. 6d. 12s. 6d. 20s.

The above Trade Mark is printed on every Packet and Bag, and also impressed in the Lead Seal attached to the mouth of each Bag.

A SAMPLE PACKET will be sent post free, on receipt of 1*s.*, by the MANUFACTURER—

S. C. CLAY,
MARSH ISLAND, STRATFORD NEW TOWN, LONDON, E.
NO CONNECTION WITH ANY OTHER FIRM.

GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens.
RUSSIA MATS, New Archangel, 9 ft. 1 ins. by 4 ft. 6 ins., 2*s.* doz.; Heavy Petersburg, 7 ft. by 5 ft., 8 ins., 12*s.* doz. SPECIALITE TOBACCO PAPER, 1*d.* per lb.; 28 lb. for 21*s.* TOBACCO CLOTH, 1*s.* per lb.; 28 lb. for 26*s.* ORCHID PEAT, 8*s.* per sack. PEAT, LOAM, SAND, MANURES, and SUNDRIES. Price List free.—W. HERBERT AND Co., Hop Exchange Warehouses, Southwark Street, London, S.E.

To Nurserymen, Seed Merchants, and Florists.
J. BLACKBURN AND SONS are offering Archangel Mats lower than any other house in the trade; also Petersburg Mats, and Mat Bags, Raffia Fibre, Tobacco Paper, and Shading. Prices free.—Land 5, Wormwood Street, E.C.

CARSON'S PAINT
Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of
OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.
1 Cwt., and Oil Mixture, Free to all Stations.
Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Test mounds, Post free.

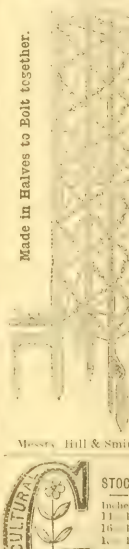
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BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

GARDEN REQUISITES.
TWO PRIZE MEDALS.
Quality, THE BEST in the Market. (All sacks included.)
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*; 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality, granulated in sacks only, 2*s.* 6*d.* each.
GENUINE ORCHID PEAT, 8*s.* 6*d.* per sack; 5 sacks, 40*s.*; BEST BROWN FIBROUS PEAT, 5*s.* per sack; 5 for 22*s.* 6*d.* BLACK FIBROUS PEAT, 4*s.* 6*d.* per sack; 5 for 20*s.* COARSE SILVER SAND, 1*s.* 6*d.* per bushel; 14*s.*, half ton; 24*s.* per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1*s.* per bushel. Tobacco Cloth or Paper, 1*s.* per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.
Terms strictly Cash with order.
CHUBB, ROUND & CO., West Ferry Road, Millwall, London, E. *Bankers—South, Payne, & Smiths.*

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

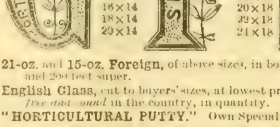
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HILL & SMITH,
BRIERLEY HILL IRONWORKS,
STAFFORDSHIRE.
New Pattern Tree Guard, "THE PORCUPINE."



The maximum of utility and the minimum of cost. Constructed of strong Iron Uprights and Galvanised Barbed Steel Wire.
Price, 10*s.* each.

TESTIMONIALS.
The Gardens, The Whittern, Kingston, Feb. 9, 1888.
Dear Sirs,—The 100 Barbed Wire Tree Protectors you sent to Mr. Green's order I have now fixed to the trees, and I feel bound to say that I never saw anything in the shape of a tree-protector equal to them. I think I shall be able to add further testimony after the cattle are turned out in the spring.—Yours faithfully, J. WEARING.
The Gardens, The Whittern, Kingston, Sept. 28, 1888.
Gentlemen,—The Porcupine Tree Guard you supplied to Mr. Green's order have proved a great success—in fact, they are the best I ever saw. These guards stand well against the trees, therefore cattle cannot, and will not, attempt to reach the branches. I would strongly recommend anyone who contemplates planting trees, and wishes to know which is the best guard to use, to give pattern "C" a trial.
Yours faithfully,
Messrs. Hill & Smith. J. WEARING.



STOCK	SIZES
Inches.	Inches.
11 × 12	20 × 15
16 × 12	20 × 16
14 × 12	22 × 16
20 × 12	24 × 16
16 × 14	20 × 18
18 × 14	22 × 18
20 × 14	24 × 18

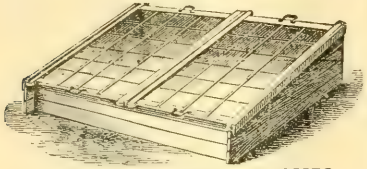
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English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.
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SMALL COKE, remarkably free from Sulphur, delivered in truck loads to any station.
For prices, apply,
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GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

SIX CABINET PORTRAITS, 3*s.*; three for 2*s.* Twelve Carte Portraits, 2*s.* 2*d.*; six for 1*s.* 4*d.* Eight-inch Enlargement, 3*s.*; three for 6*s.* Send Carte or Cabinet and Postal Order, and in about ten days you will receive Highly-finished Copies, with Original.
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PORTABLE CUCUMBER FRAMES.

R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

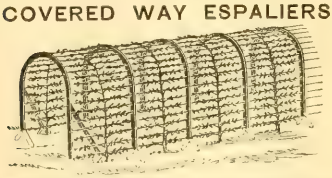
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		£	s.	d.
1-light frame, 4 ft. by 6 ft.	Carriage and Packing Cases FREE.	2	0	0
2-light frame, 8 ft. by 6 ft.		3	2	6
3-light frame, 12 ft. by 6 ft.		4	15	0
6-light frame, 24 ft. by 6 ft.		8	10	0

Larger sizes at proportionate prices.

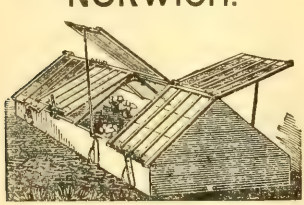
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MAKER of COVERED WAY and OTHER ESPALIERS.
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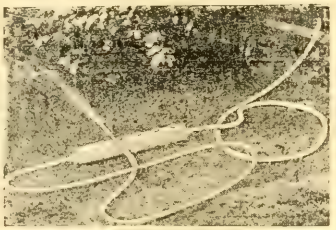
	Length.	Width.		£	s.	d.
1	Light Frame,	4 ft. by 6 ft.		£2	15	0
2	"	" 8 " by 6 "	Cash	4	7	6
3	"	" 12 " by 6 "	Prices.	5	17	6
4	"	" 16 " by 6 "	Carriage	7	7	6
5	"	" 20 " by 6 "	Paid.	8	17	6
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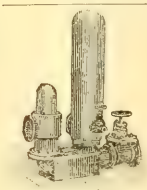


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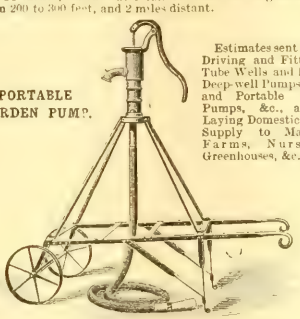
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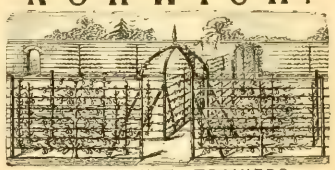
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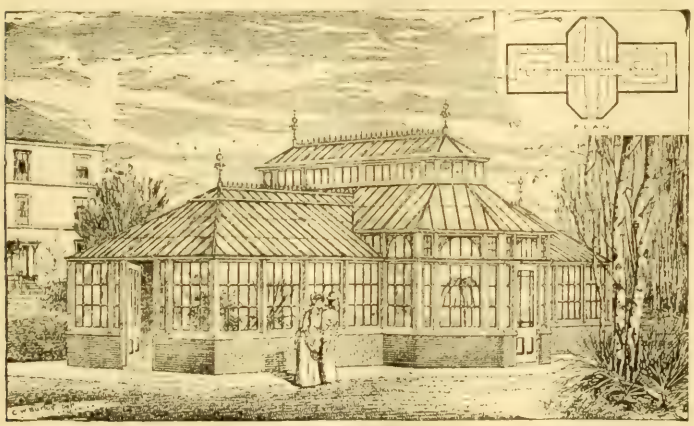
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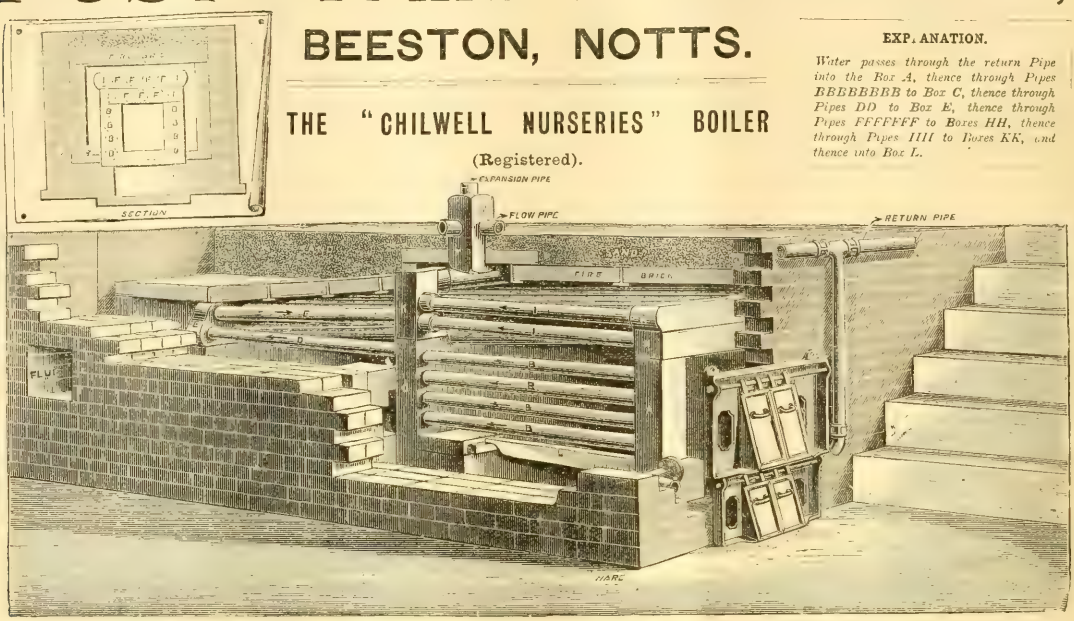
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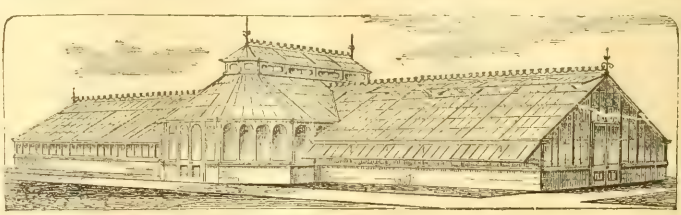
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PAUL AND SON can supply Dwarf and Standard-trained Trees of the above-indeed, their trained Trees of all Fruits are good.
The Old Nurseries, Cheshunt, N.

FASTOLF RASPBERRY CANES, For sale, 30s. per 1000, 4s. per 100.
Terms, Cash before delivery, F. O. R., Wisbech.
Apply, MANAGER, Osborne House Farm, Wisbech.

STRAWBERRIES.—Leading kinds, in 3½-inch pots, for immediate Planting or Potting on for Forcing. Send for LIST.
FRANCIS R. KINGHORN, Sheen Nurseries, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraph Address—"COMMISSION, SIDCUP."

J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
Long Market, Covent Garden, W.C.

CHOICE FLOWERS—CHOICE FRUIT.—Highest Market Prices guaranteed. Prompt cash.
HENRY RIDES, Covent Garden, W.C.

CHARLES COOPER AND CO., WHOLESALE FLORISTS and COMMISSION AGENTS, Bedfordbury, Covent Garden, W.C., are OPEN TO RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS. Boxes forwarded. Highest Market Prices guaranteed.

WANTED, MELON SEEDS, best varieties.
TODDINGTON ORCHARD COMPANY, Winchcombe.

New Chrysanthemums for 1890.

JAMES CARTER AND CO. have one of the largest and most perfect stocks in the country. For full particulars, see Carter's beautifully illustrated CATALOGUE. Gratis and Post-free to intending Customers.
Royal Seedsmen by Sealed Warrants,
237 and 238, HIGH HOLBORN, LONDON, W.C.

FOR SALE, STANDARD ROSES, 1000 BRIAR STOCKS, 3 to 4 feet long. What offers for the lot or part? Delivered on rail, Headcorn Station.—A. HATCHER, Tenterden, Kent.

CAMELLIAS for SALE, a number of strong healthy Plants, from 3½ to 8 feet in height. J. McLEOD, The Gardens, Dover House, Roehampton.

ROSES! ROSES!! ROSES!!!—The best and cheapest in the world. 40 choice Perpetuals for 2½. Purchaser's selection from 400 best varieties. CATALOGUES free on application. Ten acres of Roses, 100,000 grand plants to select from. Plant now.
JAMES WALTERS, Rose Grower, Exeter.

Forest Trees.

200,000 LARCH, Native, 2 to 3 feet; 200,000 SCOTCH Native, 1½ to 2½ feet; extra fine, stout, healthy, and well rooted. Nothing finer in the Trade. All sizes of LARCH, SCOTCH SPRUCE, HARDWOOD, QUICKS to offer; also Splendid HORSE CHESTNUTS, for avenue or ornament, 10 to 12 feet.
MATHESON'S Old-established Nurseries, Morpeth.

To the Trade.

WHOLESALE SEED CATALOGUE for 1890.—We have now published our Catalogue of Vegetable and Flower Seeds, containing also all the best Novelties of the season. May be had on application. Any of our customers not having received one by post will oblige by letting us know, when another shall at once be posted.
WATKINS AND SIMPSON, Seed and Bulb Merchants Exeter Street, Strand, London, W.C.

AUSTRALIAN SEEDS. LUCERNE, GRASS SEEDS, PEAS of sorts, PALMS, EUCALYPTI, CYCADS, CASUARINA, &c., Seeds and Plants.
We shall be pleased to quote Purchasers at any time.
Bank Drafts must in all cases accompany orders.
Offers of Sole Agencies for Seedsmen's Sundries, Utensils, &c., requested.
STEPHENSON AND JOHNSON, Seed Growers and Merchants, 9, King Street, W., Sydney, N.S.W.

QUICKS—QUICKS—QUICKS. Strong transplanted Quicks, large quantity. 10s., 12s., and 15s. per 1000. Samples on application.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.
J. J. CLARK, Goldstone Farm, Brighton.

KING'S Unrivalled VEGETABLE and FLOWER SEEDS, in collections of 2s. 6d., 5s., 12s. 6d., 21s., &c. Liberal quantities combined with the best quality only. Garden Manual post-free 7 stamps, free to customers.
JOHN K. KING, Royal Seed Grower, Coggeshall, Essex.

RED CURRANTS, Raby Castle and Red Dutch. COB NUTS, strong well rooted plants. APPLES, Pyramid, good sorts, 5 to 7 feet. Scarlet CHESTNUTS, fine trees, 6 to 9 feet. STRAWBERRY PLANTS, Vicomtesse Hericart de Thury, Stirling Castle.—TODDINGTON ORCHARD CO., Winchcombe, Gloucestershire.

SEED POTATOS, Reduced.—A few tons of Myatt's and Rivers' Kidney Potatos, £4 per ton, good quality.
GARLIES MITCHELL, Nurseryman, Strranraer.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next.

2000 LILIUM AURATUM, including several lots of immense bulbs—Lilium Krameri, Longiflorum, and Speciosum Rubrum, from Japan, also a large assortment of various English-grown LILIES, Hardy Bulbs, Tuberoses, &c.

MESSRS. PROTHEROE and MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68 Cheapside, E.C., on MONDAY NEXT, February 3, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.

ORCHIDS in FLOWER—SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 4, at half-past 12 o'Clock precisely, a large quantity of ORCHIDS in Flower and Bud, from various Collections.

On view morning of Sale, and Catalogues had.

Wednesday Next.

TREE PÆONIES FROM JAPAN.

A consignment of about 500 plants in 50 separate varieties received direct, to be offered in suitable lots, without the least reserve.

It is impossible to give any adequate description of the flower in an advertisement, but most of the varieties are of exceptional beauty, and the native drawings will be shown at the time of Sale.

6,000 LILIUM AURATUM,

every Bulb in the previous Importations having been sold. These are just to hand in splendid condition, and include some of the finest Bulbs received this season.

7,500 SPECIAL LILIES FROM JAPAN,

consisting of

100	Lilium auratum rubro vittatum	2,000	Lilium album Kræzeri
		1,000	,, speciosum album
100	,, ,, virginale	1,400	,, ,, rubrum
100	,, ,, putimo	800	,, macranthum
2,000	,, ,, Krameri		

15,000 KENTIA SEEDS

(Belmoreana and Forsteriana), in splendid condition, to be offered in lots of 1,500; also a great variety of English-grown LILIES and HARDY BULBS, 1,000 Gladiolus Sanderæ, 2,000 Gladiolus Brenchleyensis, 400 fine bulbs of Lilium Szowitzianum, an assortment of well-grown Palms, Greenhouse and Stove Ferns, Decorative Plants, American Pearl Tuberoses, Hybrid Gladiolus, Tigridias, Anemones, Begonias, Standard and Dwarf Roses, choice named varieties, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 5, at half-past 12 o'Clock,

On view morning of Sale, and Catalogues had.

Wednesday Next.

15,000 Seeds of KENTIA BELMOREANA and FORSTERIANA, 10,000 LILIUM AURATUM, and large quantities of other LILIES; 500 Tree PÆONIES, from Japan, &c.

MESSRS. PROTHEROE AND MORRIS desire to call special attention to the above, included in their SALE on WEDNESDAY NEXT. See separate Advertisement.

Thursday Next.

SALE of NURSERY STOCK from Sample.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, February 6, at half-past 12 o'Clock precisely, large quantities of NURSERY STOCK from Sample, including :—

2,500	Box	5,000	Lily of the Valley, Berlin Crowns
4,000	American Arbor-vitæ	500	Primulas, Double White
1,500	Euonymus	500	Adiantum cuneatum
8,000	Cupressus, of sorts	400	Arum Lilies
3,000	Common Laurels	3,000	Aralias
4,000	Laurestinus, of sorts	30	Bushels of French Beans
1,000	Rhododendrons		Pampas Grass
800	English Yews		Standard, Dwarf, and Trained Fruit Trees, &c.
200,000	Larch		
400,000	Thorn Quick, various sizes		
25,000	Scotch Fir		
5,000	Seaforthias		

Samples will be on view on morning of Sale.

Catalogues on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

ODONTOGLOSSUM PHALÆNOPSIS.
,, NÆVIUM MAJUS (true)
,, PESCATOREI.
,, TRIUMPHANS.
MAXILLARIA SANDERIANA.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, and 191, Park Road, Clapham, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 7, at half-past 12 o'Clock, a choice consignment of ORCHIDS, collected by the well-known collector, Mr. E. Klaboch, consisting of Odontoglossum Pescatorei, O. triumphans, O. hastilabium, O. nævium majus (true), O. Phalænopsis, Ada aurantiaca, and a white Sobralia with the appearance of S. leucoxantha; also a few Maxillaria Sanderiana, and an exceedingly fine lot of really good plants of Oncidium macranthum, especially lotted to suit the Trade and large buyers. All the plants are in the finest possible health and condition.

On view morning of Sale, and Catalogues had.

Friday next.

CATTLEYA MENDELII, CATTLEYA MOSSIÆ, and other ORCHIDS from Mr. G. T. White.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 7, a fine lot of CATTLEYA MENDELII, C. MOSSIÆ, and other ORCHIDS, from Mr. G. T. White; also four beautifully grown specimen LAPAGERIA RUBRA MACULATA PROFUSA and GIGANTEA.

On view morning of Sale, and Catalogues had.

Friday next.—Dendrobium Wardianum.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 7, at half-past 12 o'Clock, by order of Messrs. Hugh Low & Co., a grand lot of imported plants of DENDROBIUM WARDIANUM, of the fine strong-bulbed large-flowered type, also other fine BURMESE DENDROBIUM.

On view morning of Sale, and Catalogues had.

Friday Next.

SPECIMEN LAPAGERIAS, RUBRA, MACULATA, PROFUSA, and GIGANTEA, all beautifully-grown Specimens.

MESSRS. PROTHEROE AND MORRIS will include the above in their ORCHID SALE on FRIDAY NEXT, February 7.

On view morning of Sale, and Catalogues had.

Wandsworth Common.

Expiration of Lease. Close to the Earlsfield Station, and about 1 mile from Clapham Junction.

UNRESERVED CLEARANCE SALE of the STOCK now on this branch NURSERY, the Land being required by the Cemetery Company.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Neal to SELL by AUCTION, on the Premises, the Cemetery Nursery, Wandsworth Common, on TUESDAY, February 11, at 12 o'Clock, the whole of the well-grown NURSERY STOCK, in capital condition for removal. 1500 Green Hollies, 1½ to 3 feet; 2000 Laurels, 2 to 6 feet; 5000 Privet, 3 to 5 feet; 5000 Aucubas, 1½ to 2 feet; 2000 Planes, 6 to 10 feet; 4000 Standard Thorns and Laburnums, 10,000 Poplars, of sorts, 10 to 20 feet; 2500 Fruit Trees, 1000 Standard Victoria Plums, 500 Dwarf-trained Peaches, Plums, and Apples; large quantities of Flowering Shrubs, 300 extra stout Scarlet Chestnut and Hardy Poplars, 500 Cedrus deodara, 5 to 8 feet; Climbing Plants, &c.

May be viewed one week prior to the Sale. Catalogues had of Mr. R. NEAL, The Nursery, Wandsworth Common, S.W.; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Maresfield, near Uckfield, Sussex.

Three miles from Uckfield Railway Station.

IMPORTANT Two days' SALE of remarkably well-grown NURSERY STOCK, particularly worthy the attention of Noblemen, Gentlemen, Builders, and others engaged in planting.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Woodlands Nursery, Maresfield, near Uckfield, on WEDNESDAY and THURSDAY, February 12 and 13, at 12 o'clock each day, by order of Messrs. William Wood & Son, a large quantity of unusually well-grown NURSERY STOCK, carefully prepared for removal, consisting of 5000 Border Shrubs, including many handsome specimen Conifers and Evergreens, in various sizes; 100,000 extra strong Quick; 1000 large Laurels, 4 feet to 6 feet; 20,000 Scotch Firs, 2 feet to 3 feet; a great number of Standard Ornamental Trees, admirably adapted for avenue, park, and street planting; Ornamental Flowering Trees and Shrubs; 2000 Standard, Dwarf, and Climbing Roses; 2000 Climbers, from pots; 5000 Standard, Pyramid, and Dwarf-trained Trees, consisting of Apples, Pears, Plums, &c.; together with other Stock fully described in Catalogue.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Wednesday and Saturday next.

1000 choice named Standard, Dwarf, and Climbing ROSES, including many fine named sorts. 500 choice Hybrid and other Rhododendrons, Standard, Pyramid, and Dwarf-trained FRUIT TREES, Hardy Ornamental SHRUBS, CONIFERS, EVERGREENS, &c., DAHLIAS, CARNATIONS, and other BORDER PLANTS, LILIUM AURATUM from Japan, Home-grown LILIES, GLADIOLI, LILY OF THE VALLEY Crowns, STOVE and GREENHOUSE PLANTS, &c.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, February 5 and 8, at half-past twelve o'Clock precisely.

On view mornings of Sale, and Catalogues had.

Thursday Next.

IMMENSE IMPORTATIONS FROM JAPAN.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 6, at half-past 12 o'Clock precisely, Immense Importations from Japan, comprising 30,000 grand BULBS of Lilium auratum (many in cases as received), L. Krameri, L. auratum macranthum, L. speciosum album and rubrum, a fine Scarlet Lily (as per drawing), &c., and all in splendid condition; also 20,000 fine Pearl TUBEROSES, 10,000 Berlin LILY OF THE VALLEY Crowns, DAFFODILS, Dutch BULBS, Home-grown LILIES, and many other ROOTS.

On view morning of Sale, and Catalogues had.

Thursday Next.

20,000 Fine PEARL TUBEROSES, just received direct from America, in the best possible order.

MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 6.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY February 13, and he will be glad if Gentlemen desirous of Entering Plants for this Sale will please SEND LISTS NOT LATER than THURSDAY NEXT.

TO BE SOLD, by Private Treaty, an Old-established NURSERY BUSINESS. Leasehold. Dwelling-house, 8 Greenhouses, and about 10 Acres of Land. Near London. For particulars, apply to MONTAGU SCOTT AND BAKER, Solicitors, Gray's Inn, W.C.

To Florists, Nurserymen, and Others.

FOR SALE, FREEHOLD LAND, specially adapted to all the requirements of the above, for either Glass or Open Cultivation, near Station, in any quantity from 1 acre and upwards, on easy terms, moderate price, and immediate possession.—Apply to Mr. JOHN EMBLETON, Suffolk House, New Hampton.

TO BE DISPOSED OF, either in one or two lots, about 2000 well-established ORCHIDS, good varieties. No reasonable offer refused; inspection invited before purchasing.—G. JACOB, Exotic Nurseries, Witney, Oxon.

LEASE FOR SALE, of one of the best GRAPE and FRUIT ESTABLISHMENTS on the South Coast, as a Going Concern, in first-rate order.

Apply by letter, to W., care of Mr. W. Unwin, Fruit Salesman, Covent Garden Market, W.C.

AN EIGHT-ROOMED COTTAGE, Two-Stalled Stable, Chaise-house, and other Outbuildings, with ¼ Acre Garden, and, if wished, 1 Acre Paddock. The Garden contains some 4000 super. feet Glass. Rent, £15, without Paddock. Practical man would do well here.

Address, F. G., 27, Gronant Street, Rhyl.

Fruit Plantation and Market Gardens.

TO BE LET, about 11 acres of LAND, with Residence; Forcing, Cyclamen, Geranium, and Rose Houses, Conservatory, Pits, and numerous Outbuildings.

Apply personally only to MALCOLM SEARLE, Esq., 9, Martin's Lane, Cannon St., City.

TO BE LET, on Lease, near Weybridge, about 3 acres of LAND, suitable for Nurseries, containing 16,800 super. feet Modern Glasshouses, fully heated on be-t principle, and planted with Black Hamburgh, Muscat of Alexandria, Gros Colmar and Alicante Vines—mostly 4-year old canes. Productive Tomato Crop can be grown till Vines bear. Apply, Mr. G. MUNRO, Fruit Salesman, Covent Garden, W.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense stock, to which they are constantly adding, and all are offered at the lowest possible prices. LISTS with Prices and particulars post-free on application to the Company

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

CALCEOLARIAS (Spotted).—We have many thousands of lovely healthy little plants now in rapid growth. Unequalled First Prize Strain, Regent's Park, in small pots, 3s. 6d. per dozen; 5-inch pots, 7s. per dozen; pricked out Seedlings, 2s. per dozen; from boxes, 1s. per dozen.
HENRY CANNELL AND SONS, Swanley, Kent.

To the Trade.

CHOICE VEGETABLE SEEDS.

H. AND F. SHARPE'S Special Priced LIST of VEGETABLE SEEDS comprises all the best varieties under cultivation of 1889 growth, and of the very finest quality. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

SPECIAL OFFER,
TO CLEAR.

HORSE CHESTNUTS, 10, 12 to 15 feet, extra stout with good heads, 12s. to 18s. per dozen.
LIMES, 12 to 15 feet, well branched, 15s. to 21s. per dozen.
,, a few extra sized specimens, fine spreading trees, 30s. per dozen.
ELMS, English, 12 feet, 12s. to 15s. per dozen.
YEWS, Common, 4 to 6 feet high, 3 to 4 feet through, 18s. per dozen.
,, Irish, 4 to 5 feet, 20s. per dozen.
HOLLIES, Green, 3 to 5 feet, 12s. to 18s. per dozen.
QUICK, strong, various sizes, 10s. to 25s. per 1000.
ASPARAGUS, two and three years, extra strong, 2s. and 3s. 6d. per 100.
CHARLES A. BRUNNING, 28, Kirkgate, Newark.

LARCH FIRS.—20,000, 3 to 4 feet high; 20,000, 4 to 6 feet high, extra strong, twice transplanted, specially good, and are offered cheap to clear.

Large quantities of strong FOREST TREES, including Ash, Oak, Beech, Hornbeam, Spruce Firs, and Austrian Pines to offer.

COVERT Plants, Laurels, Evergreen Privet, Tree Box, Berberis, and strong Quicks, of which samples may be had, and Priced CATALOGUE free by post.

R. TUCKER, Nurseries, Faringdon, Berks.

WM. PAUL AND SON respectfully invite orders for the following TREES and SHRUBS, which they are able to offer at specially reduced rates:—

ABIES DOUGLASII, 6 to 8 feet, 18s. per dozen.
,, ORIENTALIS, 5 feet, 24s. per dozen.
ACACIAS 8 to 10 feet, 6s. per dozen.
ALDER, 12 to 14 feet, 12s. per dozen.
AUCUBAS, 3 to 4 feet, 24s. to 36s. per dozen; 4 feet by 4 feet, 60s. per dozen.
BOX, Green and Variegated, 4 to 5 feet, 12s. per dozen.
BEECH, Purple, 10 to 14 feet, 36s. to 60s. per dozen.
BIRCH, 8 to 10 feet, 6s. per dozen.
CEDRUS ATLANTICA, 10 to 12 feet, 60s. per dozen.
,, DEODARA, 8, 10, and 12 feet, 5s., 7s., and 10s. each.
CHESTNUTS, Horse, 10 feet, 12s. per dozen.
,, ,, scarlet, 10 to 12 feet, 36s. per dozen.
CRYPTOMERIA ELEGANS, 4 feet, 24s. per dozen.
,, LOBBII, 7 to 9 feet, 36s. per dozen.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 18s. per dozen.
ELM, English, 6 to 8 feet, 4s. per dozen; 10 to 14 feet, 9s., 12s., and 18s. per dozen.
,, Huntingdon, 12 to 14 feet, 15s. per dozen.
,, Wych, 10 to 12 feet, 9s. per dozen.
FIRS, Larch, 4 to 6 feet quartered, 1s. per dozen.
,, Scotch, 5 to 6 feet, 6s., 9s., and 12s. per dozen.
,, Spruce, 6 to 7 feet, 12s. per dozen.
GLEDITSCHIAS, Standards, 12s. to 15s. per dozen.
HOLLIES, Green, named sorts, 8 to 10 feet, 24s. per dozen.
,, Silver, 8 to 10 feet, 120s. per dozen.
JUNIPERUS VIRGINIANA GLAUCA, 8 to 9 feet, 60s. per dozen.
LABURNUMS, 9 to 10 feet, 12s. per dozen.
LAURELS of sorts, 4, 5, 6, and 7 feet, 30s., 40s., 50s., and 60s. per 100.
,, Portugal, 3½ to 4 feet, bushy, 24s. per dozen.
LAURUSTINUS, 2½ feet, 9s. per dozen.
LIMES, 10 to 12 feet, 18s. per dozen.
MAPLE, Norway, 12, 15, and 18 feet, 12s., 18s., and 24s. per dozen.
ASH, Mountain, 12 to 14 feet, 12s. per dozen.
OAK, English, 7 to 8 feet, 9s. per dozen.
PINUS EXCELSA, 10 to 12 feet, 60s. per dozen.
PLUNES, 18 to 18 feet, 60s. per dozen.
POPLARS of sorts, 12, 15, and 20 feet, 12s., 18s., and 30s. per dozen; 10 to 12 feet, 9s. per dozen.
PRIVET OVALIFOLIUM, 7 feet, 6s. per dozen.
RHODODENDRON PONTICUM, 2 to 3 feet, 18s. per dozen.
,, hybrids, 2 to 3 feet, 24s. per dozen.
,, named sorts, 3 to 4 feet, 60s. per dozen.
SYCAMORE, 12 to 14 feet, 15s. per dozen.
THORNS of sorts, very fine Standards, 9s., 12s., 15s., and 18s. per dozen.
,, Pyramids, 9s. and 12s. per dozen.
YEWS, Common fan, 4 to 5 feet, 36s. to 72s. per dozen.
,, Common bush, 5 to 6 feet, 36s. per dozen; 6 to 7 feet by 4 to 5 feet, 84s. per dozen.
,, Golden (elegantissima), 2 to 2½ feet, 18s. per dozen.
,, Gold-Irish, 3½ to 4 feet, 36s. per dozen.

TRITOMA UVARIA, 1s. per dozen, 25s. per 100.

ROSES, Standards, 24s. per dozen; Dwarfs, 6s. per dozen, and upwards.

FRUIT TREES, a fine stock of all the best varieties, including GRAPE VINES, Fruiting and Planting Canes.

SEAKALE for planting, 3s. per 100, 25s. per 1000.

WM. PAUL & SON, Paul's Nurseries,
Waltham Cross Herts.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton,
Have a large Stock of the following particularly well grown and good roots:

ARTICHOKES, Globe.
ACACIA, Common, 3 to 4 and 4 to 5 feet.
ASH, Common, 2 to 3, 4 to 5, and 5 to 6 feet.
,, Mountain, 4 to 5, and 5 to 6 feet.
BEECH, Common, 1½ to 2, 2 to 3, and 3 to 4 feet.
BLACKTHORN, a very large stock. Samples free.
GORSE, Common, 1, 2, and 3 year.
HORNBEAM, 2 to 3 feet.
LABURNUMS, 3 to 4, and 4 to 5 feet.
MAHONIA AQUIFOLIA, medbushy stuff.
PINUS AUSTRIACA, 1 to 2, and 2 to 3 feet.
,, LARICIO, 1 to 2, and 2 to 3 feet.
POPLARS, in variety, 8 to 10, and 10 to 12 feet.
PRIVET, Evergreen, 2½ to 3½ feet.
SYCAMORE, 2 to 3 feet.
THORN QUICKS, for Hedges, several millions. (Samples free.)
LAURELS, Caucasica, 2 to 3 feet.
,, ROTUNDIFOLIA, 1½ to 2, and 2 to 3 feet.
,, Portugal, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
YEWS, English, 2 to 3, 3 to 4, and 4 to 5 feet.
,, Irish, 2 to 3 feet.
Special Prices on application.
Telegrams: "PARAGON," Northampton.

CALCEOLARIAS.—First-prize Strain, beautifully spotted and striped; strong, healthy, nice clean, well-established plants, from thumb pots, 2s. per dozen, 15s. per 100.
PRIMROSE.—Hardy's new hybrid novelties (very choice), about thirty colours, strong plants, 5s. per 100, 45s. per 1000.
PRIMROSE POLYANTHUS.—Hardy's new novelties, about eight splendid colours, 5s. per 100, 45s. per 1000.
POLYANTHUS.—Hardy's finest selected gold-laced, show flowers, 5s. per 100, 45s. per 1000.
All the above are well known, and give excellent satisfaction. Many Testimonials. One just before me now says, "Your Primroses and Polyanthus are really charming."
CURRANTS, Black Naples and Red Raby Castle, a few hundred very strong, 3-yr. old bushes, 8s. per 100, to clear.
Cash, Packages free. Extra plants for carriage.
H. J. HARDY, F.R.H.S., Stour Valley Nurseries, Bures, Suffolk.

SIMPLY AN ANNOUNCEMENT.

DID WORDS EVER SPEAK MORE PLAINLY?

H. CLIFFORD, Esq., Heath End House, Cromhall, Falfield, R.S.O., December 20, 1889.
Send me your Catalogue, as I intend giving you my order for Seeds this year.
JAMES SHORT, The Gardens, Luneville, Torquay, January 4, 1890.
SIR,—Having seen the good results from your seeds in this district at several private places, I should be pleased to receive your Catalogue.
I. NEWTON, Esq., Devonport, Bournemouth, February 18, 1888.
Of your Vegetable Seeds I believe every seed grew. I almost thought in some cases that one seed produced two plants. They were all the season unusually robust, and gave every satisfaction.
Mrs. O'REILLY, Colambar, Rathowen.
I wish to say that, having tested most of the seeds supplied in England and Ireland for years, I found your supply more generous, the yield better and more certain than the others, and have this year decided on getting all the garden seeds from you.
Mr. T. J. FULLER, Campello, Plymouth County, Massachusetts, U.S.A.
The Seed I had of you was good, beyond my expectation.
G. B. WOLLASTON, Esq., Bishop's Well, Cheshunt, January 25, 1889.
I have desired my gardener to order all seeds from your firm.
Mr. F. YOUALL, Copperhall, Crewe, January 14, 1889.
It is with very great pleasure that I write to you as a future customer, having witnessed last summer a splendid garden, the result of your seeds.
Capt. BENBERY, Edenbank House, Cupar, Fife, N.B.
I take this opportunity of mentioning that the seeds you sent out to me at Sydney, New South Wales, last year, gave every satisfaction, and produced excellent results.
Mr. T. ALLEN, Florist, 4, Neville Street, Abergavenny, January 5, 1889.
Kindly forward me your Catalogue, as I intend to buy the whole of my flower seeds from you the coming season.
Mr. HODGSON, Rocket, Fessingwold, Yorks, August 20, 1888.
I have been so pleased with the productions from your seeds, that I feel I ought to thank you, and am counting on what the next lot will bring me.
Mr. R. R. OSWALD, 5, Chapel Street, Birkenhead, February 25, 1889.
Your seeds of exhibition flowers are the best I ever grew. I took eleven first prizes with them last year.
Mr. A. W. CHILD, Rotomic Avenue, Belfast.
The seeds I had from you last year gave every satisfaction. I got fearful rubbish from Germany two years ago—serve me right for trying foreigners.
Mr. G. SMITH, Linthorpe, Middlesbrough on Tees.
Thanks for catalogue, I enclose order as usual; last year was the tenth year that your seeds have been highly satisfactory. I am counting on the next.

Surely this is conclusive proof and a matter of fact, once and for ever, that KENT SEEDS excel all others in the world. CATALOGUE FREE.

PERFECT SEEDS ONLY direct from

HENRY CANNELL & SONS,

Nurserymen and Seedsmen to nearly all the Royal Families and "Heads" of the World.

SWANLEY, KENT.

SEA-SIDE PLANTS.

ESCALLONIA, EUONYMUS, VERONICA, TAMARISK, and other Trees and Plants to withstand Sea-breezes, are largely grown at the Sea Coast Nursery, Pwllheli, North Wales, and now offered at Specially Low Prices, for which apply to

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CHESHUNT STANDARD APPLES.

PAUL & SON

Have still to offer fine 6 ft. stemmed trees of THE LEADING SORTS OF APPLES.

Also PLUMS.

Selected trees for Orchard Planting, from £12 per 100, downwards.

The NEW CATALOGUE is ready, and should be applied for by all intending large planters desirous of starting with the best trees.

THE OLD NURSERIES, CHESHUNT, HERTS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At the Annual General Meeting of the Members of this Institution held on THURSDAY, the 16th inst., for the Election of Nine Pensioners, the following was the result of the Ballot:—

CANDIDATES.

Votes.	NAME.	
3241	JAMES BAILLIE	ELECTED.
298	HENRY BARTHOLOMEW.	
711	THOMAS BENNING.	
1545	SARAH BRUSH	ELECTED.
795	WILLIAM BUNN.	
2369	SOPHIA BURT	ELECTED.
213	JAMES BUSH.	
240	JOHN BUTLER.	
1547	ROBERT CLARK	ELECTED.
172	JONAH DICKENSON.	
694	JAMES GAGE.	
458	THOMAS GOODWIN.	
488	ISAAC GIBBONS.	
648	GEORGE HINXMAN.	
572	DAVID INNES.	
3583	LOUISA JENNINGS.	
1435	MARIA MILLEY	ELECTED.
1890	MARY ANN MILROY	ELECTED.
476	BENJAMIN MORRELL.	
170	JANE ELIZA NICHOLS.	
1568	ELIZABETH PARKER	ELECTED.
771	JOSEPH HENRY POOLE.	
767	HENRY PRIMMER.	
1213	JAMES ROBINSON	ELECTED.
1493	GEORGE WM. YOUNG... ...	ELECTED.

EDWARD R. CUTLER, Secretary.
5a, Parliament Street, S.W., January 17, 1890.

RAILWAY RATES and CHARGES.—The Adjourned Meeting of the Trades will be held at the "Windsor" Hotel, Victoria Street, Westminster, S.W., on FRIDAY, January 31, at 5 P.M., when the Names of the Witnesses will be selected. Any one unable to attend, but who is desirous of giving evidence will please communicate with the undersigned, addressed to the "Windsor" Hotel.

F. C. GOODCHILD, Secretary
to the Nursery and Seed Trade Association (Limited).

LAYING-OUT and PLANTING NEW, and IMPROVING OLD ESTATES.

R. COWLES, Certificated, Royal Gardens, Kew, having great experience in this branch of Horticulture, and an extensive knowledge of all the best Fruit, Shrubs, Trees, &c., grown in our Largest Nurseries, and being in a position to Buy by Special Quotation, and personally Superintend the Work, enables me to do it well with economy.
Distance no object to Advise, Plan, and Estimate.
R. COWLES, Landscape and Garden Contractor, North Finchley, N.

SPECIAL OFFER.
AUCUBA JAPONICA, 2 feet, 75s. per 100; many thousands to offer.
LAURELS, 3 to 4 feet, 30s. per 100.
COTONEASTER SIMMONDSII, 2 feet, 15s. per 100.
DEUTZIA CRENATA, double, 2½ to 3 feet, 25s. per 100.
SPIRÆAS, 2½ to 3 feet, 15s. per 100.
ELDER, Golden, 25s. per 100.
RETINOSPORA PLUMOSA AUREA, 2 to 3 feet, 100s. per 100; 1½ to 2 feet, 75s. per 100.
,, ,, PLUMOSA, 1½ to 2 feet, 75s. per 100.
THUJOPSIS DOLOBRATA, 2 to 3 feet, 150s. per 100.
AMERICAN ARBOR-VITÆ, 1½ to 2 feet, 60s. per 100.
CEDRUS DEODARA, 10 to 12 feet, 7s. 6d. to 10s. 6d. each.
CUPRESSUS LAWSONIANA, 2 to 3 feet, 50s. per 100.
,, ,, ERECTO VIRIDIS, 2 to 2½ feet, 50s. to 75s. per 100, 3 feet, 100s. per 100.
THUIA LOBBII, 3 to 4 feet, 75s. per 100.
BIRCH, 10 to 12 feet, 100s. per 100.
SYCAMORE, 10 to 12 feet, 90s. per 100.
MAPLE, Norway, 10 to 12 feet, 75s. per 100.
ALDER, 12 to 15 feet, 100s. per 100.
CHESTNUTS, 12 to 14 feet, 100s. to 150s. per 100.
SERVICE TREE, 8 to 9 feet, 50s. per 100.
LAURELS, Standard Portugal, 4 to 5 feet stems, 10s. 6d. to 21s. each.
DAMSONS, Standard, 100s. to 150s. per 100.
PEARS, Standard, 100s. to 150s. per 100.
PLUMS, Standard, 150s. per 100.
BOX, YEWS, HOLLIES, Green and Variegated Flowering SHRUBS, CLIMBERS, &c.
RHODODENDRONS, fine named sorts, well set with bloom-buds.
An inspection of the above is solicited.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

Bulbs and Seeds for Spring Planting.

ANT. ROOZEN AND SON, of OVERVEEN, HAARLEM, beg to announce that their New BULB and SEED CATALOGUE for Spring, 1890, is now ready. It contains full details of their extensive Collections of Gladioli, Dahlias, Lilies, Begonias, Browallia speciosa, and other Bulbs for Spring Planting, and also of a large Collection of CHOICE FLOWER SEEDS, which can be recommended with every confidence.
The Catalogue will be sent, post free, on application to themselves direct, or their Agents, Messrs. MERTENS & Co., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

PTERIS CRETICA CRISTATA.—Good stuff in large Thumbs of this best market Fern, 12s. per 100. Cash with order.
GOWERS AND EMBERSON, Comely Bank Nursery, Walthamstow.

EAST LOTHIAN STOCKS
A SPECIALTY.

True strain and extra fine, in five separate colours—Purple, Scarlet, White, Crimson, and White Wallflower-leaved—each colour 1s., 2s. 6d., and 5s. per packet.

Mr. GLEN, The Gardens, Bramhletye, writes: "Please send me five packets East Lothian Stocks. I must say that your strain of East Lothian Stocks is the finest I have seen anywhere. When I was at Wentworth the beds of East Lothian Stocks supplied by you were admired by every one who saw them. We had upwards of 80 per cent. of double flowers."

Mr. BAILLIE, The Gardens, Luton Hoo Park, writes: "The East Lothian Stocks from you were excellent. The white, purple and crimson exceptionally fine. Many spikes were over 18 inches long and densely clothed with bloom."

Mr. LAMONT, The Gardens, Kennet House, writes:—"Please send me four packets East Lothian Stocks. This year I have the finest I ever had. They are the admiration of every one who see them. The whites are over 90 per cent. doubles, which could not be better."

All other seeds of the same first-class quality only, notably the following, all saved from my own world-renowned collections:—

PANSIES, show and fancy, 1s., 2s. 6d., and 5s. per packet.
PENTSTEMONS, 1s. and 2s. 6d. per packet.
ANTIRRHINUMS, 1s. and 2s. 6d. per packet.
MIMULUS, 1s. and 2s. 6d. per packet.
AURICULA, Alpine, 2s. 6d. per packet.
" Stage, 2s. 6d. and 5s. per packet.
PRIMULAS, each colour, 1s. and 2s. 6d. per packet.
CINERARIA, 1s. and 2s. 6d. per packet.
COCKSCOMB, extra grand competition strain, 2s. 6d. per pkt.
BEGONIAS, Single, 1s. 6d.; ditto double, 2s. 6d. per packet.

Mr. ANDERSON, The Gardens, Abbotrule, writes: —"You will be pleased to hear that your seeds have done so well that I have not one single failure."

CATALOGUES now ready and post-free on application.

JOHN FORBES, NURSERYMAN, HAWICK,
SCOTLAND.

FOR PLEASURE AND PROFIT.

FRUIT. Nothing so profitable and easy to grow. 74 Acres in stock.
See CATALOGUE for simple Instructions and kinds of Trees to suit all soils.

ROSES. 20 Acres. Bushes 8s. per dozen, 60s. per 100.
Packing and Carriage Free for Cash with Order.

ROSES IN POTS from 15s. per dozen.

ORNAMENTAL TREES, 91 Acres.

4 Acres of Glass.

CLEMATIS (80,000), 12s., 18s., and 24s. per doz.

SEEDS & BULBS. VEGETABLE, FLOWER, and FARM.

Descriptive LISTS free.

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beg to offer a large and well-grown stock of the following:—

FRUIT TREES—Of the leading varieties suitable for Market and Private Gardens.
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SHRUBS — Ornamental and Flowering, adapted for Belts, Shrubberies, Screens, &c.
TREES—Ornamental and Flowering, for Parks, Avenues, Streets, and Private Gardens.
FOREST TREES—For Coverts, Screens, &c., all grown by thousands.
CLIMBERS—In large variety for Walls, Trellises, Rockwork, &c., including their celebrated Clematis.

G. J. & SON have also to offer a
NEW CLEMATIS "MRS. BARON VEILLARD"—a handsome variety of the Jackmanii type. It is a vigorous grower, bearing a profusion of distinct light lilac rose flowers, of medium size, from July to October. It can be highly recommended for its good qualities, and should be added to every collection. Price on application.

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WOKING, SURREY.

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JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

PEARSON'S SEEDS are not ALL HOME GROWN; but some are imported from the Continent, and others are procured direct from Specialists, and Sold to the Public without being re-christened. No effort is spared to have the best of everything. CATALOGUE free on application: Prices extremely moderate. No coloured plates, but value given in seeds. Established 1782.
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Brocoli.—Good Sorts not Common in the Trade.
HARTLAND'S "APRIL QUEEN."—Is a sterling Novelty from South of Ireland. Certainly one of the finest in cultivation; ready for use during the months of April and May. The heads are of immense size, and the leaves, which are most abundant and peculiar in colour, form such a thorough protection that the outer appearance, before being stript, is that of a "high quality" Cabbage. It has been grown locally to great perfection—some heads weighing over 14 lb., from the very close protection—white as snow.
In sealed packets, 1s. 6d.
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Wholesale, from HURST AND SONS, London.
*** Year Book of Seeds for 1890 now ready.

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ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.
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Seed Potatos, Garden Tools, & Sundries.
Best Qualities Only. Prices most Moderate
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None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.
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The Illustrated and Descriptive Catalogue of Fruits post-free.
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THE PENNY PACKET SEED COMPANY'S
SEEDS AND PLANTS,
And you will pronounce them the Best in the Market, as none but genuine, good, new season's seeds are supplied.

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3000 VARIETIES CATALOGUED
of Vegetable and Flower Seeds in **Penny Packets**; also by weight and measure at lowest prices.

Also a Select List of
HARDY PLANTS.
Catalogue (500 Illustrations) gratis and post-free.

BIDDLES & CO.,
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NEW
CHRYSANTHEMUM,
MRS. R. A. MUDIE "ANEMONE."
First-class Certificate Edinburgh Centenary Show, 1889.

WE have pleasure in offering this most distinct variety. It is a deep crimson, and of robust growth, and should prove to be a great acquisition to the class. Orders are now being booked for plants in March, 3s. 6d. each; two for 6s. 6d., three for 9s. Descriptive NOVELTY LIST post-free.

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LILIUM AURATUM.
In finest possible condition, hard as bricks! Order early.

FINE BULBS, measuring 8 inches round, 25 for 6s. 6d., 100 for 21s.
" " 9 to 9½ inches round, 12 for 5s., 100 for 30s.
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Better Bulbs impossible. Special Trade Prices.

AMERICAN "PEARL" TUBEROSES, just arrived, 12s. 6d. per 100.
GLADIOLUS COLVILLEI ALBA "THE BRIDE," 6s. 6d. per 100.
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LILIUM RUBRUM CRUENTUM, very dark form, immense Japanese bulbs, 1s. each, 10s. dozen.
" ALBUM KRÆTZERI, pure white, 12s. doz.
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" PARDALINUM MICHAUXII, large clumps, 2s. 6d. and 3s. 6d. each.
Finest obtainable quality, at very low prices.

W. H. HUDSON, Lily Importer,
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Address for Telegrams:—"AURATUMS, London.
Mention *Gardeners' Chronicle.*

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Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

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COOLING'S BEAUTY OF BATH should be added to every Collection. It is the best flavoured and handsomest early Apple yet introduced, and will be indispensable as an early dessert fruit when it becomes known. Strong Maiden Trees, 2s. 6d. each, 24s. per dozen; 2-yr. Trees, 3s. 6d. each, 36s. per dozen; Pyramids, 5s. each; Dwarf-trained, 7s. 6d. each. Full description free by post.
GEORGE COOLING AND SONS, The Nurseries, Bath.

SEEDS—SEEDS—SEEDS.—Select Stocks of Vegetable and Flower Seeds at Wholesale Prices:—Brussels Sprouts, 1s. 6d. per lb.; Dwarf Red Beet, 1s. 6d. per lb.; Purple Sprouting Broccoli, 1s. 6d. per lb.; Early White Broccoli, 2s. 6d. per lb., Coleman's East Kent Cabbage, 2s. per lb., Drumhead Saxony, 2s. per lb.; Long Prickly Cucumber, 4s. 6d. per lb., Long White Marrow, 3s. per lb.; Veitch's Autumn Giant Cauliflower, 8s. per lb. CATALOGUE gratis, and Post-free.
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J. E. D. will be able to supply this extraordinary fine strain at 1s. per packet, for season 1890. The following testimonial (one of many similar) has been received from—
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BOOK ON TRANSPLANTING LARGE TREES AND SHRUBS. Post free on application.
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GREAT VEGETABLE CONFERENCE,
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See Large Advertisement, p. 70, January 18, 1890.

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THE HEAVIEST CROPPING,
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Each, per Packet, 2s. 6d.

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All Flower and Vegetable Seeds are Supplied Post-free, and arrive within 10 days after receipt of order.

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SHARPE'S
DUKE OF ALBANY.
2s. per Stone.

A REMARKABLY HEAVY CROPPER.
HANDSOME, ROUNDISH, ROUGH-SKINNED TUBER.
COOKS DRY AND FLOURY.
FLESH, WHITE; SHAPE, PERFECT; EYES, FLAT.
SEASON, FROM JULY TO MARCH.

Price, per Cwt. or Ton, on application.
CHARLES SHARPE & CO., SLEAFORD
CATALOGUES POST FREE.

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112 pages—Post-free for Three Stamps.

Will interest you. It contains the best of the old reliable sorts, both in vegetables and flowers; besides many rare, novel, and beautiful introductions from different parts of the world, and which are not to be found in any other list. Special sections are given to "POPPIES," "ANEMONES," "CHINESE PINKS," "SWEET PEAS," &c.; the whole perhaps forming the most complete Seed List of the season.

THREE NEW CHRYSANTHEMUMS,
TO BE DISTRIBUTED THIS SPRING.

Annie Clibran.—A lovely sport from Mdlle. Lacroix, opening a charming violet-rose, shading off with age to a lovely French white. Splendid exhibition variety; and one of the best for cut flowers. First-class Certificate National Chrysanthemum Show. 5s. each, three for 12s. 6d.
N.B.—Not synonymous with J. B. Pearson.

Mrs. Horrill.—A reflexed sport from George Glenny and of the same colour. Sprays of this charming novelty have been grown by Mr. Molyneux nearly 2 feet long, and clothed with flowers from top to bottom, the cut blooms lasting eighteen days. One of the very best for cutting or decoration. 1s. 6d. each.

Ralph Brocklebank Improved (Jap.).—Of a richer and deeper yellow, and certain to supersede its parent for exhibition, being so much brighter and more telling on a stand. 1s. 6d. each.

CHRYSANTHEMUMS.—Extra choice sorts, 4s. and 6s. per dozen (our selections). The finest older varieties (our selections), cuttings, 2s. per dozen, 15s. per 100, post-free; all named. Special List post-free.

CLIBRAN'S TOMATO.
Undoubtedly the best of the very best varieties yet introduced. A seedling selected and reselected year after year from the "Orangefield" and is, without doubt, the most handsome Tomato ever seen. Awarded numerous First Prizes. 8ets three and four fruits to a joint. *From a house 130 feet long, 140 lb. of fruit were cut weekly for months.* Flavour rich and juicy. 1s. 6d. and 2s. 6d. per packet.

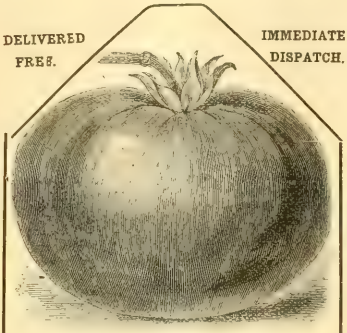
LEMON OIL INSECTICIDE.—Four cardinal points why this is superseding all others:
1st, because it is more effectual.
2nd, because it is so cheap.
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4th, because it is to be trusted in the hands of the most careless operator.
IT IS FAST BECOMING THE ONLY INSECTICIDE USED BY MANY OF THE LEADING GARDENERS.
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8 to 12 *inches high*, 10*s. each*.

ACER PLATANOIDES FOLIIS ELEGANTER VARIEGATIS (Hesse).

A remarkably fine, very interesting, most striking, and very distinct variety of the Norway Maple, raised from seed in my nurseries several years ago, and much admired by visitors. On first appearing, the leaves are nearly white. Afterwards most of the leaves are marked with a regular white pattern. Here and there we find some leaves all white, or half white and half green, but all are perfectly developed, and a very important quality is, that they never suffer from the heat of the sun, as is often the case with trees having variegated foliage. They preserve these beautiful markings unaltered till autumn. This beautiful tree will be valuable for producing decorative effects in pleasure-gardens.

Half standards, 25*s. each*.

THUIA OCCIDENTALIS WARREANA LUTESCENS (Hesse).

A very fine variety of Thuia Warreana, of compact growth, grown here and introduced into commerce by me some years ago. The leaves are alternately of a shining light yellow and of a darker yellow tint. It has all the superior qualities of Thuia Warreana, is very hardy and is of a beautiful habit. Mr. Boissier, Inspector of the Gardens at Bonn, writes on this subject: "She ist eine freilliche anerkennt gute, wirkungsvolle form." "It is an excellent and very effective form." Though introduced into nurseries years ago, it is not yet much known, because other varieties similarly named but not worth cultivating, are substituted for it.

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"A. and C. PEARSON,
"Chilwell Nurseries, Notts."

"We like your Soleil d'Or Sunflower very much. It is now in flower, much in advance of the ordinary form.

"JAMES BACKHOUSE and SONS,
"Nurseries, York."

"Your box of Soleil d'Or Sunflower blooms to hand. I am much obliged for your sending them. Several of the blooms are much finer than the drawing or illustration you publish, and they form a really attractive and agreeable vaseful.

"C. HARMAN PAYNE,
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"Dear Mr. Hartland,—I am writing to tell you how very pleased I am with your quilled herbaceous Sunflower. I have grown nearly all the varieties of Sunflowers for many years, but of all the double flowers I consider this the very best.—Yours truly,

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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 1, 1890.

TEA ROSES AND THE CONFERENCE.

THAT we are to learn a good deal from the Conference papers—more than was perhaps learned at the Conference itself—is, I think, very clear, although some of the lessons which we learn are of a somewhat peculiar character; but I think the first and chief lesson is the very great amount of labour which our excellent Secretary has devoted to "licking into shape" the numerous reports he had to tabulate. When one considers Mr. Wilks' multifarious duties (none of which are neglected), one can but instance him as another proof of the saying that it is the busiest men who find most time.

Passing to the Roses themselves, one is at once struck with the marvellous strides that the Tea Rose has made in the estimation of the Rose-loving public during the last quarter of a century; we have seen the votes given by seventy-five persons who consider themselves more or less qualified, I presume, from personal experience to give their verdict on the best varieties grown. I am afraid I shall have to show that a goodly number must be classed amongst the *less*, but it only confirms what those of us who look back and compare notes often state; but there is one thing which very clearly shows this. I have before me (through the kindness of my friend, Mr. W. J. Jefferies, of Cirencester), a slip from the *Gardeners' Chronicle* of June 28, 1862, which contains the list of prizes awarded at the Royal Horticultural Society's Great Rose Show, which had succeeded to the First Great National Show, and in that list I find but one class for Teas and Noisettes, and so meagre was the exhibit that no first prize was awarded; and there appears to have been only two exhibitors, and curiously enough these hailed from that home of the Tea Rose—East Anglia; one of them, Mr. Hedge has long since passed away, but the other, Mr. Ben Cant, is still with us. I wonder what he would say to his box now if it could be presented to him as it was in those days. Now take the last show of the National Rose Society, in

which there is a separate division for them, and in that division there are ten classes, and all these classes were well filled, but many exhibitors drew blanks; and there is no doubt that a change for the better is in progress, that the very beautiful varieties known to us now which were unknown in those days (for it was the year before Maréchal Niel made its appearance) have induced a large number of Rose lovers to cultivate what used to be considered, with all its beauty, a class only suited for very warm soils and situations. By-the-bye, it is a curious fact, which I daresay very many of our exhibitors have forgotten, that in those days in class 1 for nurserymen, instead of seventy-two distinct single blooms, there were ninety-six, three trusses of each!

I have said that a good many of these lists sent on to the Conference must have come from persons who had but little knowledge of the class. Thus I find that some persons gave their votes for Grace Darling as being amongst the best varieties. It may be said, perhaps, that there has always been a doubt as to the position of this Rose, but there were those who gave their votes for Cheshunt Hybrid and Lady Mary Fitzwilliam, which have been unmistakably proved to be hybrid Teas, and no more entitled to belong to this class that Captain Christy or Her Majesty; while one voter has actually included in the best twelve Teas, Souvenir de la Malmaison, a true Bourbon. I do not wish to know who this intelligent voter is—he is admittedly a "free and independent elector." Primrose Dame and Vicomtesse Folkestone are also included with hybrid Teas, although classed by some voters amongst Teas.

Equally remarkable, too, is the fact that amongst exhibition Teas some voters have recorded their approval to such kinds as Madame Falcot and Homer as amongst the best twelve exhibition Teas. I wonder whether these gentlemen ever saw a bloom of the former on an exhibition stand? I never did; perhaps it may have appeared at a provincial exhibition, when in August and September many funny things do duty as Roses — it opens its eye almost immediately it is brought into the house, and would probably wink and smile benignly on the deluded individual who had tended to its budding charms. So again, Homer is pretty enough as a decorative Rose for a garden, especially when it can be had with its pretty pink tinge on the edges of the petals, but utterly unsuited for an exhibition stand, both from its roughness, and small size. I am surprised, too, that six voters should have recorded their votes for Gloire de Dijon. I think sentiment must have got the better of judgment in this case. It is such a universal favourite as a garden Rose, so hardy, so accommodating to all climates and situations, that I daresay its admirers did not like to exclude it, yet it is a very broken reed to lean upon. You may cut a beautifully looking cupped bloom, but by the time it is placed on the exhibition-table it has opened into a confused looking and damaging flower, and no experienced exhibitor will venture to put that flower among such flowers as Souvenir d'Elise, Comtesse de Nadaillac, Innocente Pirola, or others "of that ilk."

I am not quite so surprised at the wonderful difference of opinion as to the hardiness or otherwise of different varieties, although it is somewhat perplexing to find some electors placing Madame Cusin amongst the hardiest, and some amongst the most delicate, but there are many idiosyncracies amongst them as amongst amateurs; for instance, I have Comtesse de Nadaillac making shoots 3 or 4 feet long, while a friend told me of some plants whose wood was as thick as one's forefinger, and that he was going to bud from this; and I feel sure that in like manner, there are plants of many varieties which differ from the normal growth, and that where this is the case, a strain may be got up and distributed for the benefit of Rose growers generally.

After all, this is not one of those cases in which the multitude of councillors imply wisdom, for even amongst the first twelve which head the list, there may be exception taken; for instance, beautiful as Madame Van Houtte is, I should never think of placing it as an exhibition flower above Anna Olivier, and yet it appears to have double the number of votes. There is evidence that a good many of these lists have been given by persons who never exhibited a Tea Rose; and as far as a guide for exhibitors or amateurs commencing to grow Teas is concerned, more reliable information would have been obtained from a dozen of the best exhibitors.

Wild Rose.

New or Noteworthy Plants.

CALANTHE VEITCHII ALBA×.

A beautiful pure white Calanthe was sent to Kew the other day, by Sir Charles Strickland, Bart., of Hildenley, Malton, Yorkshire, with the information that it was raised from Calanthe vestita and C. rosea; thus, it comes from the same two parents as produceed C. Veitchii×, and therefore may bear the above name. It is a form of spotless purity, for there is not the slightest trace of colour anywhere, and is therefore a great acquisition. The one other difference from the typical form is, that the lip is a little more distinctly four-lobed; in fact, it partakes more of the character of C. vestita, while typical C. Veitchii× takes more after the other parent, C. rosea. The total absence of colour is interesting, for I do not remember to have seen a form of C. vestita without either a red or a yellow spot at the base of the lip, though the closely allied C. Turneri nivalis is entirely destitute of colour.

Phalænopsis Cynthia×, *nat. hyb.*

There are three supposed natural hybrids between P. Schilleriana and P. Aphrodite (amabilis of gardens), viz., P. leucorrhoda, P. casta, and P. Sanderiana, but the present one seems to be quite distinct from either of them, though obviously derived from the same parentage. It appeared as an imported plant in the collection of F. Wigan, Esq., Clare Lawn, East Sheen, and, as it seemed distinct, was brought to Kew for determination, and a flower left for preservation in the Herbarium. It is an exceedingly beautiful thing, with much of the general appearance of P. leucorrhoda, though instead of the long tendrils of Aphrodite it has the short ones of Schilleriana, but a little more slender towards the apex. The side-lobes of the lip, however, are large, and far more like those of the other parent, while the unbranched raceme also comes from P. Aphrodite. The vegetative organs, that is, the roots and leaves, are almost if not quite indistinguishable from those of P. Schilleriana, so there can be no doubt we have here another natural hybrid between the two species. The sepals and petals are rosy-blush at the base, gradually shading off to nearly white at the margins; the inner halves of the lateral pair having numerous small rose-purple dots below the middle. The front lobe of the lip is blush-white, suffused with yellow near the base, where also are numerous spots and lines of light purple; these become fewer and paler in the upper half. The side-lobes have a similar ground colour, with a few large crimson-purple spots near the base, and a few smaller and paler ones in front. Column and crest as in P. Schilleriana. I have not before seen this elegant thing.

Lycaste lasioglossa, *Rchb. f.*

This very interesting Lycaste seems to be rather rare in collections, perhaps on account of the want of brilliancy of colouring in its flowers, though the defect is somewhat atoned for by their size and lasting qualities. It has the general appearance of L. plana and L. Schilleriana—of the latter especially, on account of the long sepals and rather short petals. The lip, however, is very peculiar, having the front lobe totally covered with long villose hairs, which readily distinguishes it from the species just named. The sepals are olive-green outside, becoming browner towards the margin, light purple-brown inside, with a close arachnoid pubescence near base. The petals and lip are pale yellow, the latter as well as the column having a few pale red-purple markings near the base. It was introduced from Guatemala by Messrs. James Veitch & Sons, of Chelsea, and was described in these columns in 1872, p. 215, and a figure was given in the *Botanical Magazine*, t. 6251. A specimen came from M. Godefroy Lebeuf, of Argenteuil, France, the other day, for determination, but whether it was derived from a fresh importation or otherwise I am unable to say. *R. A. Rolfe, Herbarium, Kew.*

VANDAS.

On looking through Messrs. B. S. Williams & Son's nursery recently, I remarked the fine condition of the extensive collection of large plants of Vanda. These plants are furnished with healthy leaves from top to bottom, and are from 5 to 6 feet high. The nursery is, and has been long famous for these plants; and grown, as they are, within the area of London fogs, their condition is admirable. Londoners have been hoping against hope that the deleterious effects of fog may be lessened, but it is a fact that matters have gone from bad to worse, even within the last decade; and a leading grower of winter-flowering Heaths and other things for the market told me, that plants which did well in his nursery ten years ago cannot now be grown so as to give satisfaction. It may therefore be satisfactory to orchidophiles to know that their favourites may still be grown to a high state of perfection while many other plants are worsted.

The system of culture pursued in the Holloway Nurseries has not been altered for many years, the result hitherto being so satisfactory. The house where the Vandas are grown is span-roofed, and of a height suitable for such tall plants. Vandas require but little shade—only enough to prevent scorching in hot weather—and the plants almost touch the roof. Mr. Williams says, the less shade they have the better they will flower—and they do flower well here, most of them twice in the year. The house is heated by three rows of 4-inch pipes, which pass round the house, and there are four zinc evaporating troughs, fitted on to the pipes, for use in the summer. The winter temperature is kept at about a minimum of 60°, and raised to 65° by day. Other important details of their management consist in giving air when the temperature rises to 65°, and damping the paths, walls, &c., morning and evening if the air be dry, the application of moisture depending upon the weather to a large extent; little is required at the present time, and none at all while the atmosphere is laden with fog or saturated with moisture. In summer, abundant supplies of moisture are found necessary, and it does the plants most good if it be evaporated from the stage on which the plants stand. The plants are rarely syringed over, and care is taken not to sprinkle water on the hot-water pipes when these are hot. The potting material employed for Vandas is sphagnum moss, and the pots used are new or very clean ones. The smaller growing species are commonly grown in hanging baskets of teak wood.

White scale, which infests the plants, is destroyed with soap-suds and a sponge. Fumigation with tobacco smoke is injurious, and causes the lower leaves of Vandas to fall off. The plan of steaming a house with tobacco juice now practised at these nurseries does not produce any such disastrous result, and effectually disposes of aphis and other insects. I was fortunate in seeing a thanatophore in action. The operation is easily performed and the insects are effectually destroyed without injury being done to Odontoglossums or Miltonias of the vexillaria or Roezlii types.

There were some handsome spikes of bloom to be seen, notably a long one of Vanda suavis. Three forms of V. tricolor were in flower, one supposed to be the typical species, with sepals of pale yellow, spotted brownish-red, and the lip tinted with rose; V. tricolor insignis, not the true V. insignis, but a good form of V. tri-

color; the sepals and petals more brightly spotted, and the lip pale rosy-lilac; V. tricolor formosa, more richly coloured, and densely spotted than the type; V. t. var. Patersoni is a beautiful form, which flowers whilst still quite small—the flowers, 2 inches in diameter, have cream-white sepals and petals of great breadth, densely spotted with cinnamon-brown, and the lip is bright magenta (see fig. 21, p. 135); V. Denisoniana unicolor had the outer surface of the sepals and petals of a brown colour.

All the year round spikes of Vandas in great variety of form and colour may be seen. The old V. Roxburghii was there—a beautiful species, and the first to flower in England. V. teres, a very free-growing plant of great beauty, likes more warmth than others; indeed, at Great Gearies we almost roast it and the Dendrobiums in summer time, and nearly dry it up in the winter, with the result that it never fails to flower freely. The true V. insignis from the Moluccas is distinct from V. tricolor, and the flowers which are generally produced on short spikes are from 2 to 2½ inches in diameter, the sepals and petals yellowish-brown in colour, thickly blotched and spotted reddish brown, with a broad rosy-tinted lip.

There are several more species of Vandas that cannot be omitted from any collection of Orchids worthy of the name; notably, the distinct and handsome V. cærulea. At one time it was an expensive plant, but, thanks to the enterprise of importers, the day of high prices is gone not to return. It is free to flower, and its long spikes of large and delicate blue blossoms command the admiration of everyone in October and November. A word of caution may be useful here; that is, never to purchase plants which are in an unhealthy state; and again, when once the right place in the house has been found for them, do not move them about. They like a light, airy position, and in the resting period to be kept cool at night. In their native habitat, the temperature falls to the freezing point, and the plants are exposed on the boughs of trees. They do better in cylinders of teak wood than in pots. The pretty V. cærulescens and its variety Boxallii, more recently introduced, are always admired when in flower.

In strange contrast to this pretty little thing, there is the noble V. Sanderiana, a native of one of the Philippine Islands, and requiring therefore a high temperature. The flowers, quite 4 inches in diameter, are freely produced. Like V. cærulea it grows on the tops of trees, where it gets but little shade; I saw it quite recently growing and flowering freely in the Rev. F. D. Horner's garden at Lowfields, in an intermediate temperature, where Cattleya citrina was likewise growing well; it was quite near the roof in a house that was well ventilated. It may be found to succeed admirably with the usual collection of Vandas, which require only a moderate amount of heat There is also the grand V. suavis, which is a valuable exhibition plant and blooms at various periods (see figs 20, 22). The still more recent V. Amesiana and V. Kimballiana are important additions, which while being distinct and beautiful are not expensive. *J. Douglas.*



Fig. 20.—Vanda suavis: to show habit. (See p. 132.)

NOTES FROM MUNSTEAD.

Midwinter is not the best time in which to visit a garden of herbaceous and alpine plants, but when compared with those which are devoted chiefly to bedding-out, and where the winter or spring fashion of filling the beds does not obtain, then the former is not only more interesting and effective, but has also the advantage of always having something in flower which may be cut for the flower-glasses; and, moreover, in a mild winter like the present, such a garden is capable of yielding a quantity of beautiful and useful flowers. Amongst the foremost at Munstead, Godalming, at present, and for some time past, is Helleborus niger, of which there is a large colony of the best selected early and late types, all flowering abundantly; and Mr. Gerrard tells me that he often cuts at one time hundreds of spotless snow white flowers, and one can easily imagine what a charming sight these must be when culled in all their pristine beauty. It need scarcely be remarked that they have a congenial home, and are well cared for; and the situation chosen is one adapted to their requirements.

It is a somewhat circular little dell, near to the edge of a wood, sheltered and shaded by old and rather stunted Scotch Firs with comparatively few branches, except near their tops. It must not, however, be thought that the Hellebores are densely shaded, for the sunny side of the dell is fairly open, admitting plenty of light, yet the raised side of the dell shields the plants from the direct rays of the sun, but on the opposite side the sun evidently will strike with full force. And here another hint may be gleaned by those who wish to know what to plant on a dry and relatively sterile bank. Such a bank is here planted with Helleborus fœtidus, which grows and flowers splendidly, its dark green leaves contrasting finely with the long panicles of light green flowers.

As grown here it is certainly a striking and ornamental plant. Another similarly striking plant is the old H. lividus, with its erect stems and tuft of trifid glabrous leaves, with oblong pointed, sharp-toothed segments. There are also large established masses of the best varieties and species of Aquilegias, and other moisture-loving plants which in due season maintain the show in this flowery dell. Passing thence to a secluded woodland grove, we see immense quantities of hybrid Primroses, which are now giving promise of a great floral display; and even already many of the Harbinger type give colour to the scene. There is also found a mass of the Giant Snowdrop, then a colony of the bright yellow Winter Aconite, the purple Helleborus colchicus or the white H. orientalis; and large spaces are carpeted with such plants as Thymus serpyllum var. lanuginosa or Dryas octapetala; and suddenly peeping out from beneath a few Spruce branches, as if quietly gone to bed for the winter a large mass of that curious member of the Cactus family—Opuntia Rafinesquii, with its curious thick fleshy leaf-like branches, is espied. A plant which is much appreciated here is Leonotis Leonurus, with its whorls of scarlet, Salvia-like flowers. It requires, however, the protection of a cool house.

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and here this kind of protection is afforded by a cool conservatory. The plants are large ones, and are grown outside in summer, and housed on the approach of frost. The conservatory is a structure of no great size, artistically arranged with an easy winding path down the centre, which touches a bit of rockwork, or skirts a miniature bit of water, over and around which Ferns ramble at will. Although the house was filled to overflowing, yet it contained few of the things which may be called florist flowers proper, but instead, we find such plants as the sweet-scented Daphne indica, laden with hundreds of its corymbose flower-heads, Heliotropes, Salvias, Veronicas, some interesting species of Calceolaria, &c. The walls and rafters are furnished with Akebia quinata, Stauntonia species, Lardizabala biternata, and Physianthus pungens, together with many quaint species of Asparagus and Ruscus. In a house such as this there is always something to attract and to interest—indeed, Miss Jekyll's garden, with its great wealth of plants varying in character as the seasons change, has always something fresh and interesting to be seen, visit it whenever you may. *F. R.*

NURSERY NOTES.

MR. BULL'S ORCHIDS.

In a recent visit paid to Mr. W. Bull's New Plant Nursery, King's Road, Chelsea, we were fortunate to find in his many houses numerous good things coming into bloom, not enough of them certainly to furnish his now well-known show-house, but still sufficient to make a visit at this season, of interest. The first house visited contained a collection of Odontoglossum Alexandræ, many fine varieties throwing their arching racemes of white flowers over the side-benches. Of spikes that will continue to open for several months yet, hundreds were noticed, and many were still hidden within the growths. The two natural hybrids, Odontoglossum aspersum Humeanum, and O. aspersum were observed, the first-named being much the better flower. In the same house grew Zygopetalum crinitum rubrovenosum, with red veins on the lip, and numerous brown spots on other parts, that contrast well with the general blue colour of the lip. A dark red Lycaste Skinneri, named rubella, was noted, but the varieties of this Orchid are almost without end; and in a much warmer house some excellent forms of L. S. alba, a pure white and large flower, and an equally large but creamy-white flower, with some yellow in the throat, were noted, the latter having the name L. S. a. lutescens; for purity of colour, the first-named is by far the most effective. To return to the Odontoglossum-house, the curious Pleurothallis scapha was just expanding its tailed Masdevallia-like blooms; and Odontoglossum maculatum erosum and O. maculatum were showing blooms.

In this house were Oncidium chrysomorphum, a spike densely filled with small yellow flowers that would be an effective object when of a large size; the beautiful Odontoglossum cirrosum Hrubyanum, and Ada aurantiacum.

Masdevallias at this nursery are very well grown, the stock being in leaf dark green, sturdy, and very clean. The night temperature maintained at this season does not exceed 40°, and that for the day 50° to 60°. There were but few in bloom, and M. militaris, with the rich crimson veins on a lighter ground, was the most striking of these.

Oncidium macranthum, always a remarkable feature here, promises to make a finer display than usual. These plants occupied a house with Odontoglossum Rossi majus, many of which bore flowers; O. blandum, O. Pescatorei, O. Leopardinum, a few Colax jugosus, Lælia anceps Sanderiana, L. a. grandiflora, and L. a. Eyermanniana, a pale form, with light purple tips to the petals and sepals. Other forms of this favourite winter flowering Orchid were noticed in L. autumnalis, L. anceps rubra, and L. albida Marianne.

Many Cypripediums in flower, including Dautheri, callosum, regale, gemmiferum, were found in a house kept some degrees warmer than any other previously entered. In this house was a nice strong specimen of the rare Oncidium splendidum, carrying some few blooms—a showy and effective plant when well furnished with its curious barred flowers, which have a peculiarly large, yellow lip. The free flowering, fragrant Saccolabium giganteum, with sepals and petals of white, Amethyst spotted, and cuniform lip of mauve was noted to be in bloom; it is an invaluable plant for winter, and lasts about six weeks in good condition. Another fragrant plant met with in bloom was Pilumna nobilis; it is of a pure white, and carried many flowers. One of the prettiest, Sophronitis violacea, was in bloom; also the bright-coloured S. militaris, the most brilliant of them all, had a few blooms left, but the display was virtually at an end.

The large half-span house given up to Lælia purpurata, Vandas of most species, Cattleyas mostly Trianæs, Percivallianum, &c., was, as usual, crammed with big specimens, whose every growth contained a flower-sheath, and gave promise of a fine display in due season. Every plant looked healthy, and was certainly remarkably free from insects or blemishes. A few Cattleyas had opened a bloom here and there—C. Trianæ alba, very pure in colour, and still rare; C. T. delicata, C. Percivalliana marginata, a rich-coloured flower. A specimen of the grand Ansellia africana was throwing a few of its clusters of rich brown and yellow flowers from the apex of the tall stems. It is a very abundant and enduring bloomer.

In the houses which lay behind the great show-house we found some Phaius Blumei, with many spikes of its yellow and light brown flowers; also of the much longer known P. grandifolius, some hybrids of Cypripedium insigne, C. Warneri, and C. Spicerianum. The fine Veitchiana hybrid, C. Arthurianum (two plants) was in flower. It is a pretty study in light browns, colours that are obtained from the parents, C. vexillarium and C. insigne Maulei. The new Vanda Amesiana and many of Phalænopsis Schilleriana were in bloom, but the fog had immolated the blooms of the Phalænopsis most pitiably.

The sweet-scented Dendrobium heterocarpum perfumed the air in one house visited with the odour of Violets. Many Cœlogyne cristata, and including amongst them numbers of the Chatsworth variety, were seen in a house with Vanda suavis, V. tricolor, and other Vandas. The interesting Orchid, Catasetum Darwinianum was nicely in flower. The Cymbidiums, growing as freely as grass, were the last of the Orchids observed. Of course, we saw nothing in bloom, and were left to admire the extreme healthiness of the stock of C. Lowianum, C. eburneum, C. Hookerianum, C. Mastersii, and many more. The temperature of the house seemed to us to be rather low, and in answer to our inquiry, Mr. Bull replied that the temperature at night at this season was maintained at about 45°, rising to 50°, and to 55° with sunheat. A graceful Palm of light appearance, and well suited, amongst other uses, for indoor and table decoration, was observed in Phœnix hybrida, a Palm raised, we were told, in India. Mr. Bull seemed to have a good stock of it.

THE TERRACE GARDENS, RICHMOND, SURREY.

(See Supplementary Sheet.)

Few English-speaking persons are ignorant of the beauties of Richmond and its neighbourhood a fact acknowledged centuries ago, when royalty built its abodes on the outskirts of the little town in what was, in Henry VIII.'s time, a very extensive park, and at Sheen and Petersham. The Dukes of Buccleuch possessed landed and other property at Richmond, and the beautiful wooded slope which stretches down from the crest of Richmond Hill to the river formed part of it. It is separated from the river by the lower or Petersham Road, and a narrow strip of land beyond. The estate was some three years ago in the market, and great fears were expressed lest the builder, ever on the look-out for "eligible sites," would lay his hands on it, cut down much of the timber, and build villas, or what not. But through the exertions of Sir Whittaker J. Ellis, a citizen of London, resident at Richmond, the town became the possessor of a portion of the property.

The ground was planted originally with great good taste, and it is now, in June and July, before the summer suns have browned the lawns, a most enjoyable place.

The trees are getting much crowded—spoiling each other, in fact; and the judicious use of the axe is much needed. Fresh soil and manures around trees and in the shrubberies, and the liberal use of the water hose in the summer are things much needed.

The views from the crest and upper parts of the hill over the country and river in front, are acknowledged by all who have seen them to be very charming. Our supplement illustration is reproduced from a photograph by Messrs. Byrne, of Richmond.

RAILWAY CHARGES FOR SMALL PARCELS.

My attention has been directed to the letter from Mr. Farrance in a recent issue, p. 86. The comparison made by him is as between "actual rates," *i.e.*, rates now charged, and "maximum rates" now proposed for smalls. The comparison made in your article referred to by him, is as between "maximum rates" originally proposed by the London and North-Western Rail. Co., and "maximum rates" now proposed by that company. In the case of the Great Eastern Rail. Co., the original proposal was to charge for smalls "such reasonable sum as the company may think fit." This was the same in the case of each railway company, except the London and North-Western Railway Company and the Great Western Rail. Co. The former company proposed to charge, as stated by you, "double rates and charges in class 5." This would give for conveyance, 10*d.* per ton per mile for first 20 miles, 9*d.* for next 20, 8*d.* for next 20, and 7*d.* for remainder; and for terminals-station, 4*s.* per ton, and service, 7*s.* per ton; total terminals, 11*s.* per ton. The latter company proposed "such reasonable sum as the company may think fit, not exceeding rates and charges in class 5." It will thus be seen that as between the original and present proposals a very considerable reduction has been made, especially as the present proposal includes all terminal charges. The Board of Trade will doubtless compel all the railway companies to adopt the present proposed maxima for smalls instead of leaving each company to decide as to what is fair and reasonable, thus giving the trader no voice in the matter. When, however, a comparison is made between the actual rates now paid by Mr. Farrance and the present proposed maxima, I quite agree that he will be at a great disadvantage, that is if the company choose to avail themselves of their full powers to charge their maxima. This is what the trade has hitherto failed to realise, and what my Association is endeavouring to obviate. Undoubtedly a vast increase in rates will be the result of the enquiry unless steps be taken to prevent it. When the labours of the enquiry are ended, and the railway companies commence to wield their newly-acquired powers (their protestations to the contrary notwithstanding), I imagine that the ranks of your correspondents having the same experience as Mr. Farrance, will be considerably enlarged. Their consolation of vainly beating the air will be very poor. I am grateful to Mr. Farrance for thus giving me the opportunity of emphasizing that which was universally expressed at the recent meeting.

Whilst on the subject of maximum rates, will you allow me the space to quote from the cross-examination of Mr. Findlay, general manager of the London and North-Western Railway Company, what his reasons were for fixing the maxima so high after the representations which were continually made to the effect that no company would ever enforce them?

Q. You told me the rates would be exactly the same, whether there was a maximum or not?

A. What I intended to convey, and I hope I made it clear, is this: that the rates under which the commerce and trade of the country are carried are fixed with regard to what the traffic will bear, having regard to the circumstances you mentioned, but in no case, having regard to the Parliamentary rates of the companies, must they exceed the maxima.

Q. But without consideration of the powers of the company, you make these maximum charges?

A. I should not object to that proposition.

Q. If maxima are fixed at an amount that no railway company would ever charge, that cannot be just or reasonable?

A. That must be in the discretion of the Court.

Q. We have to influence the discretion of the Court by facts, and we have to get facts to lay before the Court?

A. I adopt that suggestion.

Q. Therefore the maxima must be fixed at a position that will practically protect the traders?



FIG. 21.—VANDA TRICOLOR, VAR. PATERSONI. (SEE P. 133.)



FIG. 22.—VANDA SUAVIS, WINGATE'S VARIETY. (SEE P. 133.)

A. We have no limit, except our own discretion, so long as we do not exceed the maxima.

Q. If there is to be a maximum at all, it ought to be one fixed in a way that will be a protection to the trader?

A. Yes. Parliament has so decided, and I think it is a fair proposition.

Q. If maxima are fixed at an amount that no railway company would ever think of charging, they are no protection to the traders of the country?

A. Yes.

Q. Looking at your (actual) rates all round, I take it they are reasonable rates, and just to the railway company, enabling the railway company to pay a very good dividend?

A. We do manage to pay a dividend, but not very good.

Being further pressed, he admitted that the London and North-Western Railway stock was then quoted at 182. You will thus see that the actual rates are sufficient for all purposes, and notwithstanding this, the original proposal of this company was to charge rates enormously in excess of such actual rates. *F. C. Goodchild, Secretary, Nursery and Seed Trade Association, Limited.*

ORCHID NOTES AND GLEANINGS.

L.ELIA CRAWSHAYANA AND L. GOULDIANA.

I HAVE read Mr. Crawshay's note at p. 78 with much interest, because he has the original L. Crawshayana in his possession, and therefore is in a position to compare the two plants. He was also kind enough to write me that his plant would be exhibited at the Drill Hall on January 14, where I might see it, and satisfy myself what the true plant really was. Unfortunately I was unable to be present at the meeting in question, but no doubt Mr. Crawshay will be able to spare a raceme just before the flowers wither, so that it may be preserved in the Kew Herbarium for future reference. This would prevent much confusion in future, and it is certain that spurious plants of both, exist in collections under these names. The danger is that when a flower is received under a given name, that not being already in the Herbarium, one may assume it to be correct, when all the time it may be erroneous. What came here as L. Crawshayana originally, is distinct from anything else that we have, but it agrees with Reichenbach's L. C. leucoptera, and I am quite satisfied it is a natural hybrid between L. albida and L. autumnalis. But that author believed the true L. Crawshayana to be a hybrid between L. anceps and L. autumnalis (not albida, because the flowers were larger). Now Messrs. F. Sander & Co. send L. Crawshayana, and Mr. J. Godseff kindly informs me that it is almost identical with the plant Mr. Crawshay exhibited. But this plant, which I had not seen before, seems to me a hybrid between L. albida and L. anceps, in which opinion I am not alone. If this is right, I believe I am justified in calling the first-named L. leucoptera, and all who think that hybrids with different parentages should not be included under the same name, will surely agree. It does not seem likely, as Mr. Crawshay suggests, that L. Crawshayana and L. albida Stobartiana "dropped from the same fruit," for either both would be natural hybrids or else forms of L. albida; and the latter certainly is, but surely not the former. Nor can I agree that the origin of these forms is a matter of little interest. A new plant may be a new species, a new variety merely, or a natural hybrid. If the latter, it is surely interesting to know its parentage. It seems pretty clear that L. albida, L. anceps, and L. autumnalis, are three quite distinct species, that they have been found growing together, and that they may occasionally hybridise together. From the latest evidence, I think L. Crawshayana comes from L. albida × anceps, and L. leucoptera from L. albida × autumnalis. Now the question is, does L. Gouldiana come from the one other possible combination—L. autumnalis × anceps, or is it only a variety of the former? More specimens have come to hand during the last few days, and it appears to exist in large numbers, which is against its hybrid origin, though I formerly tried to follow Reichenbach in considering it a possible hybrid. Perhaps after all, L. autumnalis is more variable than is commonly supposed; and if a large series of specimens were examined, would be found to include L. furfuracea and L. Gouldiana. *R. A. Rolfe, Herbarium, Kew.*

CYPRIPEDIUM VILLOSUM.

Richard Blake, Esq., of Winterbourne, Dauntsey, Salisbury, has been for many years an enthusiastic and successful cultivator of Orchids and other choice tropical plants, and the courteous and hospitable receptions extended to visitors wishing to see Mr. Blake's Orchid-houses, &c., are well known and appreciated by a large circle of amateur and profes-

sional gardeners who call on him, and whence they return in possession of some valuable hint regarding the successful culture of some particular species. Among the plants in flower in Mr. Blake's collection at the present time, the most notable is a fine healthy plant of Cypripedium villosum, which carries fifty of its orange-red and purplish-green flowers, of fine size and substance, and all are open together. It was shifted out of a 12-inch into a 15-inch pot four years ago, and is potted in peat and sphagnum. Late in the autumn the plant was put into the Cattleya-house, where it remained till the end of the year, when it threw up its flowers, and was soon afterwards taken to the cool-house, in which it is at present. The plant is about 3 feet in diameter. *H. W. W.*

DENDROBIUM SCHNEIDERIANUM×.

This beautiful hybrid, between D. Findlayanum and D. aureum, raised in the collection of Oscar Schneider, Esq., Rusholme, Manchester, but distributed by Messrs. J. Veitch & Sons, is now again in flower in the Royal Exotic Nurseries, King's Road, Chelsea. It is a free grower and profuse bloomer; the flowers in size and form resembling those of a good D. Ainsworthii; the sepals and petals of pure white, and with a clear pink tinge on the outer halves; the lip is white, tipped with pink, and has rich orange marking at the base, which is also adorned with dark chocolate-coloured blotches. From the florists' point of view, it is a fine advance in Dendrobes. D. splendidissimum grandiflorum×, also of Messrs. Veitch's raising, is in bloom, and is a long way ahead of others of its class. *J. O'B.*

EPIDENDRUM POLYBULBON.

This neat growing species, although an early introduction, is still rare in gardens. Some well flowered plants of it are now in bloom in Messrs. J. Veitch & Sons' nurseries. The plant is only a few inches in height, and the numerous small pseudo-bulbs bear comparatively large flowers. One form seen at Chelsea, had sepals and petals of a pale green colour, and lip of snowy whiteness; whilst others had the sepals and petals more or less marked with chestnut-red. Sophronitis violacea in bloom at Messrs. Veitch's, with numerous mauve flowers, forms an excellent companion to the Epidendrum. *J. O'B.*

ANGRÆCUM SESQUIPEDALE.

A very fine plant of this beautiful Orchid is now in flower (in the collection of W. C. Pickersgill, Esq., Blendon Hall, Bexley, gr. Mr. F. Moore), carrying six magnificent flowers. *J. Carvill.*

LÆLIA MONOPHYLLA

is a distinct and pretty species, bearing upon its slender stems linear-oblong leaves, which are solitary and dark green. It forms a creeping rhizome, and grows to a height of from 6 to 10 inches. The flowers are borne upon a slender peduncle, which issues from a small sheath situated on the top of the stem, the colour of the oblong sepals and petals being vivid orange-scarlet; lip minute, yellow, column tipped with purple on the anther-cap. It blooms during the months of August, September and October, and the plants continue in full beauty for several weeks.

This little plant requires somewhat different treatment to most Lælias. It is remarkable as being the only member of the family which has yet been found off the American mainland, as its native home is on trees which grow on the mountains in Jamaica, at elevations of from 3500 to 5000 feet above the sea-level, where the mean temperature is cool. With us it succeeds well in the Odontoglossum-house, hung up near the roof-glass, in order that it may obtain the benefit of the full light; but yet it requires to be shaded from the strong sun. We also find that shallow pans or baskets are the best to grow it in; these must be well drained, and very little potting material should be used about its roots, but good fibrous peat is the best material to use. This should be elevated into a cone-like mound, and the plant set upon the top; when so placed, the roots can work inside or outside, and no water will lay about its crown. Having no bulbs, it requires a very moist atmosphere, and a moderate amount of water to its roots at all seasons. This plant is found growing somewhat low down on the stems of trees in its native mountains, and in this situation it is subject to rains all the year round, and heavy dews at night, the plants never becoming thoroughly dry. They are also shaded from the hottest sunshine, and obtain an abundance of fresh air, Nature providing for them in such a manner that their wants are all supplied; and in a state of cultivation we must endeavour to imitate as nearly as possible the conditions under which they grow in a state of Nature. The cultivator should ever keep a watchful eye upon this little gem, and if the plant does not appear to thrive in one position, or in one aspect, it should be removed to another, for frequently a change of aspect in the same house produces a wonderful effect, and leads to the achievement of success. The best time to re-basket this plant is immediately before growth commences, and in performing the operation the greatest care is necessary, in order to prevent injury to a single root. However, it will not require a fresh basket or fresh soil often, which is a great benefit, for this, like many other small-growing plants, cannot withstand disturbance at the roots.

DENDROBIUM TRANSPARENS

is a pretty and distinct, somewhat small-flowered plant, which is deciduous. It has upright stems a foot or more high, and the flowers appear in pairs or in threes for a considerable length up the well-ripened bulbs, in the same manner as those of D. nobile. The individual flowers are about an inch and a half across, and are somewhat transparent in texture, hence its specific name; in colour they are white, suffused with rosy lilac or pinkish lilac, with a deep blood-coloured blotch at the base of the lip. The blooming season is from the month of March until June, and sometimes it may be found in flower in July, the blooms continuing in full beauty for several weeks. This species is well adapted for growing in small Teak-wood baskets, or in shallow pans, so that they may be suspended near the roof-glass, fully exposed to the sun and light, shading only being necessary when the sun is very powerful, for they grow naturally upon rocks and trees, with a good exposure; and if, by judicious admission of air and on abundant supply of moisture, both to the roots and in the atmosphere, these conditions can be imitated, success will follow. The material we find to suit it best is good fibrous upland peat and sphagnum moss. As we have previously remarked, an abundant supply of moisture during the growing season is necessary, while during the resting season it may be kept dry; but the plant must not on any account be allowed to shrivel, just a sufficiency of moisture being given from time to time, to keep the slender, stem-like bulbs in a plump and fair condition. It is a plant which blooms after the resting season, and when it begins to show its flower-buds, the specimens will require a little moisture to their roots, to enable them to develop fine flowers, which also last longer in beauty if properly nourished. The East India House is the most suitable place to grow this plant, where it should be suspended near to the roof-glass, in such a position that it may be conveniently syringed on a warm day, as it delights in moisture during active growth, and moisture from the syringe helps to keep away red-spider, which sometimes will attack these plants with slender membraneous leaves. As there are a great many species which require similar treatment, they should all be grown together in one place; indeed, if a house can be devoted entirely to Dendrobiums during these growing and resting seasons, the results will be found well deserving of this isolation. "*Orchid Album*," *November*, 1889.

FRUITS UNDER GLASS.

THE PINERY.—Queen Pine-apples, if required for, say, the London season, must be selected from the possible fruiters at once, choosing the strong, stocky plants, with thick broad leaves, and open centres. These will respond to treatment in gentle warmth at top and root, a few inches of new tan or leaves being first added to the hot-beds. In a short time their fruits will soon show on stout short stems, the certain forerunner of weighty fruit. Such robust plants will be able to assimilate manurial stimulants in abundance; and for this purpose I prefer Peruvian guano of good quality given liberally, in water at a temperature of not less than 80°. A bottom-heat of 80° to 90° will be suitable, but in one of 100° will be found danger; and extremes of any kind are apt to induce black cores, shrivelling of the stem, or other infirmity.

Increase the humidity of the house, but let the air get dry at times, and be changed once, at least, daily, or big crowns will form. The night temperature should range from 65° to 70°, and by day an advance of 10° or more with sun-heat will do good, but endeavour to avoid sun and fire acting together. It is a good plan to place the pots in position on the beds, but not fill up the plunging material until it has been seen that the bottom-heat will not be excessive. Crowding the plants together is injurious. Stout, stocky suckers put into 7 or 8-inch pots during last August, and shifted into 12-inch pots four to six weeks later, if skilfully handled up to the present time, will respond to the generous treatment above stated, but a few degrees lower temperature is advisable, or the plants may become drawn. Preparations should now be in progress for the general February potting; whilst such suckers that have become fit to be detached from the old stools may be potted into 7-inch pots, to be afterwards shifted into the fruiting pots at a later date. I have a great objection to potting a plant with a matted ball, and would prefer to reduce such a plant to the condition of a sucker. Before doing any potting, see that the soil about the roots is moistened throughout by careful watering two or three days previously. I prefer a good holding kind of turfy loam, cut thin, and stacked for six months before use, and if it contain sharp grit in plenty so much the better, and if it do not, sharp sand should be added as well as a few crushed bones and soot; sifted old mortar rubble may be used in lieu of the grit. The soil should be warmed, and be in a condition intermediate between wet and dry. Pot very firmly, and withhold water till the roots have begun to work into this new soil. *W. Crump, Madresfield Court, Malvern.*

THE HARDY FRUIT GARDEN.

CURRANTS.—Both red and white varieties should be spur-pruned, if numerous small bunches are desired, but the finest fruit is produced on young bushes when these have the shoots well thinned, so as to allow light to reach the interior of the bush, removing old branches no longer very fruitful, and spurring all the best placed shoots to two eyes, but leaving a few clean, straight, well-ripened and well-placed young shoots, where space will admit of this being done without crowding, as these not only help to maintain the bushes in vigour, but they produce the finest fruit. Black Currants are not improved by being spur-pruned, and no form of growing them that I have tried succeeds so well as the bush, although standards and other methods of training bushes have been tried. These look well in a garden for variety's sake, but quality and quantity of fruit are lacking. A good variety should be grown, although it is often found that of the same variety there may be picked out two or three bushes on a quarter much superior to the others, and from those only should cuttings be taken. A light forking over of the ground between the bushes should be given, but deep digging ought to be avoided, unless the bushes stand at wide distances apart, when no harm would follow deep digging in the middle spaces.

Filberts and Cobs.—Wherever these are liked, no pains should be spared to get them as fine and large as the soil and district will admit of. The bushes should be kept hollow—that is, basin-shaped. The shoots at the circumference kept about 1½ feet apart, and all suckers should be rigorously extirpated, and this should not be left entirely till the winter, but they should be drawn up in summer as well. Do not prune any bushes before the female flowers become visible, or the work will be of a very haphazard kind. The pruning most suitable for Filberts is a slightly modified kind of Currant pruning, spurring in side-shoots, and shortening back the female (Nut-bearing) ones, by merely cutting back the unripe points, and not always doing that, remembering that a crop of Nuts is of more value than any system, however

good. Nuts form a profitable crop where the situation is warm and sheltered, and the soil good without being rich. The purple-leafed variety, so telling a plant in the shrubbery, will bear fine Nuts under ordinary good management. *A. Evans, Lythe Hill, Haslemere.*

PLANTS AND THEIR CULTURE.

The Fernery.—During the next week or so is a suitable time to work at the plants in the fernery, and other houses containing Ferns; repotting and top-dressing all that require these operations. If the materials are ready for the work, it is well to commence thus early, so as to give the plants ample time to form perfect fronds. Adiantum cuneatum, if required for cutting purposes, should be grown in large batches, of which the earliest will now have begun to grow, and these should get a shift, dividing them into several pieces if large, should additional plants be necessary. We grow our latest Adiantums for cutting very cool, and giving just enough warmth to keep them in health. A late vinery is a suitable place for them through the summer months. Davallias need nearly the same kind of treatment when grown for cutting fronds, they being divided and repotted, and their creeping rhizomes pegged down. The watering should be done with care till new roots are made.

Gymnogrammas, and Ferns of similar growth, should be repotted, care being taken not to over-pot them. The drainage should be made of clean crocks, and only peat and coarse silver-sand should be employed. Pot firmly, and place the newly-potted stuff at the warmer part of the house, taking care to keep them dry overhead. Small plants of Gymnogrammas, spore-raised and others, will soon make useful plants if grown on in a warm house. Where there is a large demand for these species of Fern, and there exists a difficulty in keeping up the supply of them, plants from spores should be looked after, and assiduously grown on. Adiantum Farleyense needs much the same treatment as the Gymnogrammas that is, placing it at the warmer part of the house, and out of the reach of the syringe. Young plants should have roomy pots, and a compost consisting of materials of a heavier nature than those advised for the other species of Ferns, and fibrous yellow loam with plenty of coarse sand may be mixed in it.

Gleichenias.—These plants should be examined and repotted, and the rhizomes pegged down. Shallow pots or pans are best, and the drainage should be plentiful. These and other Ferns which may be infested with brown scale should be cleansed before they are repotted, and have the old fronds removed. Tobacco-water made rather strong, with a little soft-soap added, should be used for plants that are badly infested, and sponging should be resorted to in these cases, as it is of the greatest importance that a start should be made early in the season with clean fronds, or the young growths will soon also be overrun.

Pteris serrulata and P. cretica are good for cutting, and although both are very subject to scale, they grow so readily, that dirty plants should not be harboured, but thrown away.

Basket Ferns may be taken in hand, and new material added if large fronds are desired. Before turning these plants out of their baskets, thoroughly soak the soil. Many free-growing Ferns will last in good condition for a longer period if loam be used in the new compost, and old mortar rubble in small quantities is of benefit if the loam be heavy, and in that case less sand is desirable. A sufficient quantity of Selaginellas, in variety, should be secured, and especially of the hardier S. denticulata and S. Martensii. Edgings of Ferneries, if made of Selaginellas, may now be replanted, taking care that the soil employed for them is loamy and rich. Tree Ferns, if found to be too dry at the roots, must be thoroughly saturated, and then any repotting that is required may be done, the house being kept rather closer afterwards, and the watering carefully performed. *G. Wythes, Syon House, Brentford.*

THE KITCHEN GARDEN.

The Treatment of Cabbages.—Where a deficiency is likely to occur in Cabbages planted in the autumn, a sowing of seed should at once be made in pans or boxes in a mild warmth, and the seedlings duly hardened off, and planted out when the weather is suitable. Sow the seed thinly in sandy loamy soil, not made rich, but pressed moderately firm; cover the seeds either very slightly or not at all. The pans may be stood in a vinery or Peach-house newly started, until the plants appear above the soil and have a pair of true leaves, when transference to another pit or house where there is plenty of air is advisable. If left in a moist heat or far from the glass anywhere, the plants damp off or become drawn. Watering at all times during the early stages should be done cautiously. Ellam's Early Enfield and Stuart & Mein's No. 1, are very trustworthy varieties that succeed each other in coming into use. A pinch of seed of the red variety may also be sown if there are no autumn-sown plants, otherwise the Cabbage will not form a good heart. Make good all gaps in beds that were autumn planted, making the soil firm about the plants, and keep slugs in check by constantly dusting the soil about the plants with soot and lime, or wood ashes in a dry state; and even the troublesome method of handpicking has sometimes to be resorted to.

Cauliflowers.—Make a sowing of these, for coming into use in June and July. Early Erfurt, Dean's Snowball, Early London and Walcheren, I find to be excellent varieties for summer; these varieties form a good succession. Sow thinly in pans of light sandy soil, place them like the Cabbage in a warm place and near the light, and when large enough to handle, prick them off into cutting-boxes or pans, or what is much better, a frame with a mild bottom-heat. The Erfurt type may be pricked off into small pots, putting three into each pot, and being more dwarf than any other they may with advantage be closely planted in the open when the time arrives to do so. Keep the plants always growing, great care being necessary to prevent any check, or buttoning will ensue.

Lettuces.—If Lettuces are required at an early date, a sowing of some approved variety may be made in gentle heat and in pans, pricking out the seedlings in frames, and transplanting them on to a sunny border in April. Another way is to sow the seeds at once in a frame placed in a sheltered corner facing the south, keeping the frame close until germination has taken place, when air must be given, moderately at first, and afterwards abundantly. Cover the seed but slightly, and press the soil to a moderate degree of firmness.

Mushroom Beds.—Those beds in bearing should be carefully examined, and if dry be then moistened with tepid water, and the temperature of the structure kept at about 55°. Mushroom ridges should also be examined, and if the covering is decaying, fresh, sweet litter must be put in its place. Put on more covering if the plunging thermometer indicates a fall below 80°. If the horse-droppings for mushroom beds are collected daily, spread them thinly on the ground in an open shed till enough has been got together to make a bed, when, if the rank steam and heat have been thrown off, a long heap may be made, and when fermentation recommences, it should be turned over once and again some few days afterwards. In making up the materials, if in the mushroom house proper, the beds may be 15-inch thick at the back and 12 inches at the front, beating the materials very firmly as they are placed in position. Beds in sheds not properly heated should be not less than 2 feet thick at the back and 1 foot 8 inches at the front, if made with one slope. If made as a ridge, a 3 feet base and 2½ feet in height will do. A bed when it has a temperature of 80°, is fit for spawning, and after the spawn is inserted in egg-sized pieces, just under the surface and one foot apart, a couple of inches of sifted loam, moderately heavy, should be laid on the bed and beaten smoothly. Cover the beds with dry litter. *H. Markham, Mereworth Castle, Maidstone.*

THE ORCHID HOUSES.

East Indian House.—Any forward plants of Cattleya Warneri which may be standing in the Cattleya-house, which is too cold and dry for the plants to make vigorous growth, may be brought into the East Indian-house. The same shifting of the positions will apply to any plants of Cattleya Sanderiana or C. gigas and its varieties, but very little water may be afforded the latter species until the plants begin to show their flower-sheaths, or the plants may make large growths only, the plants being then almost sure to break away at once, and premature growth ensue. Temperature, 65° by night, 70° to 75° by day.

The Cattleya-house.—Several species of the plants in this house may now be taken in hand as opportunity offers, such are Lælia Perrinii, L. elegans Turnerii, and L. alba. If the plants are turned out of their pots, great care must be used in watering afterwards, and it would be much better if no water whatever be given them, unless the pseudo-bulbs show some signs of being too dry, as shrivelling, &c., until it is seen that the roots are becoming active. The potting materials should always be used in a rather moist state, as this obviates in a great measure the need to afford water.

Cymbidium giganteum Mastersii, and any of its varieties that may require it, should now be repotted, the time having approached when growth recommences. They do well in a compost of one half turfy loam and peat, and a few lumps of sphagnum moss, the latter being placed at the top, thus adding to the appearance of the work, and affording a sure test when the plants require watering. Cypripedium Sedeni and its varieties, which are now gone out of flower, should be attended to soon; and in repotting these it should be remembered that they are very fast growers, and will take larger shifts than many other Orchids. Cattleya dolosa and C. Walkeriana are very useful winter-flowering plants, which may be had in flower at Christmas time, and will remain fresh until this date; but care must be taken not to give them too much water at the root if they remain in this house. Those species of Cattleya which suffer most when kept too dry are C. bicolor, C. velutina, C. guttata, C. Loddigesii, C. Harrisonii, and C. amethystoglossa, which shrivel quickly if left without water for a week or two together. Give air freely during mild weather; but when cold biting winds blow, the top ventilators should be kept closed, the bottom ones over the hot-water pipes being the only ones used. Temperature, 60° by night, 65° by day, with a rise of 5° with sun-heat.

Vandas.—Vanda tricolor, V. suavis, V. insigne, and V. Kimballiana, should now receive attention; and plants which may have lost bottom leaves, and have roots high up the stems, should be cut down. And in fixing them in the new pots the roots should be very carefully placed in the pot first, and the potsherds carefully placed in afterwards, together with a layer of sphagnum moss on the top, and this should have a little silver sand mixed with it, and be made as firm as possible; very little water will be needed for some time to come.

Vanda Sanderiana.—Plants which have been resting since the end of the month of September should be repotted if this be found necessary, otherwise the plants may be surfaced with fresh sphagnum moss and placed in the warmest part of the house. The plants enjoy plenty of heat and moisture, and a Pine-stove in which the temperature does not descend below 70° is a suitable place for them. In this heat stout sturdy foliage like that with which they were imported will be formed. Where the plants have long stems, they should be syringed twice a day to induce strong new roots to break. I keep them in this house until nearly ready to flower, that is, in August and September.

Cattleya Schilleriana, which is now breaking away, should be carefully looked after to see that it is not allowed to become dry. This plant grows well on teak blocks, the bottoms of which are placed in pans, and broken potsherds are put around the roots, but very little sphagnum moss or peat, as the plants, when growing, require more water than any other Cattleya. Our plants, when growing, are dipped once every day, and syringed overhead twice; and we get from five to seven flowers on a growth by this treatment. They should be hung up close to the glass, and require very little shade.

Cool House.—Plants of Odontoglossum Alexandræ, O. triumphans, O. Pescatorei, &c., which have been repotted lately should have very little water for a month afterwards. Strong plants which may be pushing up good spikes should have a wire placed round the pot, and be hung up to the roof, thus giving a better chance of escaping their foes, the slugs, and the effect is also good from a decorative point of view. Oncidium Marshallianum, now showing its spikes, must be very sharply watched, as slugs find the spikes delicious morsels. All walls, stages, and floors should be thoroughly syringed and kept moist, and the plants very lightly dewed over in the morning, but this damping should not be done afterwards. The temperature may still continue at 45° by night, and should not exceed 50° by day with fire heat. *A. G. Catt, Parkfield, Worcester.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, FEB. 6—Linnean Society.

SALES.

MONDAY, FEB. 3 { Lilies and other Bulbs, at Protheroe & Morris' Rooms.

TUESDAY, FEB. 4 { Orchids in Flower, at Protheroe & Morris' Rooms.

WEDNESDAY, FEB. 5 { Roses, Fruit Trees, Rhododendrons, Border Plants, and Bulbs, at Stevens' Rooms. Lilium auratum, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, FEB. 6 { 10,000 Lilies in variety from Japan, 10,000 Tuberoses, &c., at Stevens' Rooms. Nursery Stock from Sample, at Protheroe & Morris' Rooms.

FRIDAY, FEB. 7 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, FEB. 8 { Roses, Fruit Trees, Rhododendrons, Border Plants, and Bulbs, at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—39°.2.

The Fruiterers' Company and Fruit Culture.

IN answer to the appeal for funds to be devoted to the furtherance of fruit culture in cottage gardens and homesteads, which it will be remembered was made last autumn by the then Lord Mayor, Sir J. WHITEHEAD, Bt., a sum of £1600 has been subscribed. This is what Sir JAMES, as the Master of the Fruiterers' Company, announced at a banquet of the company held last week.

Ever since the subscription list was opened by £500 from the Fruiterers' Company, there have been questionings by those who have the matter of fruit culture most at heart. It has been repeatedly asked what the company proposed to do with the funds placed at its disposal, and not a few feared that the money might be spent in useless, although well-intentioned directions.

From what the Master of the Fruiterers' Company stated at the dinner referred to, when proposing the "Health of the Royal Agricultural Society," we gather that the money is to be expended in following in the wake of that prosperous society, and practically allowing that body to be the disbursers of the £1600 in hand.

Now the Royal Agricultural Society, although a society of high standing and merit, does not appear to us to be the best adapted body for the promotion of the objects held in view by the Fruiterers' Company, and cannot for a moment be compared, as far as fruit culture is concerned, with the Royal Horticultural Society, which has in its fruit garden at Chiswick, and its highly successful Fruit Conferences of 1883, 1885, and 1888, given more real impetus to the question of fruit growing than its sister institution. Indeed, the outcry for extended fruit cultivation may be traced to the first of those great Conferences—that of 1883, which was reported on in the volume *British Apples* by Mr. BARRON, in which work the best varieties, according to the votes of those most able to pronounce opinions—the practical fruit-growers of the whole kingdom—were brought strikingly before notice. All this valuable information was resifted and brought up to date in the report on the National Apple and Pear Conference of 1888: and now, when so much of the work has been done by the Royal Horticultural Society, the Fruiterers' Company ignores all this, and has decided to throw its weight in with the Royal Agricultural Society.

The last-named society has on a previous occasion endeavoured to show a lead in fruit culture, but the attempt was a failure, as it must always be when the Royal Agricultural Society holds its great show at a time of year when there is no fruit to be had.

But, putting on one side that view of the matter; is not the range of subjects already embraced by the Royal Agricultural Society quite extended enough? Even supposing that the subject of fruit culture could be well introduced into its circle, would not the matter be allowed to drop into or even be forced into, comparative insignificance, against the other far-reaching branches of agriculture? Certainly the work falls more within the line of operation of the Royal Horticultural Society, but the "flower-show taint" still hangs over it, and people look on horticulture as a pleasant amusement with no more serious purpose; and the Society, with all its hard work and useful public service, has not obtained the public recognition it so thoroughly merits. In this, as in so many other cases, the noisy ones manage to gain the ear of the public, while those who know the most and do the most are overlooked. We look to the representative societies to provide a remedy for this, and to secure a hearing for the right men; but if the societies themselves are not allowed to "represent," the field becomes left open to windbags and axe-grinders.

The Master of the Company also spoke earnestly of a hope that the teaching of agriculture, chemistry, and other sciences bearing on the subject of the land should be made compulsory subjects in the schedule of all schools aided by the public rates and the State—at all events, those in country and rural districts; and that there would be great advantages following on such a course is not open to much question. Land is the basis of all wealth, and whatever tends to the better utilisation of the land must assuredly result in a benefit to the community at large. This suggestion was also contained in the Bill introduced into Parliament last year by Sir WM. HART-DYKE, but which had eventually to be withdrawn.

The earnest desire of the Fruiterers' Company to do all that lies in their power to improve the present state of fruit cultivation in this country is one deserving of great sympathy and support, and it is to be hoped that the Company will take greater care in selecting its advisers, so that its energy may be better directed.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The following persons were put on the list of pensioners without election, in accordance with the rules, on the occasion of the meeting on the 16th inst.:—Emily Friend, Mark Hebblethwaite, Eden Georgina Murray, John Skene, John Trotter, and John Wainwright.

LINNEAN SOCIETY.—At the meeting of this Society on the 16th ult., Mr. J. G. Baker, F.R.S., Vice-President, in the chair, Mr. S. Lithgow was elected, and the following were admitted Fellows of the Society:—Messrs. C. W. Turner, J. T. Tristram Valentine, William Rome, and Major A. R. Dorward. Mr. Clement Reid exhibited, and made some remarks upon, a collection of fruit of Trapa natans from the Cromer Forest bed at Mundesley. Mr. J. G. Baker exhibited and described a collection of Cryptogamic plants from New Guinea, upon which Mr. A. W. Bennett and Captain Elwes made some critical remarks. In the absence of the author, Mr. A. Barclay, a paper was read by Mr. B. D. Jackson on the "Life History of a remarkable Uredine on Jasminum grandiflora." A discussion followed, in which Mr. A. W. Bennett and Professor Marshall Ward took part. This was followed by a paper from Mr. Edward E. Prince, "On certain Protective Provisions in some Larval British Teleosteans."

—— At an evening meeting, to be held on February 6, 1890, at 8 P.M., it is intended to read the following papers:—I. "On the Stamens and Setæ of Scirpeæ," by Mr. C. B. CLARKE, F.R.S., F.L.S.; II. "On the Flora of Patagonia," by J. BALL, F.R.S., F.L.S. Exhibitions:—1. Certain Seaweed covered Crabs, by Professor STEWART; 2. Pitchers of Nepenthes Mastersiana, by Professor STEWART.

VEITCH MEMORIAL FUND.—At a meeting of the trustees of the above fund, held on the 23rd ult.—present Dr. ROBERT HOGG (in the chair), and Messrs. T. B. HAYWOOD, G. F. WILSON, and H. J. VEITCH—it was decided to give four prizes, consisting of four Bronze Medals and four sums of £5 each, on the occasion of the Chrysanthemum Centenary, which opens on November 11; and also a special Silver Medal to Mr. BRUCE FINDLAY, of Manchester, and to Mr. DAVID THOMSON, of Drumlanrig, in recognition of their valuable services to British horticulture.

NATIONAL CHRYSANTHEMUM SOCIETY.—A meeting of the general committee of the above, followed by the annual general meeting, took place at Anderton's Hotel, Fleet Street, E.C., on the 27th ult., the former at 7 P.M., and the latter at 8 P.M. The business of the committee was of a formal character, the Secretary announcing that the sum of £48 5s. was awarded in prizes at the recent mid-winter show. At the meeting of members, which was numerously attended, Mr. E. SANDERSON, one of the Vice-Presidents, in the chair, after some formal business, the Hon. Secretary, Mr. W. HOLMES, read the report and balance-sheet; the former alluded to the great success which had attended the Society's operations during the year; to the revision of the rules, which had worked well; to the election of Lord Brooke, M.P., as President; the Hull provincial show, which had proved highly successful; the Conference at Hull; the preparation and issue in the autumn of an eight page supplement to the Society's Chrysanthemum catalogue; and in reference to the Centenary exhibition and meeting to be held in the Royal Aquarium in November next, the committee had recommended and provided for the publication of a new edition of the catalogue. All the shows held, had well maintained the credit of the Society; and the Conference held in connection with the mid-winter show on January 8 proved of a highly interesting and instructive character. The annual dinner, held under the presidency of Lord Brooke, was a great success. The Floral Committee had held several meetings, the average number of Certificates of Merit had been awarded, and the committee had made their awards with due care and attention. The Centenary of the introduction of the Chrysanthemum into England would be celebrated on November 11, 12, 13, and 14; and a sub-committee appointed to consider how best to celebrate the event, had made some valuable recommendations. An early issue of the programme of arrangements would take place. The report concluded with a



THE TERRACE GARDEN, RICHMOND.

reference to the recent International Centenary Exhibition of Ghent, and alluded with satisfaction to the presence of a delegate from the Society, and the awarding of the Gold Medal of the Société de Agriculture et Horticulture de Gand. The balance-sheet showed an income from all sources of £871 10*s.* 8*d.*, including £226 19*s.* 3*d.* annual subscriptions, £109 14*s.* donations, special prizes, &c., and £217 2*s.* received from the Royal Aquarium Company, and a further sum of £89 18*s.* from affiliated societies. The credit side showed the same amount, including £426 12*s.* awarded as prizes, and £59 10*s.* 6*d.* for medals, &c., a balance of £19 0*s.* 9*d.* being carried forward. The profit on the sale of catalogues during the past year had amounted to £18; the reserve fund amounts to £100 19*s.* The contributions to the special prize fund at the Centenary Show in November amounted to £159 10*s.*, and the trustees of the Veitch Memorial Fund have allotted four medals and the sum of £20 in prizes at this exhibition. The report and balance sheet were adopted, and a hearty vote of thanks was given to the auditors. Lord Brooke, M.P., was re-elected President by acclamation; Mr. J. Stirling, as Hon. Treasurer; Mr. R. Ballantine, as Chairman; and Mr. E. C. Jukes as vice-Chairman of the Committee; Mr. W. Holmes, as Hon. Secretary and Superintendent of the exhibition — a most cordial reception being given to Mr. Holmes on his rising to return thanks; and Mr. C. Harman Payne as Foreign Corresponding Secretary. Messrs. Crane and R. Cannell were elected auditors, and the following, forming one-third of the committee, were elected on that body for a period of three years: Messrs. Boyce, Wright, Gordon, Stevens, H. J. Jones, B. Wynne, R. Dean, Gibson, E. Sanderson, Maudlin, J. H. Laing, D. B. Crane, and Bruce Ironside. The Sevenoaks Chrysanthemum Society, and the Taunton Chrysanthemum Society, were admitted to affiliation, and three new members were elected. It was unanimously resolved that the sum of £10 be devoted to the purchase of a present for Miss Holmes, in consideration of the great assistance rendered in relation to the clerical work of the Society; and the committee were empowered to provide clerical assistance for the Hon. Secretary consequent upon the growth of the Society. The proceedings closed with a hearty vote of thanks to the Chairman for presiding.

THE ROYAL HORTICULTURAL SOCIETY OF PERTHSHIRE.—The first meeting of the third session of the literary branch of this Society was held in the hall of the Perthshire Society of Natural Science on Friday, the 24th ult., and was well attended, Mr. A. M'KINNON, Scone Palace Gardens, being in the chair. The preliminary business having been transacted, the Chairman read a paper on "Fruit Farming for Profit." Mr. M'KINNON examined the subject in all its bearings, and came to the conclusion that soft fruits, hardly affected by foreign competition, could, to a moderate extent, and, under favourable circumstances, be grown profitably; but to lay out Apple and Pear tree orchards would prove most precarious and unprofitable. An animated and interesting discussion followed the reading of the paper.

THE FRUITERERS' COMPANY.—The annual dinner of this City Company was held at the Albion Hotel, Aldersgate Street, on Monday evening last, Sir James Whitehead, the Master, in the chair, and was supported by the Lord Mayor, Sir Henry Isaacs; the City Sheriffs, Major Craigie, and others. Horticulturists were represented by Messrs. A. F. Barron, T. F. Rivers, and J. Wright, who, it may be safely said, did not give their adherence to all that was heard on fruit culture. A copy of Mr. Wright's essay, bound in morocco, and containing a beautifully illuminated frontispiece, was presented to the Master by Mr. H. R. Williams.

EUCALYPTUS AND INFLUENZA.—A Parisian correspondent of a London daily, describes her experience of an attack of bronchitis which followed a mild dose of influenza. In spite of a hypodermic injection of morphine, and usual remedies, the pain did not abate. The writer goes on to say:—I happened to have a bottle of Eucalyptia from BURROUGHES & WELLCOME, and in despair I swallowed a large dose. In an hour there was decided improvement, and in two days I was out of bed. I continued the Eucalyptia until the cough had entirely disappeared, and with two members of my family it was used with the greatest success. If the theory about influenza being a germ disease be a correct one, there is no doubt but that Eucalyptia is one of the most potent remedies. In all miasmatic countries, in all countries infested by malaria, and subject to chills and fevers, no more valuable tree is found than Eucalyptus globulus. If a house in a malarious district is surrounded by a thick growth of these trees, it is possible for the family to escape chills and fevers, when another family a quarter of a mile away are shaking their lives out. The pungent, penetrating smell is death to microbes, and the medicine manufactured from the oil is an excellent tonic and blood purifier.

MUCUS DISEASE OF HYACINTHS. By A. HEINZ: *Centr. f. Bakteriol. u Parasitenk.*, v. 1889), pp. 535–9. —Hyacinths are affected by a wasting disease, attended with the production of a foul-smelling mucus. The flowering parts are specially attacked, but no part is exempt. Microscopical examination showed that the mucus and the tissues were full of a bacterium, which is a mobile rod, invariably single, with rounded ends, 4—6 μ long and about 1 μ thick. They propagate by direct fission, and stain well with all the usual dyes. The bacillus was easily cultivated pure on gelatine, agar and Potato, and healthy plants inoculated from these cultivations showed evidences of disease, most marked about the inoculation spot, in 24 hours. Hence the author concludes that this microbe is the actual cause of the disorder, and the name given to it is *Bacillus Hyacinthi septicus*. It does not liquefy gelatine. Superficial colonies on plates are circular, about two mm. in diameter, bluish-white in colour, with a somewhat darker centre. Those lying deeper are oval, and of a dull yellowish-white. The cultivation differences on gelatine and agar are not noteworthy. On Potato there forms in thirty-six hours a yellow slimy layer, and in a few days the cultivations give off a strongly offensive smell. Other authors, notably Sorauer and Wakker, have described wasting diseases of Hyacinths, attended with the production of mucus. These also were caused by bacteria, but Dr. Heinz considers that the disease observed by him is distinct from the yellow and white mucus degeneration of Wakker and Sorauer. *Ab.: Jour., Roy. Micr. Society*, 1889, p. 572.

NUT BLOOMS.—The mildness of the present month of January, says Mr. WILLIS, of Harpenden, has caused both Filberts and Hazel Nuts to bloom unusually early in this neighbourhood. So abundant are the tiny red female blossoms, that many of the trees show quite a pinkish hue. Having taken phenological observations at Harpenden during the past twelve years, that is since 1878, I find the Hazel Nut usually is first found in flower about the second week in February. The soil of this district is of a decidedly cold description. The earliest records of Hazel blooms I have observed are as follows: 1882, January 30; 1884, January 23; 1888, January 27; 1890, January 14. We see, therefore, that the date of the present season's flowering corresponds with the earliest date cited in ROBERT'S *Naturalist's Diary*, as quoted in last week's issue.

ORNAMENTAL PODS AND BERRIES.—A collection of seeds of plants bearing ornamental fruits, for winter decoration, have been sent to us by Messrs. WATKINS & SIMPSON, Exeter Street, Strand, W.C. All are species well known in gardens, as Physalis Alkekengi, Iris fœtida, Lunaria biennis, Honesty of old-fashioned gardens; Eryngium amethystinum and Dipsacus Fullonium. Two very undesirable species are included, without any warning being placed on the packets to the effect that the plants are very poisonous to human beings; these are Henbane and Thorn-apple.

THE COLTSFOOT.—We saw plenty of this in flower on January 25, on a railway-bank near London, and it had in all probability been in flower for one or two days previously. The earliest previous record that we can find is on February 3.

GRAFTING CUCUMBERS.—We learn from the *American Agriculturist* that there are some ways in which the grafting of annuals and other herbaceous plants can be made available for special purposes. Cucumbers, for example, may be grown on a high trellis, or around the upper story windows of any building, by training either Sicyos angulatus (the single-seeded star Cucumber vine), or the Echinocystis (Wild Balsam Apple)—either of which will grow to the desired height. Cucumber seed may then be sown in a flower pot, and when the plant is 6 or 8 inches high it may be joined to one of these wild vines at the desired height. Merely scraping the bark of the two plants and tying them firmly together with any soft material is sufficient. They will unite in about ten or twelve days, or sooner, and produce fruits at a height to which the garden Cucumber could never attain.

THE EXHIBITION OF THE ROYAL HOUSE OF TUDOR.—This is a most interesting exhibition at the New Gallery of portraits, costumes, arms, and other objects connected with Tudor times. It is almost impossible to exaggerate the interest of this great historical object lesson. Those interested in studying the history of our garden flowers will find plenty of material for their purpose. Glancing at a few of the portraits at random, we find one [illegible] John More, the father of a more celebrated son [illegible] Lord Chancellor More. In his left hand he holds an Apple. W[illegible] is the significance of that Apple? Margaret P[illegible]net, whose head fell on the scaffold in 154[illegible] olds a bunch of Honeysuckle; a portrait of a man by Holbein shows a single Clove Pink—indeed, the popularity at that time of the Gilliflower, is attested in this exhibition in several other cases. Ann of Cleves (1534) has a Clove Pink in her hand; Ann, Lady Petre, has a Pink with fringed edge to its petals, thrust into a curious little box or bouquet-holder John Winchcombe (1550), the son of "Jack of Newbury," is also represented, in two different portraits, with a Pink in his hand. Charles Brandon, Duke of Suffolk holds a posy in which is a Clove Pink and wild Pansy—wild at least to the notions of a modern Pansy fancier. Most of the Pinks are selfs, but one of the portraits we have unfortunately omitted to note, which shows what we now call a Carnation but which PERDITA at that time of day called a "streaked Gillyflower," and, in allusion probably to the piebald appearance, adds, "which some call Nature's bastards." Roses, of course, are often shown. Queen ELIZABETH, in one of her many portraits, bears a true York and Lancaster Rose, not the striped one which generally goes by that name. Another portrait of the dressy Queen shows her with a single red Tulip, erroneously called a Lily in the catalogue, attached to each shoulder, and a similar flower in her left hand. But the objects of interest in the exhibition are beyond computation.

INDOOR FLORAL DECORATIONS. — The Birmingham Council House, says a correspondent, lends itself readily to the art of the floral decorator. At the Mayor's Ball recently, Messrs. HEWITT & Co., nurserymen, were entrusted with the extensive floral arrangements, and in conjunction with the firm of LIBERTY, the general decorations were admitted to be the handsomest seen in the Midlands. The reception-room was fitted up in Eastern style, and a lovely group of Orchids and Adiantum Farleyense at the base of a large mirror was much admired, and in the same apartment were groups of Calanthe

Veitchii and Maidenhair Ferns. In the ball-rooms one fire-place was filled in with Euphorbia jacquiniæflora in a sloping position, and was a telling feature; the mantelpiece and niches with Maidenhair Ferns, a small Palm at each end, and sprays of Asparagus. Another mantelpiece was filled with Lily of the Valley, with a handsome Palm at each end, fringed with variegated Ivy-leaf Pelargonium Duchess of Edinburgh, and the fire-place with a graceful Palm, two bright crowns, and a carpet of yellow Tulips and Maidenhair Ferns, a large bank of Palms, with a central monster, Phormium tenax variegata, with a Cocos Romanzoffiana, quite 15 feet high, towering behind it, in which were masses of Arum Lilies, Poinsettia pulcherrima, Spiræa japonica, with a carpet of Tulips and Italian Hyacinths set in Ferns, was greatly admired. One good-sized room was fitted up as an ice cavern, in which several tons of ice were used, and with mirrors and the electric light, was indeed a beautiful object.

Spanish Plants.—The last issued part of Prof. Willkomm's excellent *Illustrationes Floræ Hispaniæ insularumque Balearium* contains figures and descriptions of various Composites and Dipsaceæ, &c. Some of the Armerias as Allioides of Boissier, a white flowered species, would be desirable introductions to gardens; so also would Statice insignis with red flowers. The text is in Latin, French and Spanish.

"John Rogers."—We ought to have called the attention of our readers to this little book before, but it is not too late now to recommend it to their perusal. It is published at Southampton by Mr. H. M. Gilbert, and consists of an autobiography of one who was proud to call himself a gardener. It was written when the author was—though in his eighty-seventh year—in the full possession of health and faculties, able to walk several miles a day, to write books, and read without spectacles. He died in November, 1842, in his ninety-first year, having lived during the reign of five English sovereigns, from George II. downwards. Mr. Rogers was the grandfather of the present proprietor of the Red Lodge Nursery at Southampton, and in the present pages which have been reprinted, gives sundry details of the eventful period in which he lived. Amongst other things he was an eyewitness of the Gordon Riots. He records a visit he paid to Philip Miller at Chelsea, and which seems to have afforded great pleasure to the incipient gardener. Aiton the elder was another celebrity by whom he was employed in the Royal Gardens at Richmond. Here, on one occasion, he saw the King, who was unable to gain admission in any other way, throw up one of the windows of the palace, and enter the house head foremost. Various sayings of the King are recorded as within the author's knowledge: A fine house was built on Richmond Hill, when the King, on being told that it was being erected by his Majesty's card maker, replied, "Eh, eh! Well, well! His cards must have proved all trumps." Rogers did what few young gardeners do nowadays—made a collection of dried plants, which enabled him to learn the names and to become acquainted with the habit and culture of every plant that came under his notice. We need not follow the author through his various situations, but may add that eventually he settled down in the nursery of Matthew Burchell, of Fulham, the father of the eminent botanist and traveller. The nursery is spoken of as one of the oldest and best conducted nurseries of the period, and contained one of the largest and choicest collections in the country. This was the establishment which subsequently passed into the possession of Messrs. Whitley, Brames & Milne, and at a later date was that of Messrs. Osborn & Sons. There are fewer than fifty pages in the book, but there is not one of them which will not prove interesting to a gardener desirous of knowing how things were done in the olden time.

Publications Received.—*On London Fogs*, by Alfred Carpenter, M.D. (Croydon: Roffey & Clarke, High Street.)

A GARDENERS' PROBLEM.

Certainly horticulturists and gardeners must be thankful to a man in the position of Mr. Thiselton Dyer for his keen and truthful elucidation of a matter so likely to raise discussion. Like Messrs. Elwes and Burbidge, I also venture to enter the arena, my excuse being an experience of over forty years. Though the gardener's art be essentially empirical, yet I am of opinion that a gardener having a knowledge of plant-geography and of the climatology of the various countries of the globe is more likely to be successful in his empirical work than another one who has no notion at all of the above sciences. If he has a good knowledge of plant geography, he will not care much for detail, and will adopt appropriate treatment for at least the majority of plants new to cultivation confided to his care.

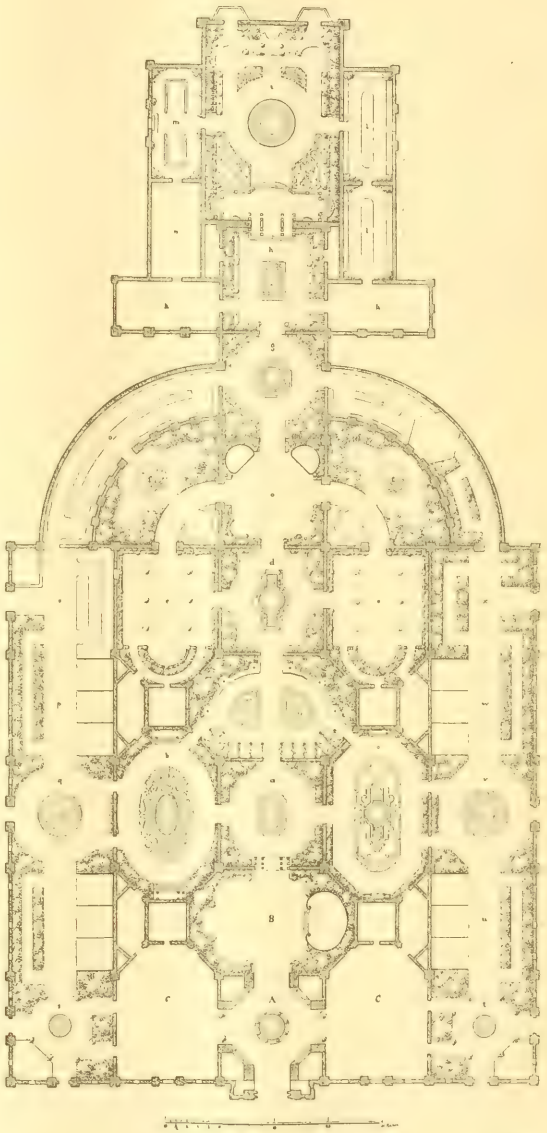


Fig. 23.—Plan of general arrangement in the Exhibition Palace, Berlin.

Most of the subtropical plants do not grow in peat but in loam, sometimes of a clayish or stony hard nature, yet they readily adapt themselves under cultivation to peat and to a very different treatment than what Nature affords to them.

It is an undeniable truth that "the constitution of certain individual species is inelastic," but it is for this category of plants that the cultivator

requires the most exact indications of the conditions under which they spontaneously live; sometimes they are restricted by certain ingredients of the soil, sometimes by local positions and influences. No doubt about it, a skilled gardener would eventually find out by empirical research, what were their wants, provided he did not kill them during the experiment. His endeavours would be crowned by success in a much shorter time if he have a notice of the above quoted indications.

Lapageria rosea and Tropæolum speciosum do not grow to the best advantage in a southward position; Ranunculus Lyallii is restrained by season or climate; Disa grandiflora not only demands peat but a particular sort of peat; Cattleya citrina wants to hang head downward—and many more cases could be cited. Certain bulbs from the Cape may lie dormant in the soil for more than a year according to their native habits, and others are so particular as to the time of flowering, or rather opening their flowers (like Cereus grandiflorus), that the most skilled gardener can do nothing to alter that time in our latitudes. *Max Leichtlin, Baden-Baden.*

—— The discussion on this subject, which was opened by Mr. Dyer, and carried on by Mr. Elwes and Mr. Burbidge, is undoubtedly a very important one, and the different opinions hitherto expressed go to prove that even authorities on the questions at issue are by no means unanimous as to the ways by which the cultivator may attain the greatest success. The few remarks I have to offer are neither those of the gardener nor of the botanist, but of the simple observer of Nature. Mr. Dyer remarks:—"Granted that everything is known as to the physical conditions under which a plant grows in the tropics, is the gardener who attempts to grow it much better off?" We may eliminate the word "tropics" from the sentence, because it is doubtful whether tropical plants as a class give the cultivator more trouble than those from temperate climes. To the question propounded I would answer decidedly, Yes!—always provided that he tries to imitate those conditions intelligently. Mr. Burbidge put the case very concisely when he says that "Nature carries matters far past the point at which the gardener stays his hand." What intelligent gardener allows his plants to exhaust themselves by seeding—unless, of course, such seed is wanted for special purposes? Take the Kew Pleiones which have been already cited. What would their condition be if they had to mature a crop of seed every year? Would they compare so very favourably with native plants? Nor should it be forgotten that the struggle for existence, from which no plant in a state of nature can possibly be exempt, is specially guarded against by the cultivator. These two conditions alone are sufficient to account for the undoubted improvement so often seen in plants under cultivation. They could, in my opinion, be partially, if not equally, secured by the cultivator without removing the plants from their wild stations, if he so willed. Mr. Dyer says, "The conditions under which plants exist in Nature afford very little real information for cultural purposes." My own observation points in an entirely opposite direction, and, I may add, the excellent paper from the pen of Mr. Harry Veitch in a recent number of the *Journal of the Royal Horticultural Society*, entitled "Orchid Culture Past and Present," is based almost entirely on the same principle. What are the essential conditions under which plants exist in Nature? is a question which may fairly be asked. I would reply, a fierce struggle for existence is everywhere being carried on, and a plant maintains its ground only by having solved the problem of how best to exist under the given circumstances. Introduce a new competitor which is able to solve the problem a little more closely, and it will inevitably prevail in the contest. The plant may be existing "where it can," but it is none the less certain, that were it not fairly happy under the given conditions, it must take its place with the vanquished. Observation teaches this fact again and again.

The numerous cases cited, of plants succeeding under totally different conditions, would indicate that the constitution of those species was the reverse of "singularly inelastic," if it indicates anything at all; and when one looks at the wide range of many species, and the diversity of conditions under which they grow, the conclusion is inevitable that their constitutions are sufficiently elastic. And here, perhaps, would be an infallible guide for the cultivator, were he able to avail himself of the necessary information.

If a plant grows in a variety of situations, a considerable variation in vigour and floriferousness will be observed, and by a judicious comparison of conditions and results, the elements of success may be arrived at—that is, if those conditions can be imitated in their essential particulars. The difficulty is that there is so great a variety of conditions to be imitated, and the gardener who has but half-a-dozen climates at command cannot possibly grow everything. Those who have from twenty to forty are more fortunate, but they, too, have to confess that certain plants are quite intractable subjects.

Granted that many plants improve under cultivation, and setting aside the fact that much of this is due to the cessation of the struggle for existence, must it not also be affirmed that an equal nay, a far greater—number distinctly deteriorate, or refuse to grow altogether, simply because they are placed at a disadvantage as compared with the conditions under which they grow naturally? I think the fact cannot be denied. Nor can it be for one moment asserted that if these conditions were secured, there would be the same failure to deplore.

The position taken by Mr. Elwes seems to be the correct one. Practically, it amounts to this—that a correct knowledge of the conditions under which any plant grows naturally is of great value to the cultivator—and with this I fully agree. *Observer.*

—— I see nothing in Mr. Dyer's letters but what is very true and very useful to gardeners. He does not say, and no practical man can think that there is no use whatever in a knowledge of the climate and soil, &c., in which a plant grows in its native country, but as they do not, any of them, naturally grow in hothouses, it is in the first place impossible in England to grow the natives of hot countries under natural conditions. Practically, it is entirely a matter of experiment and experience what treatment will suit a new hothouse plant. Disa grandiflora may thrive in black peat, but some other Disas from the same soil and climate will not grow in black peat, or apparently in any other soil in an English greenhouse. Three epiphytes may come from the same branch of a tree in the tropics, one of which will only thrive on a bare block, a second will only prosper in a pot with loam, and the third will not grow under any conditions in a hothouse. In the matter of hardiness itself, plants from the same locality differ greatly. How many Australian plants are as hardy as Schizostylis coccinea, or Cape plants, as some of the Tritomas? Strictly speaking, not only every species, but every individual plant, has a constitution of its own, which requires to be studied, as raisers of new seedling varieties well know. *C. W. Strickland.*

—— Whether we agree with the Director of Kew or not, I think we are all much indebted to him for starting this discussion, and for starting it in such a way as to provoke the lively answers that have followed. I hope we may still have many more such letters as those from my friend Mr. Elwes and from Mr. Watson. As my name has been mentioned, I may without presumption add my little experience. I am in the position of very much agreeing with the Director (though not entirely), and also very much agreeing with Mr. Elwes (though also not entirely), and my only objection to Mr. Watson's excellent letter is, that he has said better than I could very much, what I should like to say; still there is room for me. I have little doubt that the Director, holding a brief for Empiricism *v.* Botanical Knowledge, stated the case of empiricism stronger than he would always do, and knowing something of Mr. Elwes' love of geography, and his great knowledge of botanical geography, I am not surprised that he has stated his case—certainly in stronger terms than I should. But surely there is not really any great antagonism between them. We surely shall all agree that any knowledge of the life history of a plant, whether it is a knowledge of its botanical affinities or a knowledge of its geographical history, must be more or less useful to a cultivator, but all who are out-of-door students of plants must have found that such a knowledge very often goes a very little way in helping them to grow the plant successfully, and is sometimes actually misleading. Hundreds of growers are in the position that Mr. Watson describes when they get plants of whose botanical, or geographical history they are very ignorant. They must feel their way, guided partly by the little knowledge they may have of the native habitat of the plant, and partly by the instinctive knowledge of a plant's requirements which a cultivator of long experience acquires, and which he applies to a new plant, sometimes, of course, making mistakes, and sometimes scoring the great successes that Mr. Watson records. It has been my great pleasure in gardening to experiment with almost any plant that I can get, and if I know something of the country, so much the better. It is several years since I was told by some one that all Japan was a great damp shrubbery. Ever since that I have made it a point to give Japanese shrubs partial shade, and I am sure they like it, but I should do the same if I was told that some particular shrub grew on sunny exposed spots in Japan, not because I doubted the information, but because I fancy all Japanese shrubs in England grow better in partial shade. But the fact is, that there is a great mystery in the whole matter, which would open a wide question for the most scientific botanists, but which I do not the least expect they can answer. I mean the question why a plant growing on a very limited area, and on well-defined geological situations, if removed into gardens, grows freely and spreads in every direction. Mr. Watson shows this in the case of some plants, but the plants he names, though well known at Kew, are probably unknown to many of your readers. I should like to illustrate it in three English plants. The Cornish Heath (Erica vagans) grows abundantly on the serpentine formation of the Lizard, but only on that formation; but bring it into the garden, and it will grow on almost any soil. The Anemone pulsatilla grows wild only on chalk or limestone; there is no difficulty in growing it on any garden soil. The common Asparagus is almost confined to Asparagus Island, constantly washed by the salt spray, and does not increase there; in our gardens it not only grows luxuriantly, but seeds in every direction. There are dozens of such examples, and they are proofs to my mind that if a cultivator confined his collection to plants growing on the same soil as he could give them in his garden, his collection would be a small one. But I must stop, though it is very tempting to say more, but before stopping, I must say that in one point I think the knowledge of the geographical history of a plant is of great importance—and especially a knowledge of the elevation at which a plant grows. Here I am in complete accord with Mr. Elwes, for my own garden has long ago taught me that it will have as little to do with plants that grow at a high elevation (like the higher alpines) as it will with plants that dislike lime in the soil, like the Rhododendrons, Azaleas, &c. Every garden (and this is very conclusive) has its specialties, and the best gardener is the man who, in dealing with new plants, gets all the information he can about them from books or otherwise, and then, bringing his own experience of similar plants to bear on the stranger, he tries (it may be, and often must be, in many different ways) to make it as happy as possible; and so, with his knowledge and observation of practical results combined, he does, in nine cases out of ten, make the new comer even more happy in its new home than it was in the home of its birth. *Henry N. Ellacombe, Bitton Vicarage, Gloucestershire.*

HOME CORRESPONDENCE.

THE EUCHARIS OR BULB MITE.—I have watched the discussion at various times in the columns of the *Gardeners' Chronicle* on the above subject with very keen interest, and I think the weight of opinion seems to be on the side of destroying the affected bulbs immediately it is seen that they are attacked with the mite; and I am certainly in accord with those who think so. Your correspondent, Mr. W. H.

Stephens, p. 114, seems, however, to have been more fortunate with his bulbs than some of us. I think, however, that his bulbs could not have got very badly infested with the mite, or he would hardly have had such an easy victory over them. At all events, I did not find the remedy mentioned by Mr. Stephens to answer with me, when on taking charge here five years ago I found about a dozen pots of Eucharis about as badly infested with mite as they well could be. I shook out all the bulbs, and took off all the outer scales as far as the mite seemed to have got into them, and treated them in all other respects exactly as described by Mr. Stephens, with this exception—in potting them up again I did not use any peat; in fact, I never use it for Eucharis, my experience being that they delight in a good, stiff, loamy soil. I found, however, that they, after throwing up a few sickly-looking leaves, still continued to get worse, and I shook them out again; I still further reduced the bulbs by taking off more of the outer scales, and soaked some of them in petroleum for some fifteen to sixty seconds, others I soaked in Fir tree oil, nicotine soap, soft soap and sulphur, and after this again rolled them in soot and quicklime, but all to no purpose. I finally shook them out in June, after battling with them for eighteen months, and laid them on the coping of a wall in the full glare of the sun for three months; and at the end of that time I examined them through a good lens, and found that there were still traces of the mite in them, and happening at this time to get the offer of a quantity of good sound offsets, I gave up the battle with the mite—though somewhat reluctantly—and paid every attention to the healthy stock, with the result that I now have about a score of good healthy pots—full of strong flowering bulbs; in fact, I have one specimen which is quite 4 feet through, and a yard high. In potting, I never use anything but good fresh loam and a fair amount of coarse river sand and charcoal; and the only liquid manure we use is made from cowdung and soot, with now and again a light sprinkling of Standen's manure. Should it ever be my misfortune to encounter the mite again, I should do as I have frequently seen the Editor advise correspondents to do—"burn the affected bulbs," a proceeding I have frequently advised a friend and neighbour of mine to take, who has been hoping against hope for the last two years to get the better of this formidable pest, with no better success up to the present than I myself had. *B. Ashton, Glossop Hall Gardens, Derbyshire.*

DIANTHUS FUNGUS.—Wet mild winters doubtless serve more rapidly to propagate fungus growths than do hard dry winters. In a market grower's place near here, he finds this season, fungus running riot amongst his usually very hardy, dark leaved Sweet Williams. No doubt this is the same fungus which occasionally attacks Carnations, but rarely in so virulent a form as is to be seen on the soft leaved Sweet Williams just now. Oddly enough, there seems to be two distinct strains of these dark leaved Sweet Williams, one, having foliage of unusual breadth and dark as beet leaves seems, in the same ground, to be quite free from the fungus. The grower purposes having all the more affected leaves of his plants picked off, believing that the latter will recuperate in the spring. I fear they will wear a very sorry appearance, and have advised the destruction of the lot to save the larger leaved sorts from harm. With my own florists' strain, nothing whatever of a fungoid kind is to be seen on plants of last year's raising, but old plants suffer a good deal from excessive watering on our stiff clay. *A. Dean, Bedfont.*

FEMALE NUT BLOOMS.—My assertion as to the possibility of female Nut flowers proving fertile even in the absence of catkins was perhaps too hurriedly based on remarks I had previously read in the *Gardeners' Chronicle*, I believe, from the pen of one of your botanical correspondents as to the fertile capacity of female flowers in certain cases in Nature where male flowers were absent. It appeared a week or two since, but I have not the number at hand just now to give exact particulars. Possibly the references made would not apply to plants in a state of cultivation. *A. D.*

MULTIPLE SPATHED CALLAS.—A week or two since a friend asked me to look at a very curious Arum Lily he had in his greenhouse, unlike any that had previously come under his notice. I found the flower to consist of three well-developed spathes; one about the usual size, and two smaller ones; there were also two rudimentay ones, making five in all. The latter were within the main spathe, the former outside it. A second plant, whose spathe was not unfolded, showed evident signs of more than one spathe—how many could not then be told. A third plant had a normal flower, but in which fertilisation had taken place, and seeds were protruding at the base of the spathe. The original plant, of which these were offsets, had, I was informed, just produced an exceedingly large flower with a double spadix. Its peduncle was 1½ inch thick, and after it had faded, a second smaller one, with its peduncle united to that of the first, appeared; in fact, a twin flower, similar to that occurring in Lycaste Skinneri and other plants, usually producing only unifloral scapes. There was nothing in the way of exceptionally rich feeding, high temperature, &c., to account for this apparent hereditary proclivity to produce abnormal flowers. The plants were growing in two little greenhouses in an ordinary terrace garden, quite cool, and in small pots. I have enclosed a photo showing the flower with the five spathes. *Greenwood Pim, Monkstown, co. Dublin.*

A HALL FOR HORTICULTURE.—As the annual meeting of the Royal Horticultural Society is at hand, this subject might very well be left till then; but on seeing what I cannot but call the wild and unsuitable schemes put forward, I venture, as one who has had some little experience, to say that three things must be avoided:—1. Any commercial dealings, either in plants or flowers, as has been suggested—this may be left to Covent Garden and the stores. 2. To avoid anything like catering for public amusement (I own I am a little surprised at Mr. Shirley Hibberd's letter)—this, I think, would be derogatory to the dignity of a scientific society. 3. To avoid all refreshment arrangements—this would involve failure, and there is such abundance of facilities for satisfying the inner man in all parts of London, that it is wholly unnecessary. I feel convinced that if the Society puts aside all idea of making the hall pay, and uses it only for the legitimate purposes of horticulture, there would be no difficulty in raising whatever sum may be required. *Wild Rose.*

VINCA MINOR VARIEGATA.—Can any of your readers inform me if there are two varieties under this heading? The one having white and the other blue flowers, the latter is now in bloom out of doors. I fancy we should have two varieties as stated, and both variegated. *Corkonian.* [Yes; there is a white flowered variety of V. minor variegata. ED.]

CYPRIPEDIUM BUCHANIANUM ×.—Mr. R. H. Measures, of The Woodlands, Streatham, writes to

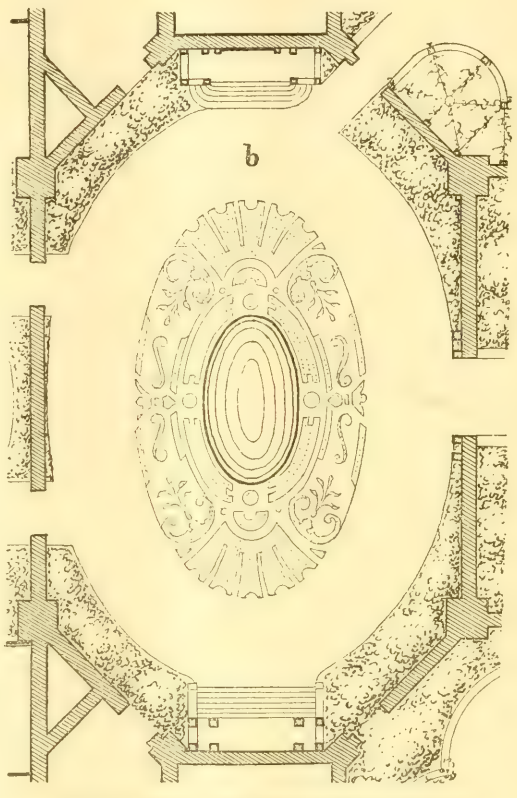


FIG. 21.—A HALL LAID OUT WITH BEDS, BERLIN EXHIBITION.

point out an error which unfortunately crept into the account of this plant on p. 73. It was raised by Mr. T. Osborne, when gardener to Mr. Buchan, of Wilton House, Southampton, whence it passed into the Streatham collection. Both Mr. Measures and myself regret the mistake, which was quite unintentional. It arose from the fact that Mr. Measures was ill with the prevailing epidemic, and the letter was written by an amanuensis. What he really intended to say was, that he considered C. Buchananum to be the best hybrid then in flower in his collection; and that C. Cythera × and C. Hera × were two of the best that he had raised. No doubt the error in spelling the name arose in the same way, for it should be Buchanianum, after Mr. Buchan (not "Buchananianum"). *R. A. Rolfe.*

— — I was surprised to read in this week's issue of the *Gardeners' Chronicle*, that Cypripedium Buchanianum was raised in the collection of R. H. Measures, Esq., of Streatham, as that is not the case. Cypripedium Buchanianum

was raised by me during the time that I was gardener to H. J. Buchan, Esq., of Southampton, and after whom it was named. The plant first flowered in December, 1887, and in the early part of 1888, I sold the specimen to Mr. Measures. *T. Osborne, The Grove Gardens, Teddington.*

THE MILDNESS OF THE SEASON.—Respecting the earliness of blooming of Snowdrops, p. 80, I would remark on the abundance of these flowers in Somersetshire. I did not take notice of the exact date of the first bloom appearing, but it was in the last week of December. Primroses have been in bloom with us since the middle of November, and are now very plentiful. The following plants are in flower in the open air:—Snowdrops, white Alyssum, scarlet Anemones, Polyanthuses, Wallflowers, Primrose

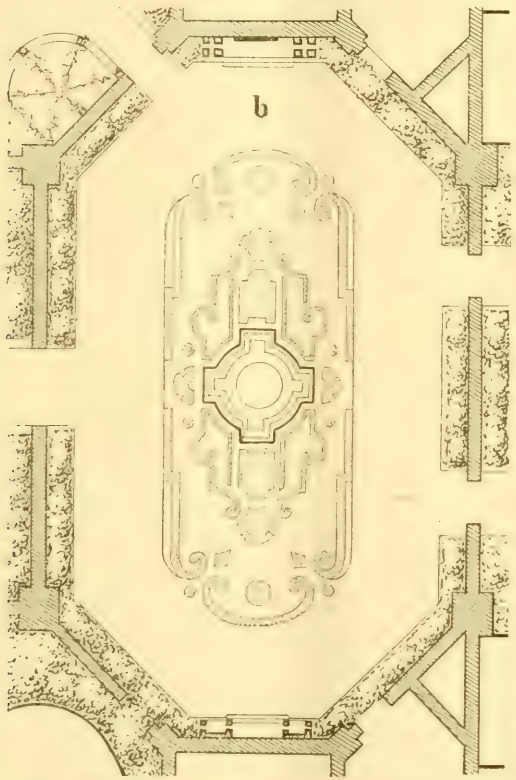


Fig. 25.—A hall laid out with beds, surrounded with balconies, Berlin Exhibition.

Polyanthus, Chrysanthemums, Pansies, winter Aconites, Violets, Christmas Roses, yellow Jasmin, Laurestinus, Arbutus, Periwinkle, Buttercups, common Primroses, common Daisies. I noticed in a Strawberry-bed to-day a truss of flowers, two of which were fully open; and should the weather continue mild for a few days longer, Crocuses will be in bloom—in fact, some are now in bloom in our neighbourhood. *W. L, Bath.*

CAMELLIA BUDS DROPPING.—Camellias are as hardy as the Portugal Laurel, but Mr. W. H. Stephens is quite right when he states, that if they are allowed to get dry, i.e., reduced to starvation and unhealthiness, they are liable to drop their buds. Both plants and animals reduced to that state are unhealthy. The reaction, after watering or feeding, is productive in each of injurious results. I need not explain how animals are affected, but Camellias drop their buds. The extremes of heat and cold affect Camellias by exciting or retarding growth; and that the application of heat in February has that effect, is proved by Mr. W. H. S. who has had an abundant supply of flowers since October. Had his Camellias been planted in an unheated house, they would not have flowered until Christmas or later; hence his plants grow in a proper situation, and he has to be congratulated on the advantages he enjoys. There are some varieties of the Camellia—evidently raised from the old variety, C. variegata, which have very bold foliage; I refer to Coquettii, gigantea, and Marchioness of Exeter. These are much more influenced by drought than others. Mr. W. H. S. does not inform us whether that part of the wall against which the plants are growing that drop their buds, is more thoroughly drained than the other part, nor does he give the names of those varieties, as he might then trace the causes, and find the cause of his plants, suffering as they do, in his own explanation, "if once a Camellia is allowed to get dry, after the buds are fully developed, dropping will surely follow. *C. B. Saunders.*

CYPRIPEDIUM INSIGNE.—Varieties of Cypripediums, thanks to raisers of seedlings, have become so very numerous already, that it is probable they will in the near future become as common for pot culture as the tuberous Begonia. I do not suppose that a more generally useful species or variety exists than the C. insigne and its varieties, although it is sometimes discarded to make room for plants which are inferior to it in many points. The blossoms, notwithstanding their beauty, may not be so attractive as some others; but how free flowering this plant is when it receives suitable treatment? We have specimens in 9-inch pots and pans, which carry from thirty to forty or more spikes, and some of these produce twin flowers. But a leading point is the strong constitution possessed by this species, and the ease with which it may be grown; in fact it is very accommodating so far as growing is concerned, inasmuch as it thrives either in a warm or cool temperature. It will not, however, blossom satisfactorily when always kept warm, and this peculiarity is commonly understood, and consequently we do not often find the plant grown always in the stove. I have had experience with it as a hothouse plant for some years past, indeed since two plants were divided rather severely to increase the stock of it, and the mutilated pieces have been kept for three years in a stove, with a view to rapid growth; and in this respect I am well satisfied; but during the time they have been subjected to heat few flower-spikes have appeared. Latterly the plants have been grown on a stage beneath the trellis in a Rose-house, which is kept cool, and here, in a lower temperature, and with more air afforded them, the leaves are firmer in texture, and shorter; and the plants after being placed in a warm house have become very profuse bloomers. Cool pits or frames answer admirably during the summer months for this plant, and doubtless there are Cypripediums other than those belonging to this group which would readily be amenable to cool treatment. Fibrous peat with a dash of sand in it is a good compost, and in the growing season weak liquid manure made of sheep's droppings promotes vigorous growth, and frequent applications of this are very useful after the pots have become filled with the roots. *Thos. Coomber, Hendre.* [A photograph showing a large group of C. insigne came with the above note. Ed.]

CULTURE OF WINTER CUCUMBERS. — With reference to the recent article on "The Culture of Winter Cucumbers," by your correspondent, Mr. James Douglas, there are two persons still here who remember well the half-span house in the yard of these works in which Cucumbers were grown, I believe, from about 1858 to 1863, with surprisingly successful results. At that time, however, the works were not built in to nearly such an extent as at present, and this part of Chelsea, in which rows of houses now stand consisted then of market gardens, and the atmosphere was in consequence purer and less impregnated with smoke. This house served as a pattern not only to the one built at Loxford Hall, and mentioned by Mr. Douglas in his article, but also became the type from which the Cucumber houses at Sandringham and many other places throughout the country were designed, and we have applications still for houses to be constructed exactly on the lines of the old, half-span house, originally standing in the yard. *Alfred Gray, Danvers Street Horticultural Works.*

DRACÆNA LINDENII.—We have a plant of Dracæna Lindenii here, which has been much admired by all who have seen it; it was also very favourably noticed at the summer show at Bowdon. About three years since, it was a plant about 15 inches in height, growing in a 7-inch pot; it is now 8 feet 6 inches high, and is bearing a flower stem about 2 feet in length. It has been in bloom now for about three weeks. The flowers are of a pale drab colour, not showy, but pleasing when fully expanded, which is generally early in the day. It has 108 leaves, many of them over 2 feet long; and the habit of the plant as is well known, is most graceful. Plants of this species from 2 to 4 feet high are beautiful objects for house decoration, and they are much admired for that purpose here. This plant was repotted two and a half years since, from a 7 to a 12-inch pot, in which it still is; and the soil used consists of equal parts of turfy loam, peat, and Oakleafmould, some half inch bones and wood charcoal being mixed throughout the compost. The temperature maintained is from 55° to 85°, with abundance of moisture — sprinklings of Standen's, and Clay's Fertilizers being used at intervals *H. Ellis, Lynwood, Bowdon.*

THE GARDENERS' ORPHAN FUND.—The scheme of a reserve fund was decided upon at the first meeting, and at that time the idea of a good invested sum was considered by all to be the right one. The importance of this was so strongly felt by all concerned, that Rule 5 was framed in a very stringent manner, with the express purpose of building up this fund. Even so late as about the time of the second election, there were not wanting some who went so far as to assert, and prove to their own satisfaction at any rate, that too many children were being placed on the fund, that there was insufficient money to meet the demand, and that therefore we were practically insolvent. Now, after two years' experience, some of our friends appear to be of a

directly opposite opinion, and seem to be in favour of a "spend all and save nothing" policy—an extreme infinitely worse than the other. I am glad to see that Mr. Dean does not adopt this view; but is in favour of still investing a fair sum, although not quite so much as we have hitherto done. His views, in fact, are much the same as mine, except that I should prefer to defer making any alteration in Rule 5 for perhaps another year. There is no doubt, that as the fund progresses, this rule will be found too restrictive, and alteration desirable, on the grounds fairly stated, that the responsibilities are small. Mr. Dean suggests that 75 per cent. of the legacies and donations should be invested, and that the remaining 25 per cent., together with interest on invested monies and subscriptions, should be available for the orphans and general expenses. At present, it might be found wise to put by 75 per cent. of donations, in case of a rainy day; but if the fund progresses as it has hitherto done, it will soon be found quite unnecessary to invest so large a sum; indeed, as the fund increases in age, and becomes (as we hope to see it) well and universally supported throughout the entire kingdom, the proportion of income which prudence dictates should be invested, would gradually diminish. In order, therefore, to avoid the necessity which would from time to time arise for altering this rule, I would suggest that, whenever the alteration be made, the present arrangements respecting investments should be done away with, and the entire matter be left to the discretion of the committee. With free hands, they would then be able to deal with each year's income to the best advantage, as the exigencies of the time and prudence might dictate. *Geo. Deal, Chairman of Executive Committee.*

FOREIGN CORRESPONDENCE.

BERLIN INTERNATIONAL HORTICULTURAL EXHIBITION.

THE great International Horticultural Exhibition to be held at Berlin from April 25 to May 5, will in all probability be a magnificent affair. The accompanying plans, for the use of which we are obliged to the Editor of the *Gartenflora*, may help to show the scale on which it is projected.

This exhibition will differ from all the foregoing ones as illustrating for the first time the relationship of decorative horticulture and architecture.

The site of the exhibition is the large park and palace in the north-west of Berlin. It is the most suitable place for exhibitions, as it is situated between two railway termini, that of the Berlin-Hamburgh, and of the Berlin-Lehrte Railway. Besides these there is a third station of the great circle railway, from which there is a direct entrance to the exhibition park. Goods arriving in Berlin have thus not to make a long transit through the town, but will be brought in a few minutes of their destination.

The exhibition park is the one in which was held the great Horticultural Exhibition of 1885; but whilst this latter was chiefly in the park, and only a few objects were shown in some of the compartments of the palace, this year the whole palace is allotted for the exhibition. In the park will be shown hothouses, greenhouses, &c., partly in full work, and containing Orchids and other fine hothouse plants. A large hall, side by side with the palace, will contain instruments, &c..

Our fig. 23 shows the general scheme of arrangement in the palace. The experience of the last show encourages the hope that there will be enough space for exhibitors. The space for exhibitors is as follows:—

1. Decorative part, about 400 square metres.
2. Hot and greenhouse plants, 1350 sq. metres.
3. Roses, 300 sq. metres.
4. Forced flowering shrubs, 300 sq. metres.
5. Perennials and bulbs, 300 sq. metres.
6. Cut flowers, leaves, fruits, and dried flowers and grasses, 250 sq. metres.
7. Trees, shrubs, &c., for gardens, 680 sq. metres.
8. Fruits and vegetables, 60 sq. metres.

But in addition to these there are the rooms destined for banquet-rooms, salons, dining-rooms, winter gardens, &c.

The entrance is in the principal hall, A; in the middle of this is a large fountain, and at the four corners jets of water run out of the wall. All these fountains will be decorated by plants.

There are also fountains in the halls, b, c, d, g, i, s, and t; which will give an opportunity to the exhibitors of group XIII., No. 348, to arrange their groups.

From the hall, A, we come to the opening hall, B, so called because the opening ceremony will take place there. The decorations are to be made by the exhibitors of group I., No. 10 to 13. At the right hand of this hall there is a platform for their Majesties. Decorative plants of group I., No. 10 to 13, are also to be found in the hall c.

Through a portico a passage is made from A into the hall a; this as well as the halls b b, the centre of c, the hall d, the centres of g, h, and i, are destined for group IV. (house plants). The halls b and b, will be laid out with little beds (see fig. 24). Fig. 25 shows an enclosure with beds surrounded by balconies upon pillars.

The decorations will be made by low-growing plants; the balconies will also be decorated. Over the entrances to these enclosures are balconies, and between them, windows, which are all to be decorated by the exhibitors in competition. According to the number of the exhibitors, pillar balconies, free balconies, and prominent windows, will be constructed in all the halls in the centre axis of the exhibition palace, the decoration of all of which is to be competitive.

The end of this architectural design forms a large portico from the hall, g to i. A large terrace connects both.

The hall c, between a and d, allows of the construction and decoration of pagodas and pavilions.

From the hall, d, we pass to the right and left, as well as to e, in the refreshment rooms. In e will be a band-stand. These three halls are connected by curved paths; along the latter are placed the circular enclosures, f, f, destined for the products of nursery gardens (trees, shrubs, cordons, &c.). Similar exhibits will also be placed in the halls g, h, i. In i will be constructed a large carpet-bed of spring flowers and carpet plants. To the left of i is the hall m, destined for the illustration of landscape gardening and the exhibition of garden literature. The neighbouring hall, n, is destined for meetings. To the right of i are the halls b b, allotted to scientific exhibitions. Beside the hall h, right and left, lay the halls k, k, destined for winter garden decorations; they are each 17 by 9 metres. From g we pass on the left to the hall, z, which will contain fruits and vegetables. Through a music-saloon we come to y, which, together with x and w, is devoted to perennials and bulbs. In w, as well as in u and u, the plants will be exposed, which are in the Groups I., No. 2, 3, 4, and 5 of the programme, relating to the decoration of parlours in general and for festivities, such as baptisms and nuptial ceremonies, also for the decoration of family vaults. Each compartment is 63 by 7 metres. For each of these numbers of the programme two prizes are offered—one for horticulture, the other for architecture. In the halls t, u, v, will be placed the Roses. From the hall t, we come through the two large halls c, c, in the hall s. The halls c, c, are destined for group I., No. 1 (brilliant decoration of a festal salon). Each is 19 by 24 metres.

The halls q, r, s, will contain forced flowering shrubs, whilst p will contain the table decorations, and s the arrangements of cut flowers, leaves, fruits, dried flowers, grasses, &c.

Horticultural Sculpture (group XIII., No. 349, of the programme) will be found in the halls f, g, h and i.

The exhibition is to be an international one. It will be of much importance to English gardeners to take part in it, as a great many medals will be offered for competition. His Majesty, the Emperor, has given a large gold medal; many other medals and prizes are already offered.

The railways will charge only half rates for all objects sent to the exhibition. The committee (Comité der Grossen Allgemeinen Gartenbau-Ausstellung, Berlin N., Invaliden-strasse, 42) will send programmes to any applicant on application. To accelerate the expedition of goods at the frontier, red labels are supplied by the committee, and which are to be affixed to the goods. No applications to take part in the exhibition will be entertained after March 1.

The last Chrysanthemum show made it evident that English gardeners succeed well at German exhibitions, as the only English exhibitor got the 1st prize—the Gold Medal. May this be an incentive to others to become competitors. *Our Berlin Correspondent.*

TRADE NOTICES.

A NEW ENTERPRISE.

WE hear that Messrs. R. Sankey & Son have taken 50 acres more land at Bulwell, Notts, the underlying clay of which is very suitable for the manufacture of pots.

Mr. John Kitley, from Rothiemurchus, Inverness-shire, has taken the gardens of Warwick Castle, where he intends carrying on the business of a nurseryman and florist.

THE WEATHER.

[BY the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	Districts.	Temperature. Accumulated. Above (+) or below (−) the Mean for the week ending January 25.	Above 42°, for the Week.	Below 42°, for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1	− 9	38		+ 40	− 59	3 +	21	6.7	15	7
2	0 aver.	0	41		+ 63	− 79	7 +	20	4.5	24	15
3	1	+ 6	30		+ 18	− 64	3 +	15	1.5	18	14
4	3	+ 15	33		+ 55	− 57	1 +	17	1.4	29	22
5	3	+ 13	30		+ 55	− 65	6 +	19	2.2	32	21
6	4	+ 31	13		+ 67	− 78	3 +	17	2.2	24	19
7	0 aver.	5	29		+ 42	− 86	6 +	25	7.4	17	13
8	1	+ 9	24		+ 49	− 77	8 +	23	3.9	14	14
9	2	+ 30	13		+ 58	− 57	12 +	23	4.5	23	19
10	2	+ 6	31		+ 12	− 57	5 +	25	4.6	30	23
11	0 aver.	13	26		+ 43	− 51	10 +	24	5.6	30	24
12	3	+ 38	0		+ 74	− 31	11 +	21	3.6	19	19

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending January 25, is furnished from the Meteorological Office:—

"*The weather* has continued in a very rough, changeable, and rainy condition, over the entire kingdom. Over Ireland, Scotland, and most parts of England, the rainfall was occasionally heavy, and in a few instances was accompanied by thunder and lightning. During the intervals of comparative quiet the sky was generally clear and bright, and the air pleasant.

"*The temperature* has been rather unsteady, but has continued a little above the mean over England and in the North of Ireland, and has equalled the mean in the west and east of Scotland, and in the south of Ireland; in 'Scotland, N.,' however, a slight deficiency is shown. The highest of the maxima, which were recorded on the 25th, ranged from 50° in 'Scotland, N.,' to 56° in most of the English districts, and in 'Ireland, S.,' and to 57° in 'England, N.E.' On the 23rd (when the thermometer was very low over Scotland) the daily maximum at Aberdeen was as low as 28°. The lowest of the minima were registered between the 21st and 23rd, and varied from 14° in 'Scotland, E.,' and 15° in 'Scotland, N.,' to 33° in 'England, S.,' and to 38° in the 'Channel Islands.'

"*The Rainfall* has been more than the mean in all districts. Over southern and eastern England the excess has been somewhat trifling, but in nearly all other districts it has been large.

"*Bright sunshine* does not differ much from that recorded last week, the percentage of the possible amount of duration having ranged from 15 to 24 in Scotland, and from 14 to 32 over England. In Ireland the percentage was 30, and in the Channel Islands, 19."

MARKETS.

COVENT GARDEN, January 30.

BUSINESS very dull, and prices of imported goods much lower. Grapes realising better values. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6	7 0	Lemons, per case	12 0	20 0
— Nova Scotia, brl.	12 0	25 0	Pine-apples, Eng., lb.	1 0	1 6
Cobs, per 100 lb.	140 0	...	— St. Michael, each	2 0	6 0
Grapes, per lb.	2 0	4 0			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	8 0	10 0	Mustard and Cress, punnet	0 4	...
Beans, French, lb.	0 8	...	Onions, per bunch	0 8	...
Beet, red, per dozen	1 0	2 0	Parsley, per bunch	0 6	...
Carrots, per bunch	0 6	...	Rhubarb, per bundle	0 6	...
Cauliflowers, each	0 3	...	Seakale, punnet	2 0	...
Celery, per bundle	1 6	2 0	Shallots, per lb.	0 6	...
Cucumbers, each	1 0	1 6	Spinach, per bushel	1 0	...
Endive, per dozen	2 0	...	Sprue, per bundle	1 6	...
Herbs, per bunch	0 4	...	Brussel Sprouts, per lb.	0 3	...
Leeks, per bunch	0 3	...	Tomatos, per lb.	1 0	...
Lettuce, per dozen	1 6	...	Turnips, per bunch, new	0 1	...
Mushrooms, punnet	1 6	...			

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ferns, various, doz.	8 0	24 0
Aspidistra, doz.	18 0	42 0	Ferns, in var., per dozen	4 0	18 0
— specimen plants, each	7 6	10 6	Ficus elastica, each	1 6	7 0
Azaleas, various, each	2 0	3 0	Foliage plants, various, each	2 0	10 0
Begonias, dozen	4 0	12 0	Hyacinths, p. doz	9 0	12 0
Christmas trees, doz.	4 0	24 0	Lily of the Valley, p. doz. pots	18 0	24 0
Cyclamen, dozen	15 0	24 0	Marguerites, doz.	6 0	12 0
Cyperus, per dozen	4 0	12 0	Palms in var., each	2 6	21 0
Dracæna terminalis, per dozen	30 0	60 0	Pelargoniums, scarlet, per dozen	6 0	8 0
— viridis, per doz.	12 0	24 0	Pelargoniums, zonal, per dozen pots	9 0	12 0
Epiphyllum, per doz.	12 0	18 0	Roman Hyacinths, per dozen pots	9 0	12 0
Euonymus, in var., per dozen	4 0	18 0	Solanums, per dozen	6 0	12 0
Evergreens, in var., per dozen	4 0	24 0	Tulips, doz. pots	8 0	18 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcissus, paper-white,		
Acacia (French) bun.	0 9	1 6	French, doz. bun.	3 0	6 0
Azaleas, doz. sprays	0 9	1 6	— Eng., doz. sprays	0 9	1 0
Bouvardias, per bun.	0 8	1 0	Pelargoniums, scarlet, 12 spr.	0 9	1 6
Callas thiopica, 12 bl.	3 0	6 0	— dozen sprays	1 0	2 0
Camellias, white, doz.	2 0	4 0	Primulas, double, 12 sprays	1 0	1 6
— various, per doz.	1 0	2 0	Romans, Hyacinths, Eng., doz. sprays	0 9	1 6
Carnations, 12 blms.	1 0	2 0	Roses, Tea, per doz.	1 0	3 0
Chrysanth., 12 bun.	4 0	12 0	— coloured, dozen	2 0	4 0
Cyclamens, 12 blms.	0 4	0 9	— French, dozen	1 0	2 0
Daffodils, doz. blooms	0 9	1 6	— red, per dozen	2 0	3 0
Eucharis, per dozen	3 0	5 0	— Safrano, dozen	1 6	2 6
Gardenias, 12 blooms	2 0	24 0	Spirea, doz. sprays	1 0	1 6
Heliotropes, 12 spr.	0 6	1 0	Stephanotis, 12 spr.	9 0	12 0
Lilac, white, Fr., bun.	4 0	6 0	Tuberoses, 12 blms.	1 6	2 0
Lilium, var., 12 bl.	2 0	6 0	Tulips, doz. blooms	1 0	2 0
Lily of the Valley, doz. sprays	0 6	1 0	Violets, 12 bun.	1 0	2 0
Maiden Hair Fern, 12 bun.	4 0	9 0	— French, bunch	1 6	2 0
Mignonette, 12 bun.	2 0	4 0	— Parma, bunch	3 6	5 6
— French, per bun.	1 6	2 0			
Marguerites, 12 bun.	3 0	6 0			

ORCHID-BLOOM in variety.

POTATOES.—Market quiet. Best red soil Magnums and Regents, 100s.; Yorks (Mag.), 95s., other samples vary from 40s. to 85s. per ton. First arrival of Canary New Potatoes to hand.—Kidneys, 10s. to 22s.; Rounds, 10s. to 12s. per cwt.

J. B. Thomas.

SEEDS.

LONDON: *Jan.* 29.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report a moderate business doing. Choice samples of home-grown red Cloverseed are scarce, and command full prices. Ordinary qualities of both English and Continental growth are cheap and abundant. More money is asked for Alsike. White Cloverseed is firm. There is no change in Trefoils. Rye-grasses are neglected. Blue Peas show no movement. Unusually low rates prevail for Canary seed. Good black Rapeseed is wanted. For Mustard the sale is slow.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure (quarter), for the week ending January 25:—Wheat, 30*s.* 1*d.*; Barley, 32*s.* 2*d.*; Oats, 18*s.* 7*d.* For the corresponding period last year:—Wheat, 30*s.* 1*d.*; Barley, 26*s.* 7*d.*; Oats, 16*s.* 3*d.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *Jan.* 29.—Good supplies of green vegetables, English and foreign fruit, &c. Demand fair. Potato trade very quiet. Prices:—English Apples, 4*s.* to 6*s.* per bushel; American do., 16*s.* to 20*s.* per barrel; forced Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; Savoys, 2*s.* to 3*s.* 6*d.* per tally; Cauliflowers 6*s.* to 9*s.* do.; Curley Kale, 1*s.* to 1*s.* 3*d.* per bushel; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Spinach, 1*s.* to 1*s.* 3*d.* per bushel; Brussels Sprouts, 9*d.* to 1*s.* 6*d.* per half sieve; Turnip-tops, 1*s.* 6*d.* to 2*s.* per sack; Sprouting Broccoli, 1*s.* to 1*s.* 6*d.* do.; do., 1*s.* per sieve; Greens, 9*d.* to 1*s.* 6*d.* per dozen bunches; Turnips, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Carrots, 2*s.* to 2*s.* 6*d.* do.; Parsley, 2*s.* to 2*s.* 6*d.* do.; Cabbage Lettuce, 1*s.* 6*d.* to 2*s.* per dozen; Endive, 1*s.* 6*d.* to 2*s.* do.; Leeks, 1*s.* do.; Mustard and Cress, 1*s.* to 2*s.* per dozen baskets; Beetroots, 3*d.* to 4*d.* per dozen; Parsnips, 4*d.* to 8*d.* per score; English Onions, 7*s.* 6*d.* to 9*s.* per cwt.; Spanish do., 8*s.* to 8*s.* 6*d.* per case; Dutch do., 6*s.* 6*d.* to 7*s.* per bag of 110 lb.; Belgian do., 6*s.* 6*d.* to 7*s.*; Bordeaux do., 7*s.* to 8*s.* per case; Celery, 4*s.* to 12*s.* per dozen bundles; Horseradish, 1*s.* to 1*s.* 3*d.* per bundle.

STRATFORD: *Jan.* 29.—The supply has been good during the past week, and a fair trade was done at the following prices:—Cabbages, 1*s.* 6*d.* to 3*s.* per tally; Savoys, 3*s.* to 5*s.* do.; Turnips, 25*s.* to 35*s.* per ton; Carrots (household), 30*s.* to 40*s.* do.; do. (cattle feeding), 20*s.* to 24*s.* do.; mangolds, 14*s.* to 18*s.* do.; Swedes, 14*s.* to 17*s.* do; Onions, English, 10*s.* to 10*s.* 6*d.* per cwt.; do., Spanish, 7*s.* 6*d.* to 9*s.* per case; Apples, English, 2*s.* to 6*s.* per bushel; Watercress, 6*d.* per dozen; Celery, 6*s.* to 9*s.* per dozen rolls; Sprouts, 1*s.* 6*d.* to 2*s.* 6*d.* per flat.

POTATOES.

BOROUGH AND SPITALFIELDS: *Jan.* 28. Quotations. Regents, 45*s.* to 85*s.*; Hebrons, 40*s.* to 100*s.*; Magnum Bonums, 35*s.* to 75*s.*; Scotch, 60*s.* to 100*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *Jan.* 29. Quotations: Magnums, 45*s.* to 70*s.*; Regents, 55*s.* to 70*s.*; Champions, 45*s.* to 50*s.*; Imperators, 55*s.* to 70*s.*; Hebrons, 50*s.* to 60*s.*; Early Rose, 45*s.* to 50*s.* per ton.

STRATFORD: *Jan.* 29.—Quotations:—Scotch Regents, 60*s.* to 70*s.*; do., Magnums, 60*s.* to 80*s.*; light English do., 50*s.* to 65*s.*; dark, do., 40*s.* to 41*s.* 6*d.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 78*s.* to 93*s.*; do., inferior, 40*s.* to 75*s.* Best hay, 60*s.* to 90*s.*; do., inferior, 26*s.* to 50*s.* Straw, 28*s.* to 40*s.* per load.

Obituary.

WILLIAM WILDSMITH.—Our readers will learn with much regret that we have to announce the death of the well-known head gardener at Heckfield. After a short illness he passed away on Wednesday night last, January 29. Mr. Wildsmith has had charge of the gardens at Heckfield Place, Winchfield, for about twenty years, having been previously in the gardens in a subordinate capacity.

Since the severe shaking Mr. Wildsmith sustained some time since, through an accident when driving, he has been somewhat enfeebled, although his lively spirits were by no means subdued. He has been for some years a member of the Royal Horticultural Society's Fruit Committees, and attended the last meeting on January 14. Under his charge the gardens at Heckfield have been maintained in a thoroughly satisfactory manner, for, although a fruit grower, he was also a good all-round gardener, as the flower garden at Heckfield alone will testify. We hope next week to give further information.

LAW NOTES.

PROSECUTION OF A SALESMAN.

FREDERICK WISE was, on Thursday last, again charged at Bow Street, under the conditions already published, and committed for trial, subject to a formal remand.

NOTICES TO CORRESPONDENTS.

CREOSOTED CONSERVATORY TIMBERS: *C. B.* We have some slight recollection of having answered your inquiry at or about the time it was made. The timber once having been saturated with creosote—a preparation from Beech tar—nothing will again clear it, and a house built with such timber will be permanently unfit for plant growing.

DOUBLE-SPATHED ARUM: *T. A. H.* Not at all uncommon.

EXCHANGE.—Hare's-foot Ferns wanted in exchange for Soap-nuts. Address, G. H. P., 6, Morpeth Street, Spring Bank, Hull.

HEMLOCK: *H. R.* See Bentley & Trimen *Medical Plants*, or consult Pritzel's *Index Iconum* for a complete list of figures.

INSECTS: *J. Rose.* The grub sent is that of the Wood Leopard Moth, Zeuzera æsculi. The caterpillar should be killed by inserting a stout wire into its hole, or by forcing into the cavity some insecticide through a sharply-pointed nozzle.

NAMES OF PLANTS: *W. C. & S.* Crinum giganteum, Andr., *Bot. Mag.*, t. 5205.—*Aster Chinensis.* Helechrysum paniculatum. — *W. P.* Eupatorium Haageanum.—*X. Y. Z.* The plant sent as Melia Azederach is Duranta Plumieri.—*B. M.* 1, Taxodium sempervirens; 2, Cupressus sempervirens var.; 4, a species of Callitris *alias* Frenela, we cannot tell which species. Please say whence the specimens were derived.—*A. W.* 1, Bulbophyllum auricomum; 2, Dendrobium Johannis; 3, D. teretifolium.

PHOSPHATE OF LIME: *A. P.* This substance, required by most kinds of cereal and root crops, is found largely in bones and fossil phosphates, but being insoluble in water, it must be rendered soluble (biphosphate of lime), by the addition of oil of vitriol of a specific gravity of 1·70 to 1·75, and obtained as "brown acid." The proportions are: For coprolites, 20 cwt., 17 cwt. of brown acid, and 3 cwt. of water; for bone-ash superphosphate, 20 cwt. bone-ash, 16 cwt. brown acid, and 2¾ cwt. water. In making small quantities of phosphate of lime for home use, it is a good policy to use as much acid as the bones will take up, and as a general rule the water should be added to the acid and not to the bones. It should be carefully mixed in a walled cistern. When thoroughly made, it requires to be dried, and this is best done by mixing with some dry materials, as burnt earth, fine ashes, &c. A good manure is made from one third bones and two thirds coprolites.

THE FORCING GROUND, NEW GARDEN: *Charlotte B.* For tidiness' sake, the forcing ground and forcing houses of all kinds should be in an enclosure by themselves, there being at all times litter laying about, which, if this division form part of the kitchen garden, gets blown all over that department, causing constant labour in sweeping, &c. We often find long stretches of warm southerly walls in kitchen gardens that might be profitably utilised for Peach, Apricot, and Fig growing, given

up to form the back walls of vineries, &c., to carry a few shelves for Beans and Strawberries in the spring and winter.

TOMATO SEEDS GERMINATING WITHIN THE FRUIT: *E. C. T.* It will frequently occur when the temperature in which the fruit may be placed, is favourable to germination, and the seeds are enveloped in a pulpy cell mass. It may be noticed very commonly in Melons, Oranges, Cucumbers, &c.

TOMATOS: *J. C.* We should say that a rod 5½ feet high, if well grown, should yield about 10 lb. of fruit.

VINES AND EXTRA WARMTH AT THE FLOWERING PERIOD: *W., Malvern Wells.* Heat is beneficial at that period, because it acts favourably on the chemical changes that are then taking place within the flower. It also has the effect of causing the flowers on a bunch to open almost simultaneously. Hastening the flowering of any plant unduly is always in some degree injurious, but Vines will stand severe forcing for several years without ill effects, if heavy crops of fruit be not taken, and their general management is good. Only Vines with a restricted space for the roots, as one in a pot or tub, for instance, suffer greatly by being forced.

VIOLETS: *A. W. Fitzwilliam.* An excellent cultivator of the Violet, Mr. J. Heath, to whom we applied respecting the cause of failure, says:—"The Neapolitan Violet, when fairly well grown, begins flowering towards the end of August, and continues to do so more or less profusely until the end of April, and its persistence is such that it would be safe to say that in an untouched or undisturbed bed, a bloom, indifferent or otherwise, might be picked any day in the year. Not so with the Russian Violet, which generally gives a few flowers in autumn—say, September and October; its proper time of flowering being from February till end of April. Exceptions to this rule may arise from climatic influences, or from some exceptionally favourable situations and seasons, or from some check the plants may have sustained. Since your plants have made strong growth, and continue to be healthy, it is safe to say they will flower grandly at the proper time. The above is my experience in Scotland and the north of England. The Neapolitan and Marie Louise have the longest period of flowering of any of the varieties of Violets. Of course, if Russian Violets are in frames, they will flower more or less throughout the winter.

CATALOGUES RECEIVED.

R. and J. FARQUHAR & Co., Boston, U.S.A.—Seeds.
JAMES YATES, Underbank, Stockport—Carnations, &c.
WM. N. CRAIG, Kendal—Seeds.
BRUANT, Poitiers, Vienne, France—New Plants.
V. LEMOINE & Son, 134, Rue du Montet, Nancy, France—New Plants.
EMILE CAPPE, Au Vésinet (Seine et Oise, France)—General Plant List.
JOHN GARDINER & Co., 21, North 13th Street, Philadelphia, Pa., U.S.A.—Seed Annual for 1890.
HOOPER & Co., Covent Garden, London, W.C.—Seeds.
WILLIAM GREEN, 44, Vicar Lane, Leeds—Garden and Agricultural Seeds.
V. DÖPPLEB, Erfurt, Germany—Seeds and Plants (Wholesale List).
WM. SAMSON & Co., 8 and 10, Portland Street, Kilmarnock—Seeds and Plants.
W. TAIT & Co., 119 and 120, Capel Street, Dublin—Garden Seeds, &c.

COMMUNICATIONS RECEIVED.—E. Jenkins.—A. D.—Strecker.—G. H. Pugh (next week).—Barr & Son.—V. W.—W. B. H.—J. Roberts.—D. S. M.—C. W. D.—H. W. W.—E. M.—D. T. F.—G. F. W.—D.—W. C.—P. E. N.—Cb. D. B.—J. East.—J. S. C.—N. E. B.—J. Carvill.—J. F.—J. W.—Constant Reader.—W. L.—E. P. & Sons.—Wm. Smythe.—W. D.—D. Hunt.—H. R.—I. F. T.—J. C. & Co.—W. R.—J. D.—M. T. M.—J. S.—H. E.

DIED. On January 23, at Hastings, HENRY CLARKE WEBBER, of Covent Garden Market, aged 41, younger surviving son of the late Michael James and Margaret Webber.

—— We regret to announce the death of Mr. JAMES BELL, Head Gardener for seventeen years to Lord Blantyre, Erskine House, on Sunday, January 26, after an illness of eight months' duration, at the age of 54 years. He left a widow and four children.

HARTLAND'S 56 page "YEAR BOOK" of SEEDS for 1890.

Within itself unique in the extreme. His "Book of Daffodils" has no rival in the United Kingdom. His "Book of Seeds" for 1890 is not like any other publication throughout the British Isles, and there are seeds and plants offered that no other house has yet attempted to offer. Send three stamps to cover postage, &c., and *write for copy.*

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C. FIDLER, Seedsman and Potato Grower, Reading.

QUICKS, QUICKS!!—1½ to 2 feet, 10s. 1000; 2 to 2½ feet, 12s. 1000; 2½ to 3 feet, 14s. 1000; 4 to 5 feet, 50s. 1000. All fine stout stuff.
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CHRISTMAS ROSES for Present Planting, Bath variety, strong plants, 6s. per dozen, including packing, for cash.
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To the Trade.
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W. BALCHIN AND SONS, Hassocks, Sussex.

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W. THOMPSON, SEEDSMAN, 34, Tavern Street, Ipswich,
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FOREST TREES.—ASH, 2 to 3 feet; BIRCH, twice trans-planted, 3 to 4 feet, 4 to 5 feet, 5 to 6 feet; ELM, Scotch, twice transplanted, 3 to 4 feet, 4 to 5 feet, 5 to 6 feet, 7 to 9 feet; LABURNUM, twice transplanted, 4 to 6 feet, 5 to 7 feet; OAK, English, 1½ to 2 feet, 2 to 3 feet; PINUS AUSTRIACA, 1 to 1½ feet, twice transplanted, 2 to 3 feet, 3 to 4 feet; PINUS MONTANA, twice transplanted, 2 to 3 feet, 3 to 4 feet; Scotch FIR, twice transplanted, 1½ to 2 feet, 2 to 2½ feet, 2½ to 3½ feet; Spruce FIR, 8 to 12 inches, 12 to 18 inches, 1 to 1½ feet, twice transplanted, 1½ to 2 feet, 2 to 3 feet; Silver FIR, 9 to 12 inches, 12 to 18 inches, 18 to 24 inches. SHRUBS, HOLLY, Green, several times transplanted, 1½ to 2 feet, 2 to 3 feet, 3 to 4 feet; YEWS, English, several times transplanted, 1½ to 2 feet, 2 to 3 feet, 3 to 4 feet; THUIA LOBBII, twice transplanted, 2½ to 3 feet, 3 to 4 feet, 4 to 5 feet; CUPRESSUS NUTKAENSIS, 2 to 3 feet, 3 to 4 feet, 4 to 5 feet.

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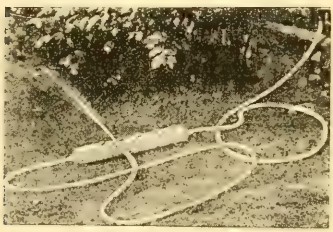
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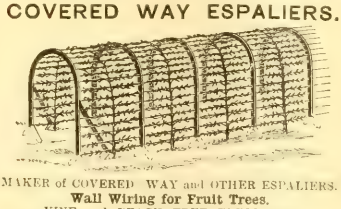
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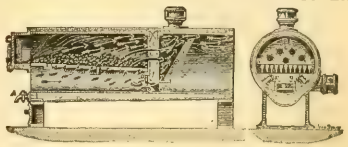
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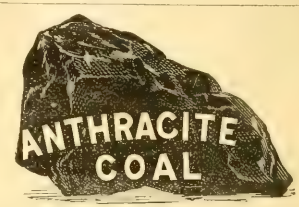
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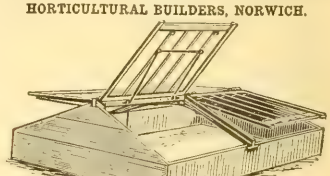
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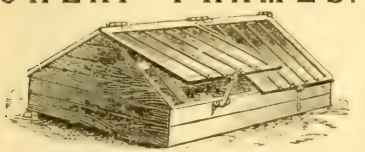
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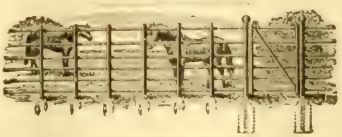
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GARDENER (HEAD).—Age 32, married; eighteen years' experience in good places. Thoroughly competent in all branches. Good references. Abstainer.—F. C., Tongham, near Farnham, Surrey.

GARDENER (HEAD), where two or three are kept.—Age 34, married, one child (age 9); well up in all branches. Had charge of present Gardens eleven years. Late Foreman at Woolley Park.—T. M., The Gardens, Whitley Beaumont, Huddersfield.

GARDENER (HEAD).—Thoroughly understands the Cultivation of all kinds of Fruit, Flowers, and Vegetables. Also Land and Stock, if required. Eighteen years' experience. First-class references.—T. PERKINS, Great Hadham, Herts.

GARDENER (HEAD); age 29.—J. TRIGGER, The Gardens, Milton Park, Peterborough, can very highly recommend James Upex, who has been with him seven years as General Foreman, to any Nobleman or Gentleman requiring the services of a good and reliable man.

GARDENER (HEAD); age 30, Scotchman.—A. MCLEOD, Gardener to the Marchioness of Headfort, Headfort Gardens, Kells, co. Meath, Ireland, can with confidence recommend his Foreman (Jas. McKellar) to any Lady or Gentleman requiring a thorough practical, good all round Gardener. Fourteen years' practical experience.

GARDENER (HEAD).—Age 40; offers his services to any Nobleman, Lady, or Gentleman. Thoroughly competent in Orchids, Vines, Ferns, Stove Plants of all kinds, Early and Late Forcing, good Kitchen Gardener. Wife would take Dairy and Poultry. Good reference. Abstainer.—E. D., 17, Leslie Road, Fixholme Lane, Dorking, Surrey.

GARDENER (HEAD); age 27, married when suited.—The HEAD GARDENER, Brookman's Park, Hatfield, will be pleased to recommend the Foreman, who is leaving, to any Lady or Gentleman who is seeking a thorough competent man. Thirteen years' experience in all branches of Gardening.—Address for full particulars as above.

GARDENER (HEAD WORKING).—Single; experienced in all branches. Good references.—F. F., Ivy Cottage, Ham Common, Surrey.

GARDENER (HEAD WORKING).—Age 39, married, two children; twenty-five years' experience in all branches. Excellent testimonials.—X., F. Street, Heatherside Nurseries, Farnborough Station, Hants.

GARDENER (HEAD WORKING).—Age 32, single; fourteen years' good character. Experienced Inside and Out.—WM. JONES, Bodorgan Gardens, Llangefni, N. Wales.

GARDENER (HEAD WORKING).—Married, no family; experienced in Orchids, Fruit, Flower, Kitchen and Flower Gardens. Excellent references. Abstainer. —S. HEATON, Lindwell, Greetland, Yorks.

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GARDENER (HEAD WORKING).—Age 30, married; total abstainer. Practical experience in Early Forcing of Fruit, Stove and Greenhouse Plants, Kitchen and Flower Garden. Can be highly recommended. — KING, 20, Gloucester Road, Manor Park, Essex.

GARDENER (HEAD WORKING), where one or more are kept.—Age 37, married, three in family (youngest, age 5); good practical experience in all branches. Seven years' good character, and good testimonials. —C. BAVERSTOCK, Basing-toke.

GARDENER (HEAD WORKING), where two or more are kept.—Age 37, unmarried; thoroughly experienced in all branches of Gardening. Good references as to character and abilities.—J. B., Grove Cottage, Balderton, Newark, Notts.

GARDENER (HEAD WORKING), where two or three are kept.—Age 44, married, no family; to any Lady or Gentleman requiring a practical man. Four and a half years' good character. — BROWN, 16, Ellora Road, Streatham Common, S.W.

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JOURNEYMAN, in the Houses, in a Good Establishment.—Age 22; abstainer. Excellent character as to abilities in previous and present situations.—Please state wages, with bothy, to T. KEMP, Bodorgan Gardens, Llangefni, Anglesey.

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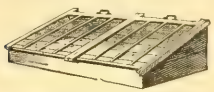
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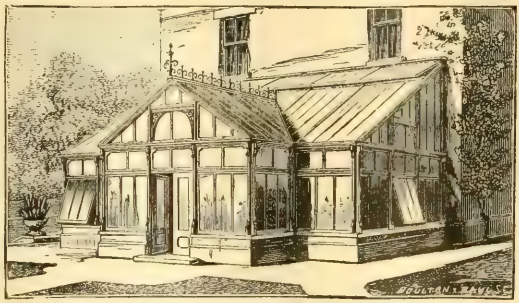
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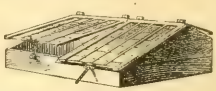


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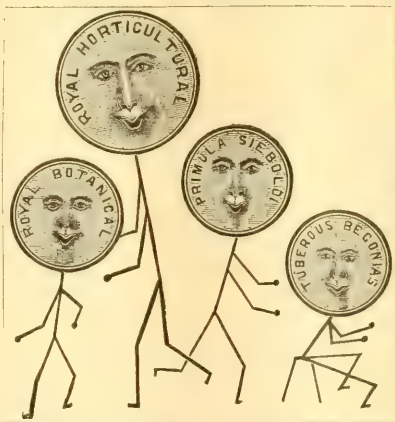
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THE GARDENERS' CHRONICLE,
Vol. VI., Third Series, JULY to DEC., 1889.
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MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and SATURDAY NEXT, February 12 and 15, at half-past 12 o'Clock precisely each day.

On view mornings of Sale, and Catalogues had.

Thursday Next.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, February 13, at half-past 12 o'Clock precisely, a fine collection of ORCHIDS in FLOWER and BUD, comprising three fine plants of Dendrobium nobile Sanderianum, and many other fine varieties and specimens, &c.

On view morning of Sale, and Catalogues had.

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On view morning of Sale, and Catalogues had.

Monday Next.

2000 LILIUM AURATUM, including several lots of immense bulbs—Lilium Krameri, L. longiflorum, and L. speciosum rubrum, from Japan; also a large assortment of various English-grown LILIES, HARDY BULBS, TUBEROSES, 2000 LILY OF THE VALLEY, ROSES, PLANTS in Pots, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, February 10, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 11, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

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May be viewed one week prior to the Sale. Catalogues had of Mr. R. NEAL, The Nursery, Wandsworth Common, S.W.; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

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MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY, NEXT, February 12, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

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Three miles from Uckfield Railway Station.

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MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Woodlands Nursery, Maresfield, near Uckfield, on WEDNESDAY and THURSDAY, February 12 and 13, at 12 o'Clock each day, by order of Messrs. William Wood & Son, a large quantity of unusually well-grown NURSERY STOCK, carefully prepared for removal, consisting of 5000 Border Shrubs, including many handsome specimen Conifers and Evergreens, in various sizes; 100,000 extra strong Quick; 1000 large Laurels, 4 feet to 6 feet; 20,000 Scotch Firs, 2 feet to 3 feet; a great number of Standard Ornamental Trees, admirably adapted for avenue, park, and street planting; Ornamental Flowering Trees and Shrubs; 2000 Standard, Dwarf, and Climbing Roses; 2000 Climbers, from pots; 5000 Standard, Pyramid, and Dwarf-trained Trees, consisting of Apples, Pears, Plums, &c.; together with other Stock fully described in Catalogue.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

Friday next.

Established ORCHIDS for Sale without reserve, by order of Messrs. J. W. Steel & Co., who are relinquishing their business.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 14, at half-past 12 o'Clock without reserve, a large quantity of various Established ORCHIDS, by order of Messrs. J. Steel & Co., specially suitable to gentlemen desirous of forming or adding to their collections.

On view morning of Sale, and Catalogues had.

Friday Next.

LÆLIA AUTUMNALIS ALBA.

Consignment from Mr. Pechacek for Unreserved Sale.

Mr. Pechacek writes that he guarantees every bulb to be true, and adds that "no more plants will be sold or sent because they are not to be found." The whole consignment, comprising 16 plants, will be offered in 15 lots. Many of the plants offered in his previous consignment, and Sold on March 1 and May 10 last year, have flowered, and all have turned out to be true.

A First-class Certificate was awarded to Messrs. Veitch & Sons for a group of plants that flowered from the consignment of last year.

MESSRS. PROTHEROE AND MORRIS will include the above in their ORCHID SALE on FRIDAY NEXT, February 14, at half-past 12 o'Clock, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA SPECIES.

Offered for the first time, received from our oldest collector, who has been some months past searching in a hitherto unexplored district, in and beyond the region whence come the wonderful varieties of C. Hardyana, C. Massiana, &c. The plants were not in flower when collected, but the gigantic flower spikes having as many as seven flower-seats, and the fleshy boat-shaped leaves, would indicate its distinctness and great beauty. The plants offered in splendid condition, and are well-leaved, considering the long distance our man had to bring them from the forests of the interior of Columbia. The fine condition they are now in, and the fact that we have never before seen a type of Cattleya gigas with such extraordinary bulbs and leaves, we think we are warranted in saying that this is a very desirable introduction.

DENDROBIUM FREEMANNII,
Splendid purple-flowering Dendrobe.

CATTLEYA GASKELLIANA ALBA in flower.

CATTLEYA GASKELLIANA,

from a hitherto unsearched district. One of our collectors, when searching for other Orchids, was surprised to find this species at such a long distance from where C. Gaskelliana has been found hitherto. As no other European has probably penetrated the forest to such an extent, many new varieties may be found in this consignment. A perfectly snow-white form has just opened from among this batch, and the plant will be offered for Sale on February 14 as a "lot. The plants that are now being sold were brought by negroes from the interior of the forest on their backs during a journey of twenty-four days. The plants are well leaved.

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From the Railway Woods of Northern Brazil. These plants are all offered as received, on blocks, having been established by a native, hence they are in fine condition; many large masses are among them, and grand things will flower out of the batch, judging by the enormous flower spikes and fine bulbs.

MESSRS. PROTHEROE AND MORRIS will include the above by order of Messrs. F. Sander & Co., St. Albans, in their sale by auction at their Central Sale Rooms, 67 and 68 Cheapside, London, E.C., on Friday next, February 14, at half-past twelve o'clock precisely.

On view morning of Sale, and Catalogues had.

February 20.

SALE of NURSERY STOCK from Sample.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of NURSERY STOCK from Sample will take place as above.

Orchids in Flower. Special Sale. Tuesday, Feb. 25.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of ORCHIDS in FLOWER, will take place as above, for which they will be glad to RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

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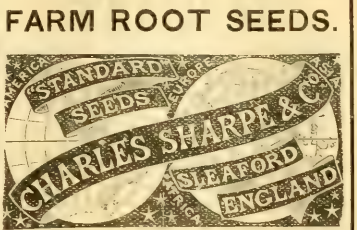
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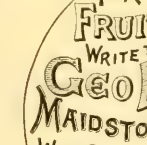
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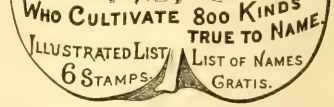
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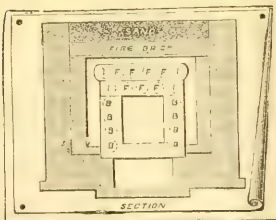
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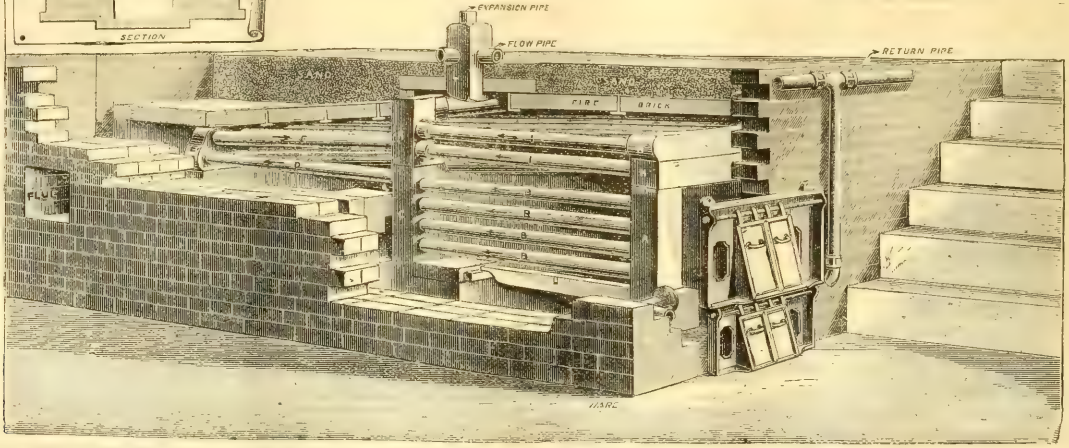
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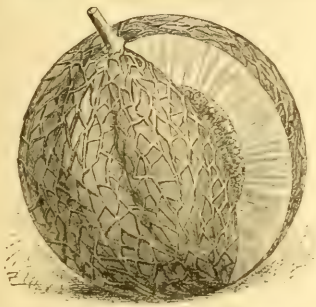
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WILLIAM BAYLOR HARTLAND submits the following relative to the merits of this plant. He has no other means than with such testimony of adding force to what has already been written on the subject. There is no doubt the Irish variety is quite distinct from that known in England, and he is sincerely obliged to Messrs. Pearson, Backhouse, Payne, and Cullingford for what they have written him on the subject.

*** Strong Plants (Orders now in strict rotation), 12s. per dozen; 1s. 3d. each.

Dozen lots post-free.
Single plants 3d. extra for postage.
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"Your Soleil d'Or Sunflower is certainly perfectly distinct from the ordinary form grown in this country, and is, we think, rather richer in colour. It will be a decided acquisition to our English gardens.

"A. AND C. PEARSON,
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"JAMES BACKHOUSE AND SONS,
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"Dear Mr. Hartland,—I am writing to tell you how very pleased I am with your quilled herbaceous Sunflower. I have grown nearly all the varieties of Sunflowers for many years, but of all the double flowers I consider this the very best.—Yours truly,

"W. H. CULLINGFORD,
"Earl's Court, Tunbridge Wells, London."

*** The plant has also been sent to Kew and Chiswick Gardens for trial, and PRONOUNCED QUITE DISTINCT.

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As a Supplement
TO THE
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FOR
Next Week, February 15,
WILL BE
Published an Ink Photograph
OF
ODONTOGLOSSUM PESCATOREI,
With One Hundred and Thirty Flowers.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 8, 1890.

HORTICULTURE AT VERRIÈRES.

NUMBERS of persons in this country, connected with horticulture and agriculture, rejoice in the acquaintance of M. H. L. de Vilmorin, a frequent visitor amongst us, and almost a native in his command of our language. Those who do not know M. Vilmorin will still be glad to hear something of the famous farms and trial grounds of the oldest firm of seedsmen in the world, and one of the most extensive.

My special mission in paying a visit of two days to Verrières, a village 10 miles due south of Paris, where the trial grounds are situated, was to examine the collection of different varieties of Wheat which, on July 22, were "dead ripe." Perhaps I may mention incidentally that M. Vilmorin is the author of a very handsome illustrated quarto volume, entitled *Les Meilleurs Blés*, in which all the best sorts of wheat known in European agriculture are accurately described, and the ears and grains beautifully illustrated. From 100 to 500 plots of wheat are grown at Verrières, side by side, including sorts from all parts of the world, which are here compared with one another, and their respective merits and demerits demonstrated, and the numerous synonyms among the so-called varieties discovered.

On arrival, I found M. Vilmorin among some rows of peas, with a plant in his hand, which he was closely examining, and at the same time dictating to an amanuensis a minute description of it. All or most of the incomparable Peas grown in England were there, and all would be subjected to the same close scrutiny. The best Wheats were subjected to the same process, and the result has been that M. Vilmorin has been able to compile the most complete book that has yet appeared on the subject. English farmers, knowing, as most of them do, only about half-a-dozen different sorts of Wheat, would be astonished at the accuracy with which they are all described in *Les Meilleurs Blés*, both as regards their appearance, length, and abundance of straw, &c.; and their special characteristics and

value, and the sorts of soils which suit them; for there is no best Wheat for all soils and climates, or one pre-eminent sort would suffice, whereas we have at least three or four score, red and white, long and short, bearded or beardless, coarse for indifferent situations, or refined for the finest Wheat soils.

The farms at Verrières have been for forty years past used by the firm of Messrs. Vilmorin, Andrieux & Co. as a site for the preservation of old varieties of plants, and for the production and trial of new varieties. The experimental grounds comprise each year about 25,000 plots. As in the case of our own leading seedsmen, these different divisions are applied to the growth of stock seed for distribution among the growers of the firm; to the cultivation of seeds delivered by the growers so as to subject the produce to the test of comparison; to the trial of novelties introduced by other seedsmen, as in the case of the new Peas I mentioned just now; and to the preservation of a number of typical examples to serve for comparison in the work of keeping old sorts true, and in introducing new varieties. It needs but little reflection to comprehend what a vast amount of work is entailed upon the firm and its experts in carrying into effect the various objects thus described. There are compartments for all the principal productions; for flowers of various kinds; for Mangold (the seed of which is sold by this firm to the extent of two to three million pounds annually); for Potatos, forage plants, Peas and "Haricots;" and, in fact, for everything. And at the farm of St. Fiacre, where some fine ranges of sheds and floors have been erected for dealing with the ripe seeds and for storage, the patron saint of gardeners' figures above the chief entrance, and seems appropriately to preside over the industry of this great establishment.

The land in the immediate neighbourhood of Verrières is fertile, and in driving from the railway station at Massy I noticed that it was chiefly devoted to the growth of vegetables for the Paris markets. This kind of cultivation is more profitable than the growth of seeds, and M. Vilmorin's neighbours do not, in fact, grow any, so that his choice stocks of various kinds – which, no doubt repay him the extra cost of their production—run no risk of becoming contaminated by intermixture with common sorts. Perhaps I may turn aside here to mention that I happened to be at Verrières on the annual *fête* day, and M. Vilmorin being the mayor, I had the pleasure of hearing his address to the people, delivered in a tent where, with the assistance of the clergyman and two or three other gentlemen, he distributed a large number of handsome books as prizes to as bright-looking a lot of village school-children as I have ever seen. There was quite a crowd of small landowners present, and they all looked smart and well-to-do. The ceremony was not of long duration, and at its close we passed among the roundabouts, fancy stalls, and shooting galleries, and then returned to our *betteraves*, &c. But, if I may tell the story, my accomplished guide and host, being invited as the mayor to show his skill, smashed three revolving eggs with a pea-rifle very neatly, and then we retired in triumph.

As to the *betteraves*, or Sugar Beets, it is a great mistake, growing them too large, inasmuch as the smaller ones contain a far larger percentage of sugar. The same rule applies to Mangold Wurzel for cattle, which ought never to be grown in rows much more than 27 inches apart, except for the purpose of cleaning foul land. The crop should consist of many and small, rather than few and large. And yet, such is the popular ignorance, that growers sometimes throw it in the seed merchants' teeth that his *betteraves à sucre* (for this can surely only occur in France) are not of the giant or mammoth breed.

I saw Onions growing in very many plots. The Potatos are a fine collection, to which, in fact, all the novelties are added every year. The practice here is to select the best from all the sorts here tried and tested, and not to breed any. Some are grown for trial, and some—previously approved of—are grown for seed, *i.e.*, sets, to be sent to growers.

In England a potato merchant will look at no tuber which has not white flesh, and strange grimaces would be made at the Criterion or Holborn restaurants—these busy feeding places—if yellow-fleshed Potatos were served at dinner. In France it is the other way; bright yellow is the approved colour, and in one of his frequent visits to England M. Vilmorin met with the very early yellow-fleshed Potato, Victor, an earlier variety than the Ashleaf, and found no difficulty in transferring it to France, where it has been a great favourite.

We next observed a collection of Gourds and the Custard Marrow, which, when true, grows in a clump, and does not "run." The blossoms are artificially impregnated, and to keep them true, are confined in such a bag as Grapes are secured in sometimes to baffle wasps and flies. French Beans and Gerkins came next, and then Scarlet Runners — red, white, and bi-colored; and a Lina Runner, and a late Bulgarian sort, named Southern Prolific, with dark-coloured, purple flowers. We passed the ground where the Peas had been harvested, and the dwarf Beans. The green-seeded French Beans, which are so much in fashion in France, are obtained in this way; the haulm is pulled up before the seeds are ripe, and put into heaps, with a covering of straw to preserve them from the weather. The Beans so treated, when shelled and boiled, preserve their green colour.

The trade in these green French Beans has become a very large one around Paris and elsewhere. Soja hispida, or Dolichos soja, the Soy Bean, is represented here. It is grown for fodder and for ploughing in green as manure, and is of little value in France, it ripening too late, if at all. But it is one of the great food plants of the world, a native of Japan, De Candolle says, and used in that country and in China from remote antiquity. The Bean contains a large proportion of oil, and preparations similar to butter and cheese, and oil, are obtained from it in the cookery of the East.

Flowers innumerable are grown in the grounds, of various kinds for the production of stock, seed, and with the other objects already noticed. I observed an exquisite light blue Delphinium, which was raised here; charming rose-coloured sweet Peas; Gladioli; Phloz Drummondi fimbriata, the blossoms fringed and pointed—an innovation, not an improvement; Italian Verbena, striped. But we had little time among the flowers, and left them for another occasion, my pencil having been mainly occupied among the varieties of Wheat, hybrids, cross-breds and pure-breds. *H. E.*

New or Noteworthy Plants.

CYPRIPEDIUM "NORTHUMBRIAN"
(*new hybrid*).

This new hybrid has been raised by Mr. Drewett O. Drewett, of Riding Mill-on-Tyne, from seeds of C. calophyllum, fertilised by the pollen of C. insigne var. Maulei. It belongs to the same group as C. Ashburtoniæ, C. Crossianum, and C. obscurum, and is of about equal merit with those plants from a decorative point of view. The leaf is similar to that of C. insigne in shape, but it is indistinctly marbled with dark nerves and cross veins. The peduncle is 7 or 8 inches long, brownish-purple, and pubescent. The bract is similar to that of C. insigne, about 1½ inch long, convolute in the lower part, dull green, suffused and dusted with dull purple. The ovary is about twice as long as the bract, entirely of a dark purple colour, and softly pubescent. The upper sepal is almost exactly elliptic, being broadest at the middle, and nearly equally narrowing at both ends, sub-acute, nearly 2½ inches long by 1½ inch broad, pubescent on the back; the basal and central area is light apple-green, well covered with small brownish-purple spots, and the apical third and the broad borders are pure white and unspotted; the nerves are numerous and closely set, and neither very prominent or strongly coloured. The lower sepal is oblong-acute, pale green, spotted with brownish-purple at the base. The petals are similar to those of C. Crossianum, but are a little paler, and not so spotted, they are light brownish-purple, fading into purplish-ochreous at the tips, and with the nerves and indistinct cross-veins rather darker; the base is yellow-green, with a basal tuft of purple-brown hairs, and the wavy edges are ciliate, with fine purple hairs. The lip is pointed, and somewhat like that of C. insigne in form, shining, and of a light brownish-purple colour, the inflexed sides of the claw being ochreous, with a faint purplish tinge, and dotted with purple. The staminode is broadly obcordate, with a short tooth in the notch, having a ridge-like tubercle in front; the colour is pale purplish. Of the hybrids allied to it, C. Crossianum comes nearest, but the upper sepal of that flower is broadest towards the base, and the lip is not pointed. The broad ovate form and dark green prominent nerves of the upper sepal, and wart-spots of the sepals of C. calophyllum, its mother parent, have entirely disappeared in the hybrid, and if its parentage was not certain, no one would probably have guessed that C. calophyllum was one of its parents. It only shows how unwise it is to attempt to assign parentage to supposed hybrids, without certain knowledge of their origin. Mr. Drewett has, however, ingeniously stated, that it is just such a hybrid as one might expect to obtain from a cross made between C. Crossianum and C. Ashburtoniæ. These two plants are the issue of four parents, thus:—

C. Crossianum = { C. insigne. / C. venustum.

C. Ashburtoniæ = { C. insigne, / C. barbatum.

If we assign the fractional value of half to each of the four parents of these two hybrids, then to the elements of a hybrid raised between C. Crossianum and C. Ashburtoniæ, we should assign half that fractional value, or one quarter; such a hybrid would therefore be compounded of the elements:—

C. insigne, ¼ / C. venustum, ¼ / C. barbatum, ½ = ½ + ¼ + ¼

And this new hybrid "Northumbrian" has the same combination in the same proportions, thus:—

C. "Northumbrian" = C. calophyllum × C. insigne (Maulei) = (C. barbatum, ½ + C. venustum, ½) = ½ + ½ = 1

But so curious are the ways of Nature, that it by no means follows that a plant just like C. "Northumbrian" would be obtained by crossing C. Crossianum and C. Ashburtoniæ; however, it would be very interesting, from a scientific point of view, if some one would make the experiment. *N. E. Brown, Herbarium, Kew.*

Cypripedium Leeanum var. biflorum, *new var.*

Mr. D. O. Drewett, of Riding Mill-on-Tyne, has sent to Kew a very handsome form of this plant, which shows a decided tendency to produce two flowers on a scape, though, as is also the case with C. bar-

batum var. biflorum, the peduncles are not always two-flowered, but when one-flowered, seems recognisable from the two other forms of the plant, by the large development of the secondary bract. The upper sepal is large and full, and well marked with purple spots, and the whole flower is brightly coloured. The peduncle seems also to be rather longer than usual. The parents of this form are C. insigne var. Chantini, seed parent, and C. Spicerianum, pollen parent. *N. E. Brown, Kew.*

Cypripedium siamense, *n. sp.*

This is a new and pretty Cypripedium, imported from the neighbourhood of Bangkok, in Siam, of which a leaf and flower have just been received from Mons. J. Garden, Horticulteur, Bois-Colombes, near Paris, for description. It belongs to the group with tesselated leaves, and apparently stands nearest to C. javanicum, Reinw. The leaf is linear-oblong, 6 inches long, 1¾ inch broad, grey-green, somewhat glaucous above, and tesselated with dark green nerves, very glaucous below. Scape 14 inches high, dark purple-brown, pubescent. Bract acute, 1 inch long. Ovary 2⅔ inches, purple-brown. Dorsal sepal broadly ovate, acute, 1½ inch long; light green in the centre and base, passing into light purple, and thence into a broad white margin; the nerves dark green, seventeen in number; and the margin reflexed. Lower sepal smaller, narrower, pale green, with six darker nerves. Petals ligulate, slightly deflexed, 2½ inches long, 8 lines broad, ciliate; light green, with twelve darker nerves, with about six blackish warts on upper margin, the distal third passing into pale purple. The lip 2 inches long, the pouch ellipsoidal, sub-compressed, pallid behind and at apex, with small dusky spots, purple-brown in front, the infolded basal lobes meeting at their edge, pale whitish-green, with numerous small and a few larger purple-brown spots and warts. Staminode horse-shoe shaped, with a notch in the basal and a small tooth in the apical side, the margin of a pale purplish colour, and the centre with numerous dark green nerves. I understand that it is to be sent out this spring, and no doubt it will be welcomed by cultivators of this interesting genus. *R. A. Rolfe.*

LOCKINGE.

On October 12 last year we published in these columns an account of the gardens at Lockinge, made famous in these days by Lord Wantage. Since the publication of that paper we afforded our readers, on January 11, a view of the conservatory, flower garden, and church; and we now give a view of the rock garden, and a bridge over the neighbouring stream (fig. 26), and another (fig. 27), of the same stream a little distance away from the rockery.



Fig. 26.—Rockery and rustic bridge over a stream in the gardens, lockinge.

The stream has been very successfully dealt with by the garden artist, and exhibits so little obtrusion of art, that it is quite a charming feature of the garden. The rockery is not a very pretensious thing, but it is natural, and well adapted to the growth and to the display of the plants with which it is furnished.

A GARDENERS' PROBLEM.

Horticulture (p. 116) is said to be "built up of traditions"—which means, I presume, that the opinions and practices relating to horticulture have been handed down to posterity unwritten. I, like many others, have scaled the horticultural ladder, or passed through the routine of gardening, in the usual way; but from the very commencement I had to call in the aid of the written history of the profession, in the shape of good standard words on gardening, or that supplied through the medium of the horticultural press, which was always welcome, seeing that it contained the most recent cullings from the head-quarters of horticulture. Who, then, can say that horticulture is made up of unwritten traditions? There are hundreds of establishments throughout the country where the knowledge of gardening to be obtained is of the most rudimentary kind, if entire dependence is to be placed on what is to be obtained from the verbal instructions of the chief. Even in large establishments, young men yearning for a knowledge of their profession, must glean it from various sources written and recorded. To ignore these facts is to ignore the valuable assistance given to horticulture by such men as Miller, Loudon, Thompson, Lindley, Thomas Moore, and many others, including living writers.

Much is written about imitating Nature, but I fear that many of her works are inimitable in many parts of the globe, the British Isles included. How can we imitate, in the confined limits of a greenhouse, or on pigmy mounds of earth called rockeries, what Nature requires a continent or a mountain, with their attendant climatic conditions of heat, light, and moisture, to effect? The history of Gentians, Primulas, Saxifragas, the Narras, and others, in gardens, all testify to what I mean. Who has not often been shocked by the burlesques on Nature in what are termed natural rockeries, grottos, and caves, especially as aids to plant culture? Man constructs these paltry imitations often without considering how the plants will be able to obtain light or water absolutely necessary for their existence. The grottos and caves are planted, and the subjects left pretty much to take care of themselves, and the gardener then wonders why they die. Illustrations of this may be seen in many otherwise good horticultural establishments. Nature builds rocks in a

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natural way, and then sows them broadcast with seeds of all kinds, and those grow which find the conditions suitable, including, it may be, an underground supply of moisture. In this, if I may be allowed the use of the expression, Nature may be described as empirical. A life-and-death competition amongst the plants themselves determines which will survive. Something similar may be seen in many hothouses, where the desire seems to be to crowd as many plants of different kinds as possible into a given space, utterly regardless of the fact that one-half is killing the other by overcrowding and want of light. Here a knowledge of that branch of botany, known as physiology, would be of immense advantage to the gardener, or those responsible for the medley in question.

Referring to the test plants mentioned by Mr. Watson at Kew, it is no doubt a clerical error (p. 117), which makes him say that the Narras (Acanthosicyos horridus), Welwitschia mirabilis, Macuna macrobotrys, and Camœnsia maxima, have been flowered at Kew. The flowering of most, or all of them, in Europe is still an accomplishment to be hoped for. It is true that the experiments have, so far, succeeded, but here the record terminates. Concerning the difficulty with Camœnsia maxima, I once got into hot water by describing the plant as a fine thing; and so it is if it could be flowered. "Is that the fine thing you spoke of?" exclaimed an enraged horticulturist, pointing to a miserable dwindling thing, with one or two leaves. Welwitschia mirabilis and the Narras are still in their infancy; and the planting of them in sand, or sandy soil and brick rubble, may surely be described as an attempt to imitate Nature. In the case of the former, if experiments are carefully conducted, and varied according to the increasing requirements of the plants for the next fifty years or more, the Welwitschia may be expected to flower. The operation of repotting may prove to be a risky one.

Detailed information concerning the conditions under which the Narras is found in a state of Nature, is recorded in the *Gardeners' Chronicle* for April 3, 1886, p. 436, and need not be repeated here. A description of the plant, at p. 721, same volume, was furnished by Mr. Ch. Naudin, Antibes, but after describing the plant in its native habitat, as he was informed through Père Duparquet, a French missionary, who resided in Dammara Land, he did not say that the conditions could be successfully imitated in the British Isles. He merely suggested that it might be cultivated in the sands of Egypt, in the Sahara, or in some country presenting the same or similar climatal conditions. The Narras flourishes in sand without any rain, but it must have moisture, and sends out roots of enormous length in quest of it. One of these, as measured by M. Duparquet, was over 325 feet long! Can those conditions be imitated at Kew? The arid atmosphere and the intense light in Dammara Land are here wanting. The flowering of this plant, yet in its infancy, is a problem to be solved, but the fruiting of it is a greater, and until that can be accomplished, as in the case of Melons and Cucumbers, horticulture cannot be said to have triumphed. A study of the morphology and physiology of the plant shows what an achievement Nature in her slow but sure way has accomplished in changing a leafy, climbing, Cucumber-like plant into a spiny, erect, leafless subject, capable of producing 200 fruits on a single individual on the rolling sand dunes of Dammara Land. Reproduction chiefly or solely by seeds is Nature's great aim, as has been well stated by Mr. Burbidge (p. 72), and in this she succeeds.

Again, the condition of plants in a state of Nature is not always a sure guide of what they are capable of doing if sown or planted in rich soil or protected from competition, as they are by horticulture or agriculture. Cabbages, Turnips, Potatos, cereals, Peas and Beans, are all good examples. Primula sinensis found in the dry ledges of limestone rocks in China is another. In this country when trees have been cut down, copsewood destroyed, or the taller herbage destroyed by fire accidentally or otherwise, various choice wild plants that had previously been ousted by competition spring up, including Paris quadrifolia, Polygonatum, Orchis maculata, Trollius europæus, and many others. It is frequently stated that our native Orchids require limestone for their successful cultivation, yet hundreds of them die in gardens, old mortar and brick rubble notwithstanding. I have seen Orchis maculata, O. latifolia, and others in a wild state, making growths from 18 inches to 3 feet in height, where there was no lime in any appreciable quantity in the soil. Armeria maritima is a seaside plant, as stated by Mr. Watson, but it also occurs on mountains in the Highlands at an elevation of 3800 feet. I have dried specimens about 3 inches in length from the rocky coast of South Wales, and others 10 inches and 12 inches long from Rothiemurchus, in Inverness-shire, where the plants were growing amongst rank sphagnum, associated with Drosera, Narthecium, and Polytrichum.

Amongst Orchids in gardens, Nature must still be allowed her own way with Scuticaria Steeli, Oncidium Jonesianum, Cattleya citrina, and others of that class which will persist in growing head downwards. Notwithstanding statements to the contrary, there are Orchid growers in this country who pursue the study of botany in several of its many branches, and succeed in the culture of their favourites. I recently listened to a very instructive paper on Orchids by Mr. Swan, who trenched deeply into the domain of botany both from a morphological and physiological point of view, and who afterwards answered many questions relating to the same. In answer to the question as to whether Orchids should be potted high or low, he instanced Calanthe, Phaius, and Cypripediums as kinds requiring to be placed deeply in the pots, whereas Cattleyas should be well raised above the surface. Herein we have a good cultivator advocating an imitation of Nature in treating terrestrial and epiphytal Orchids as such respectively. Although the roots of Cattleyas dip downwards into the soil, they bend out again directly, and grow down the outer surface of the pots. The chlorophyll developed in the roots of many epiphytal Orchids should teach the most sceptical horticulturist that Nature meant it to be exposed to light. I have seen Phalænopsis Schilleriana grown in small baskets producing panicles of bloom 3 feet in length, and the roots of those same plants were plunged, baskets and all, into large wooden cylinders filled with sphagnum. What was the result? The plants either died outright, or grew beautifully smaller at an alarming rate.

The enormous number of Orchids which have been killed annually for years past by the untutored or experimenting horticulturist cannot be conceived. The same might be said of Lilium auratum and other species. Auriculas have also been martyred by ingenious compounds of bullocks' blood, sugar-bakers' scum, night-soil, fuller's earth, &c.; but the florist is coming to his senses, and believes in the use of simpler and more natural composts, consisting chiefly of good loam. All these are not traditions, but have been recorded for the guidance of the younger members of the profession, who, indeed, have to learn the whole subject afresh, but are enabled to leap up by starts and bounds upon the ladder prepared for them by a long array of workers in the field, both gardeners and botanists.

There has been much wrangling over the words botany and botanist. The former originally meant plants for fodder, although it now applies to the science that treats of plants. It is questionable whether Linnæus, who has justly been termed the father of botany, would in his day have regarded phyto-physiology as having any connection with botany. Notwithstanding this, there can be little question that systematic, economic, and geographical botany, together with morphology, physiology, horticulture, agriculture, and everything dealing with plant uses, culture, and nomenclature, are all branches of one comprehensive whole. Each of these branches requires the whole time and attention of an individual, if he desires to excel, so that we have a division of labour, all tending to benefit and improve the whole. The objects of the one are not antagonistic to that of another. There is no reason why a man with a considerable amount of botanical knowledge should not be a good gardener if he chooses, and there are many such. No reasonable man would think of taking a botanist from the herbarium, a physiologist from the laboratory, or a museum curator to cultivate living plants, more especially if their experience has been solely acquired in those places. Horticulture does nevertheless frequently apply to such for information or assistance on various matters relating to horticulture. Geographical botany does also lend material assistance to a gardener in enabling him to locate his plant in the garden; and the conditions under which a plant is found in Nature will often prove a correct guide to follow, if possible, of approximately exact imitation. What we want is careful observers to correctly record the conditions. *J. Fraser, Kew.*

— As far as this question concerns the cultivation of hardy plants in the open air, perhaps I may be allowed to say a few words. It is asserted on the one hand that we often find plants in cultivation thriving better than they do in their native homes, and at the same time under very different conditions from those which they seem to prefer when wild. On the other hand, it is said that when we get a plant that is new to cultivation, we should try to imitate as nearly as possible the conditions, if we know them, under which the wild plant has been seen thriving. Both these statements are quite true. We cannot without experience determine which of the conditions are essential to the plants' well being, and which are accidental, but we find out this gradually by experience, and then by paying attention to the essential points, the gardener may improve upon Nature. But there can be little doubt that a gardener who commences his treatment with a knowledge of natural conditions has a great advantage over one who begins his work in the dark, though both may arrive in time at the same result.

Where a plant is seen thriving permanently, we may be sure that it has all that is essential to its welfare, and any one who can imitate exactly all the conditions under which the plant thrives is sure to succeed. There may be some conditions which are entirely superfluous, and might as well have been neglected; and there may be, and too often are, others which are entirely beyond human control, such as those of climate or atmosphere. Thus, many plants which can endure 70° of frost in winter, die out gradually in English gardens for want of sufficient sun-heat in summer, though they may seem to do well for a few seasons. This happens to some North American plants. Others, natives of the Alps and Pyrenees, and particularly of the Himalayan temperate regions, will not do well without an atmosphere nearly saturated with invisible moisture through the summer, and are withered by an English sun in June and July. South American subjects are still more intractable, refusing to be satisfied with any conditions our little island can afford, and remain permanently miffy and unsatisfactory, like Senecio pulcher and Ourisia coccinea. Again, to satisfy the natural conditions under which hardy Japanese and Chinese plants grow, we must eliminate that inevitable factor of an English spring, the blasting east wind. Our "spirantes frigora Couri cut back the spring growth of such plants as Dicentra spectabilis until they are worn out. These are a few cases of conditions beyond our control.

The cultivation of British alpine and maritime plants, of which I have had long experience, presents some curious puzzles and paradoxes. For example, of two Saxifrages, S. aizoides, and S. stellaris, one is abundant on the mountains of the Lake district, the other on those of North Wales, and they seem to grow under precisely the same conditions in trickling watercourses, and in *débris* of similar geological character. S. aizoides may be cultivated permanently and easily on any part of an elevated rockery, but S. stellaris will not grow at all here.

In the case of seaside plants, deep warm sand seems essential to some, and salt to others. Glaucium luteum, Frankenia lævis, Convolvulus Soldanella, Eryngium maritimum, and others, grow luxuriantly for a time in ordinary garden soil, but they gradually degenerate, and flower badly. Aster trifolium dies out soon. Mertensia maritima is a study in itself. Here I supply it liberally with salt, and it thrives; being a northern plant I cannot understand why it does well in the hot dry black soil at Munstead in Surrey. There is one plant which certainly seems to bear out the theory of those who contend that natural conditions matter little. It is Senecio spathulæfolius; I got this ten years ago from the storm-beaten rock near the South Stack lighthouse at Holyhead, which is, I believe, its only British habitat. Seeds of it come up wherever they fall in my garden; and are weeded up by hundreds; those that are left flower well, and in several generations

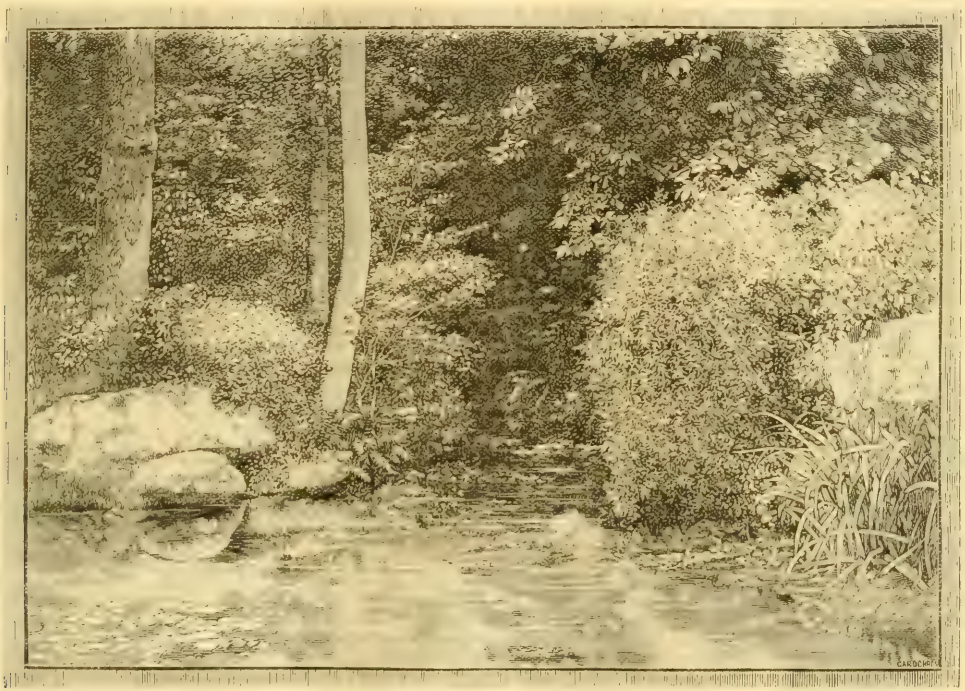


Fig. 27.—A part of the stream in the gardens, Lockinge.

the plant does not seem to have undergone the least change. It has been suggested that it is a moribund species; be this as it may, it retains a wonderful constitution. *C. Wolley Dod, Edge Hall, Malpas.*

PROPAGATION.

In all well-regulated gardens the reproduction of plants occupies a first place, and is going on more or less the whole year, according to the requirements of the establishment; indeed, the natural order of things renders it imperative, and more particularly so with plants which are grown under glass, and which are always living in an artificial medium, and under relatively unhealthy conditions. In many gardens there are structures provided, which render plant propagation comparatively easy; still gardens may be found which are destitute of these aids, and some simple contrivances are fitted up instead, which give a fair measure of success when the first principles of the art are understood. Beginners in the art seem to have an idea that a great degree of heat is required, especially bottom-heat, which is by no means always the case, and which is, of course, needless with most greenhouse plants; and even in the case of tropical things I have had the most success when heat was used in moderation. Bottom-heat, if it be strong, has a tendency to promote decay rather than the formation of roots; at all events, that is the case with hard-wooded plants. A high temperature in some cases will even retard the germination of seeds. What is of more importance than special structures or great heat, is, intelligent and unremitting attention on the part of the operator, want of success being more often attributable to neglect than any other cause. If a cutting be allowed to flag, it has parted with moisture which, in its rootless condition, it can only replenish with difficulty; and should this flaccid condition be often repeated, or long continued, failure is likely to result, for a cutting cannot form roots unless its cells are in a fairly turgescent condition. Consequently, means must be taken to maintain this condition in the cutting, by surrounding it with a genial moist atmosphere, being careful, however, not to keep the air around the cutting in a saturated condition, as this would set up a kind of fermentation of its juices, and induce decay. The usual and the most satisfactory method of accomplishing this is, by placing the cuttings in a small garden-frame or hand-light, in a house of the required temperature; indeed, frames are usually employed in propagating-houses, as they can be aired or closed as may be required, and fluctuations of all kinds are more easily guarded against. In choosing a position for the frame, it should be such as will admit the maximum amount of light, but not direct sunshine; and it should preferably face the north, less shading being then required. If the position will admit of it, a bed of mild fermenting materials may be used, such as spent tanner's bark, clean Oak leaves, or Cocoa-fibre refuse; but the last will be found of more use to plunge the cutting pots into, or to dibble the cuttings into if pots be not employed; besides, by damping it moderately before inserting the cuttings it will keep up the necessary humidity without much future watering being called for.

Sufficient time should be given, after putting the Cocoa-fibre into the box, to allow of it getting as warm as the temperature of the house, before placing the cuttings in it. In such a frame, and without bottom-heat, I have struck all sorts of tropical subjects in midwinter, with a very small percentage of loss; indeed, I consider this season of the year the most favourable for propagating tropical plants; the wood being then in a fairly mature condition, little active growth is taking place, and the sun having less injurious effect on them at that time, admits of more exposure to the light, which is an important factor, as cuttings much shaded are apt to lose their leaves, which should never be permitted. It is a good practice to tie up the foliage to a small stake, and this has two advantages—the leaves are not so liable to suffer through the cooling effect of radiation, nor are they so likely to get injured by the necessary handling, or to damp off, as would be the case if they were crowded together, or laying on the plunging material. As to whether the cuttings should be potted at once, or dibbled in the bed until rooted, or several inserted round the edges of a pot, will, in a large measure, depend on the species of plant, but generally, it is time saved to pot them singly into the pots—when large pieces are used—as less check to growth takes place when they are

potted. For Crotons, Acalyphas, Dieffenbachia tops, Cyanophyllums, and many similar things I have found the one cutting in a small pot to answer the best. And next to that, is the method of putting several round the sides of small pots, and which when rooted, may generally be separated with a small ball of soil. When repotting or moving them from the cutting frame, they should for a few days previously be afforded more air, as any sudden change is prejudicial to such tender things. It is in the unremitting attention paid to small details, that the chief secret of success lies. *F. R.*

ORCHID NOTES AND GLEANINGS.

THE CYMBIDIUMS.

THESE are very choice members of the great Orchid family, and are much valued in all gardens when well cultivated. I would not at this time have ventured to offer a few hints on their culture had I not seen recently some members of the genus in rather a sorry plight owing to bad management. One may well ask why is the beautiful C. eburneum to be seen sometimes in a healthy, vigorous condition, in a collection of ordinary stove plants, and in poor condition in a fairly well grown Orchid collection? The reason is obvious when one comes to examine the conditions of culture. The Cymbidium is to the person in charge, an Orchid to be treated the same as Lælia purpurata or Cattleya Mossiæ. The pots are filled about half full of drainage, and a compound is used for them of fibrous peat, sphagnum moss, potsherds, and charcoal. Many persons seem to get into a regular routine system of culture, and cannot deviate much to the right hand or the left, when it is absolutely necessary to do so. Cymbidium eburneum is the best known species in the genus, and is much valued for its large ivory white flowers, and strong perfume which is not pleasing to every one. The editor of the *Botanical Magazine* described it as having a smell of starch. It has been introduced into England at least forty-three years, for it was figured in the *Botanical Register* in 1847. Its discoverer, Mr. Griffiths, does not give any information of the conditions under which it was discovered, except that it was found at Myrung, on the Khasia Mountains of East Bengal, at an elevation of about 5000 or 6000 feet. The appearance of the roots, when the plants have been newly imported, are suggestive of swampy ground; and indeed the plants grow freely, and flower well in turfy loam; a little fibrous peat may be added, and a sprinkling of rough white sand, and leaf-mould in the proportion of a fourth part of the whole bulk may be added. Large specimens may be repotted once in two years. The plants, coming from such a great elevation, do not require a high temperature; a shady position in the Cattleya-house suits them best. Our largest plant of C. eburneum is about twenty years old, it is in vigorous health, and last year produced twenty-seven flowers. C. Dayanum seems to be a form of this species, with the lip spotted and streaked less or more of a blood colour.

C. Parishii is a lovely species, distinct from C. eburneum in its broader leaves, and the lip spotted with crimson. C. Mastersii may also be brought into this group, it is a more elegant plant than either of those named above; the leaves are narrow, and recurved gracefully, the flowers pure white, the lip lightly spotted rosy-purple, and Almond-scented. We have in our small collection a pure white variety.

C. Lowianum belongs to quite a distinct group from the above, the plants being of the most vigorous habit. We have one that two men can move only with difficulty, which five years ago was quite a small specimen in a 5-inch pot; such large plants are well adapted to fill up the centre stage in large houses. This species, and the group to which it belongs, have roots that seem better adapted to seek their food in a ditch than elsewhere; even the appearance of the plants with their long linear leaves suggest this. They are potted in loam, leaf-mould, and manure, luxuriating with a goodly supply of water during the growing season, and should not to be allowed to become dry at the roots in winter. Some varieties of this species have bright-coloured flowers, and as they are produced thirty or more of them on a raceme 4 and even 5 feet in length, they have an imposing effect; another point in their favour, is their long lasting character—for with care, they will remain in good condition for three months or more.

C. giganteum, a noble growing species, was little known or cared for until C. Lowianum appeared. They are much alike in their habit of growth, requiring similar treatment, and the flowers resemble each other, except that the labellum of C. giganteum is of a bright yellow colour, thickly blotched and spotted with blood red; the flower-scape is shorter, and formed of fewer flowers, which are produced in the late autumn months, whereas those of C. Lowianum are produced in the spring and summer.

C. Hookerianum is also a noble species of the same group, which I have not seen in flower in a living state. Dr. Hooker found it growing in the Sikkim Himalayas, where it was also found by Mr. Lobb, who sent it to the Exeter nurseries of Messrs. Veitch, but the plants were grown too warm, and in other respects badly treated, so that it did not flower freely. It is evidently very near to C. giganteum. *J. Douglas.*

ODONTOGLOSSUM ROSSII MAJUS, PALE VARIETY.

The forms of Rossii majus are numerous, and the colours varied. This one, in the collection of Mr. A. Heimes, Fallowfield, near Manchester, has very distinct sepaline segments, spotted with the palest possible shade of sienna, and the spots very decided and distinct, looking all the better on being placed on a whitish ground. The petals are white, with a few sienna blotches at base; the lip is white, with a yellowish crest, and the whole flower distinct, and worthy of cultivation. It is suspended in the usual way, and is grown well by Mr. Craggs.

DENDROBIUM HETEROCARPUM × FINDLEYANUM.

This form has a good deal of the combined blood of the parents. The flower is more like D. heterocarpum, having the fragrance of that excellent and distinct species, possibly a little removed. We would say it was an admixture of Vanilla and Heliotrope. Its petals and sepals are more elongated than even those of heterocarpum, and are nearly uniform. The keel holding the enveloped column is very prominent; the labellum is also more elongated than the female parent, being prominently acuminate, and having multitudinous fine hairs on a nankeen ground. It is very floriferous, and is dwarfer growing than either of its parents. *J. A.*

THE PHALÆNOPSIS AT ELSTEAD.

Mr. Ingram's collection of Phalænopsis will be, for the next week or two, a sight well worth seeing. The plants are cultivated in a low span-roofed house 40 feet by 12 feet, which is heated by twelve rows of 4-inch pipes, some of them running through the water-tanks, which are beneath the staging, by this means causing a constantly moist atmosphere; moreover, the plants are drenched with water at least once daily, and oftener if the weather be dry. I noticed that there was an abundance of air admitted at the top of the house, the panes of glass being cut so as to leave openings of 2 inches or rather more, which are kept open at all times. In like manner the bottom ventilators are always open, and the air admitted is compelled to pass amongst the hotwater-pipes at that part of the house, and becomes heated before coming in contact with the plants. These are in vigorous health, and are evidently at home under the kind of treatment adopted.

There are some very fine plants of P. Sanderiana, P. Schilleriana, P. Marie, P. Luddemanniana, P. grandiflora, P. amabilis, and P. Stuartiana in this collection. *X. Y. Z.*

"ELIZABETHAN ENGLAND."

NEITHER "the glory that was Greece" nor the "grandeur that was Rome" has so intense an interest for us as the Elizabethan period in English history. It was politic, therefore, of Mr. Lathrop Withington to rechristen William Harrison's *Description of England*, which formed an integral part of *Holinshed's Chronicles* (1587), and no more appropriate designation could be given it than that of *Elizabethan England*. Although Harrison himself depreciatingly speaks of his work as "this foule frizeled treatise of mine," as standing "in lieu of a description of my countrie," it has the rare merit of being an honest attempt at describing things seen by one who "had an especiall eye vnto the truth." The genial, if at times dreadfully prosy, Harrison takes a very wide range of view. He deals more or less exhaustively with the degrees of people in the Commonwealth of England, with cities and towns, with gardens and orchards, fairs and markets, the laws, the church, food, diet and apparel, with building houses, indigenous commodities, with minerals and metals, cattle, fowls, dogs, fishes, woods, marshes and parks, the navy, the various methods of punishments, and a whole host of other things. To us, however, the most interesting section is that relating to "gardens and orchards," which, it may be mentioned, is in the second or 1587 edition, and not in the first issue of ten years' before. This portion has a much more than abstract importance, for it notes, among other things, how vegetables, roots, and salad herbs, which since the reign of Henry IV., had fallen into disrepute, began early in the reign of Henry VIII. to be objects of increased attention, and a very much extended cultivation. In Elizabeth's days, indeed, they were considered as essentials in every day's *menu*, such as it was. Doubtful sorts of fruit and fungi were eaten with an impunity which we of three centuries later might almost envy. Hops and Madder were grown extensively, and rare and interesting plants were introduced from abroad. Apricot, Almond, Peach, Fig, and Cornel trees, and even Capers, Oranges, Lemons, and wild Olives, were not at all rare.

Harrison himself had a garden which, he tells us, "is but small, and the whole area thereof little above 300 feet of ground, and yet, such hath been my luck in purchase of the variety of samples, that notwithstanding my small ability, there are very nearly three hundred of one sort and other contained therein, no one being common or usually to be had." Harrison has some quaint stories of fact or fancy to relate. Referring to a Rose mentioned by Pliny, he speaks, as a sort of sequel, of one at Antwerp in 1585, that had 180 leaves on one button or flower, and the historian could have had a slip of it for £10 (=£60 now), if he had not thought it "but a tickle hazard." We are glad to see that in this reprint—the first attempt, strangely enough, ever made to use any portion of "Holinshed" as a popular text-book—no editorial liberties have been taken in any way with the diction of Harrison; the orthography and typography are wisely modernised. We can heartily commend this little book, which is sold at a shilling, for it deals, as the editor observes, with an epoch which will never occur again "until we poor crawling mites on this rolling ball discover the socket it rolls in, and once again feel ourselves masters of all knowledge and devoid of all doubts." *W. R.*

THE FRUIT AND VEGETABLE GROWERS OF NICE.

A REPORT on the prosperity of peasant proprietors in the vicinity of Nice has been forwarded to the Foreign Office by Mr. J. C. Harris, the British Consul. The general impression is, that the small proprietors of land in France are reduced to a condition of great poverty, and the impossibility of the small holder succeeding in cultivating his land profitably has been inferred. Last year Mr. Harris gave an account of the exceptions to this rule presented by the peasantry about Mentone, and he now states that he has been surprised to find the

Valley of the Oise, from Pontoise to its junction with the Seine, exhibiting a not less "brilliant" example of well-being, although the land is greatly subdivided.

The valley and the surrounding hills are largely cultivated for fruit and vegetables for the Paris market, but patches of corn are also mingled with fruit trees and other products. Asparagus is grown under the fruit trees as well as in patches, and also Kidney Beans. Many of these small owners realised fortunes under the Second Empire, when competition did not exist, owing to the incomplete state of the southern railways; but though the conditions have been completely changed in this respect, these peasants are still able to construct dwellings with considerable pretensions to comfort, and even to external adornment; to make investments, and to keep a horse and cart. The peasant proprietors in the region nowhere number less than a proportion of 67 per cent. of the total proprietors in a commune, and as the Alpine region is approached, this proportion increases, until around the higher mountains it is found that the whole of the land is owned by the peasants.

The success of these small holders is the more noteworthy, as their parcels of land being much dispersed, the employment of machines is rendered practically almost impossible. As machines, however, are not of much use in the cultivation of flowers and early vegetables, the peasants are not seriously handicapped on this account, though it is possible that the character of the cultivation may to some extent be determined by this difficulty. On the other hand, although the occasionally wide distribution of the patches of land held by one peasant necessitates much loss of time in going from one to the other, the cultivator seems to have an advantage in the variety of crops which he is able to produce, owing to differences of aspect, shelter, and so on. Again, the influence of these conditions in developing the intelligence and activity of the peasant is said to be very marked.

Cultural Memoranda.

FREESIAS.

These valuable introductions for the garden may be had in bloom in the depth of winter, and a long succession of flowers kept up by simple management. The first batch of bulbs must be potted early, and others in succession, and when the first are fairly on the move, they should be placed in a pit or frame where they can get gentle heat, and have the full benefit of the light by being stood up near to the glass. This will keep them sturdy and strong, and when the flower-heads begin to show, weak liquid manure will be a great help. We have some potsful so treated which are now in full bloom, and are highly prized for their elegance and delicious perfume; the favourite with us, is F. refracta alba, which comes in splendidly for button-hole bouquets. We pot Freesias in 48's and 32's, nine bulbs being potted in the former, and twelve in the latter. Any rich light soil suits them, the chief thing in their management being to water them very carefully till they get well into leaf, up to which time they require very little, and should have only just sufficient to keep the soil moist; and the same after their flowering is over; but the longer the foliage can be maintained healthy and green, the finer and better will the bulbs be. Freesias may be raised from seed and got strong enough to bloom within the year, but the seed must be sown soon, and placed in heat, and the young plants pricked out and nursed on directly they are large enough to handle, so that they get no check to their growth.

Perpetual Carnations.

One of the finest and the most popular is Miss Jolliffe, a very pale pink, which is now largely cultivated for market, the habit of the plant being compact, and its blooming qualities good. Others are Alégatière and Boule de Feu, bright scarlet; and as worth having are, Garibaldi, Lucifer, Ne Plus Ultra, La Belle, and The Bride. To have these, or any other perpetual Carnations, at their best, they must be propagated early, so as to get strong plants by the autumn; and the sooner cuttings are put in the better, and these should be made by taking off any clean shoots that may not be showing flower. Cut them through close under a joint, and remove the lower leaves by rubbing them off by the aid of the finger and thumb. To encourage the formation of roots it is a good plan to prepare the pots for the cuttings by placing one of a smaller size inverted over the hole or upside down in the other, and filling in around it with sharp sandy soil, as the cuttings being then inserted between the two are kept well drained, and they feel the regular warmth from the heated air underneath. Put the pots in a Cucumber or Melon-pit at work, and if the cuttings show symptoms of flagging, a light syringing will revive them. Carnations are impatient of confinement, but if the house they are in is too airy, a sheet of glass is a great help if fixed or laid over and just clear of the tips of the cuttings. As soon as rooted, pot them singly into small pots, employing fibry loam, which ought to be carefully looked over before using it, to see that it is free from wireworm, a dangerous pest. After potting, place them in a light pit, with a little warmth, and as soon as they move they should be freely ventilated in favourable weather. Early in May they will be fit to stand in the open. When placed there, it should be in a sheltered sunny spot, with their pots plunged in coal-ashes. Instead of potting, it is the practice with some to plant out the plants during the summer, and they may be grown very strong and large in that way, and labour saved in the watering; but if planted out they must be lifted very carefully in the autumn, so as to secure good balls and all the fibrous roots possible, so as to prevent any great check.

Schizostylis coccinea.

This showy autumn flowering plant, either grown in pots or used as a cut flower in vases, is a great help in conservatories and in rooms. We have been using them of late for dinner-table decoration, and in épergnes with light branches of yellow and silver-leafed Ivy, out of which the Schizostylis spikes stood out effectively under the artificial light. Schizostylis flowers associates well with Roman Hyacinth, as both are of a light and of similar character; and this is a point to be considered when two kinds of flowers are used in one stand. In warm, sheltered spots, the Schizostylis does very well outdoors, but as it blooms late it is of but little service when so grown, unless the plants are covered with a frame or hand-light; but the best way is to take the plants up and pot them, or grow them in pots, as then a little warmth may be afforded them, and the stock of plants be brought on in succession. To grow them in pots the plants should be shaken out as soon as they have done flowering, pulled apart and divided. This is very essential for good flowering. After potting in 7-inch pots the plants should be stood in a cold pit, and watered to settle the soil, and then kept close for a time to give them a start. During the summer and onwards till the autumn, they are best outdoors, plunged in a bed of cocoanut-fibre or coal ashes. If planted out the soil must be enriched, and the plants put out in patches a foot apart, and if attended to with water when the weather is dry they will make good growth. The finest I ever had were raised from seed sown as soon as ripe, and pricked out and potted off as soon as the plants were large enough; and those who have not stock to start with will find this a good way to begin. *J. S.*

Crotons.

Crotons may now be increased by taking cuttings of the tops of straggling shoots on old plants, of about 3 inches in length, and inserting them singly in 60's, employing light sandy soil, surfaced with silver sand, and after affording the cutting-pots water to settle the compost, placing them in bottom-heat of 90°, or rather less, in a close frame or case.

The cuttings will soon form roots, and as soon as these have been formed in some quantity, the pots must be taken out of the bottom-heat bed and stood on a shelf near to the glass in the stove, or at least where there is a night temperature of 60° to 65°. Damp the plants overhead with the syringe, more or less heavily, on bright afternoons at closing time, and afford water according to their needs. Thus treated, decorative plants of considerable usefulness will be secured for the conservatory during summer and onwards to the winter. *H. W. W.*

PLANT PORTRAITS.

Eremurus bucharicus, Regel.—A fine species from Eastern Bokhara, discovered by H. A. Regel. Flowers, when open, white, with a reddish middle nerve. Height of the plant from 2½—3 feet. *Gartenflora, February*, 1890.

Hydrangea stellata rubra plena.—A novelty of Lemoine's Nancy, resembling H. s. prolifera, but is a stronger grower. Terminal corymbs of double blossoms of a rosa-white colour, turning at a later stage to lilac, violet, and blue, and at last to dull red. Plant quite hardy. *Wiener Illustrierte Garten Zeitung.*

Florists' Flowers.

YELLOW CARNATIONS AND PICOTEES.

A good deal has been written recently about the culture of these, and their position as show flowers. These flowers have been long cultivated by the florist, but their production from seeds in England has not been carried out to the same extent as the white ground varieties. The yellow ground Carnations and Picotees have been grown and valued for a hundred years, but owing to the vagaries of their constitution, they have not been cultivated regularly or well. About fifty or sixty years ago we read of golden-crimson Carnations, and a very handsome variety is figured in colours in the fifth vol. of the *Horticultural Register*, but little stock could be obtained, and the plants had to be sold at a guinea per pair, a price that must have prohibited their culture in all but the gardens of rich people. About twenty years later, an amateur cultivator in the Midland counties, named Smith, was the originator of a fine strain of yellow ground Picotees. I saw some of them in their decadence, and they had the fine quality of some of the best white-edged Picotees, but were mostly of a pale yellow ground. Mr. B. Simonite, of Sheffield, who knew Smith, and the flowers also when first introduced to the notice of the public, told me that they were obtained by crossing some of the yellow ground varieties then in cultivation with the best and most vigorous of the white ground type. In this intercrossing he obtained good quality, but a pale yellow, sometimes fading off to creamy-white, instead of the rich deep yellow of the Malmaison and Frogmore strains, or the coloured figures of Hogg's *Treatise* and that of the *Horticultural Register* of Paxton. The introduction of that vigorous but withal beautiful variety, Perkins' Prince of Orange, is within the memory of most middle-aged florists. I have grown it for twenty-five years, and it is still one of the most beautiful varieties in our collection, and yet we have never had a change of stock. A grand batch of seedlings was raised from it in Mr. Charles Turner's nursery at Slough some fifteen years ago. Some of these we have also in our collection, affording still further evidence of the vigour of the strain. I selected, some six years ago, one of the best of Mr. Turner's seedlings—Ne Plus Ultra, and crossed it again with Prince of Orange, and obtained a lot of seedlings most amazing in their great variety. Six of them were selected and sent out from Slough, one, named Agnes Chambers being considered the greatest advance made up to that time. Last year we had another selection, which marks a still further advance, the best being

Remembrance. There are also some flaked flowers, both flakes and bizarres. Of course, it cannot be expected that all the new varieties likely to be raised will continue to maintain their vigorous habit of growth, either in the open borders, or under the more careful system of pot-culture. This would be expecting too much from any section of Carnations or Picotees, white or yellow; indeed, one or two of the best white-ground Picotees I have raised are of such poor constitution, that they can never be sent out. It therefore behoves the raisers of these, quite as much as it does those who produce yellow-ground varieties, to make sure that their seedlings have good constitutions, as well as flowers of high quality.

A few words on culture, and perhaps this may be thought to be an oft-told tale. I grow them in two ways—that is, planted out in the open borders, and in pots in frames; and I find that they are more liable to injury from dense fogs if accompanied by frosts than the white-ground varieties are; but clear dry frosts do them no injury, nor do they seem to suffer much from fogs when it does not freeze at the same time, nor are they injured by any kind of weather when they can be placed in a heated house, and the plants are arranged on shelves near the glass. The heating apparatus need only be used to keep out frost. *J. Douglas.*

THE GOLD-LACED POLYANTHUS.

I had hoped to have seen during the autumn an announcement to the effect that some of the newly raised Lancashire varieties of Gold-laced Polyanthus have been put into commerce; but the time is not yet. During the past half-dozen years, several of these were awarded First-class Certificates of Merit at horticultural meetings in the North, and one is disposed to ask, why these new flowers are not available for cultivation by others? It is because they die, and the chance of circulating them is lost. Do they fail to give increase? Do they disappoint, after further trial, as not a few certificated Auriculas have done? or is there a selfish interest at work, which prefers to keep in the hands of their possessors the gratification of growing them? It is quite certain that, except in the case of those who have been fortunate enough to raise promising seedlings, the old standard varieties have to be depended upon: Exile, Cheshire Favourite, George IV., Prince Regent, Sidney Smith, and William IV.

There does not appear to have been the slightest cessation of activity in my plants of named gold-laced Polyanthuses since they were potted in October last, excepting in the brief period of sharp frost of a few weeks ago; and the unusually mild weather since has maintained that activity, and the flower trusses are showing at an inconveniently early period; but these may be sacrificed, as others will certainly follow, though I always think the first pips are the best ones.

Until the end of November my plants occupied a cold frame, and had an abundance of ventilation. These were later removed to the confinement of the Auricula-house, because fog and frost were doing them hurt, and the slugs were unusually attentive. The plants are kept moister about the roots than the Auriculas, for if a Polyanthus become too dry, and the leaves flag, there is much danger of losing them. My potted plants, with a few exceptions, are in 60's, and are well rooted, although not pot-bound. Early in February they will have a slight shift into pots a size larger, and in which they will flower. As soon as possible they will again be placed in the cold frame, for, judging from present appearances, retarding instead of hastening the period of bloom will be necessary; but, then, no one knows what weather is likely to visit us during the next three months.

I am sure the National Auricula Society has shown a laudable desire to encourage the more wide-spread culture of the gold-laced Polyanthus as an exhibition plant, but the time has not yet come. The cultivators for exhibition are a stationary quantity. During the past two or three years we have had to deplore the absence of the collection grown by Sir J. F. D. Llewelyn, and, with the exception of Mr. Samuel Barlow, no northern grower puts in an appearance in London. I have just been making the experiment of endeavouring to popularise the gold-laced Polyanthus by offering plants of the standard named varieties at a cheap rate in the trade. But no one apears to cared to buy, and this I take to be an indication that for all decorative purposes the improved giant fancy varieties are much more highly esteemed. *R. Dean.*

CARNATION LOUIS BERNHARD.

This is a capital winter-flowering variety, of perfect form, deeply serrated at the edges, with a calyx not given to splitting, a good grower; and the colour an intense maroon-crimson, with a purple shade, is quite exceptional.

THE ROCK GARDEN.

SAXIFRAGA PELTATA.

THIS probably is the giant of the family, and a very grand plant, I think, too. I had a plant some years since, and kept it in a pot, as when received; sometimes it got very dry and much withered. At last it occurred to me, that its habitat is the Sacramento river, so I put it out of the pot close to the edge of the stream in the bank in the front of my house, where it grew a little, and had a flower-spike. Last year it had leaves 1 yard high, and 15 to 18 inches across, and some of its large roots or rhizomes touched the water, and ran along under the surface of the soil for some distance from the main root; but they are now upon, and amongst the surface herbage, and are very strong. The plants will, no doubt, flower well if all goes well with them, and they are not injured in any way; but the strong wind at times twists the leaves about very much and disfigures them. Perhaps others have grown them in a similar way. *J. S. C.*

THE KITCHEN GARDEN.

ROOTS AND TUBERS.—The remaining tubers of Jerusalem Artichokes should be dug up, and the best stored for consumption in moderately moist earth or sand in a cool place; those for planting put into a heap, and protected from frost with a covering of litter till, the ground is in readiness for planting. When digging up the tubers, see that every tuber, or portion of one, is secured, or much trouble will be caused later by these escapes. Trench the ground deeply, and if poor, work rotten manure into it, and afterwards draw drills 6 inches in depth, and 2½ feet apart, and plant the tubers 18 inches apart in the rows. Choose fine weather for the planting, and if the ground is of a heavy and adhesive nature, road-scrapings, burnt refuse, or coal-ash, may be applied when digging it, with advantage.

Rhubarb.—The roots left outside to be forced moderately where they stand, should be afforded some covering to prevent check from frost. Rhubarb may be brought forward readily at this season; all that is required, in the absence of pots or tubs, being a few stout stakes, put in around each stool, over which some long litter, or leaves and litter, may be placed.

Seakale.—Before growth commences put the pots over the crowns to keep them in darkness. Seakale at this season is so easily forced with the aid of some fermented leaves, and a heap of finely-sifted coal-ashes placed over the crowns. Remove these materials as soon as the cutting is finished. Cut the crowns smoothly over when the ground is cleared, and protect them from frost with some coal-ashes, or a handful of litter.

Potatos, which may be stored in pits in the open, should be examined on a bright day, the sprouts rubbed off before they get too long, and diseased tubers taken out and burned. Sets should be spread out thinly on shelves or floors in places proof against frost, but where air and light may reach them.

Miscellaneous.—For early use, a sowing of some early white variety of Celery may now be made in heat. Where early Brussels Sprouts are required, the seed of some approved strain should be sown, and treated as directed for Cauliflowers in a former Calendar. To obtain compact, hard sprouts, plant on rich land, made very firm by treading

If not already done, beds may be got in readiness for the Parsnip crop by deeply trenching the soil. Beds for a variety of sowings may be likewise got ready, thereby preventing delay at critical moments. *H. Markham, Mereworth Castle, Maidstone.*

THE ORCHID HOUSES.

EAST INDIAN HOUSE. — Some difficulty will be found in keeping the different houses at an even temperature, owing to the cloudy, windy, and bright weather experienced during the past week, and as much air will find its way into the houses at such times, I would advise that but little air be admitted through the ventilators, the cold winds doing more harm than a rise of 5° or 6° of temperature caused by a gleam of sunshine.

Where the Phalænopsis-house faces nearly or quite due south, it will be advisable to have the shadings put up, so that they may be utilised during periods of strong sunshine, but this measure may not be yet necessary in the vicinity of London, where fog and smoke coat the glass with a thick film of blacks.

The earliest plants of Dendrobium heterocarpum may be had in bloom at Christmas, and by gradually bringing in others from the cooler house, a succession of flowers may be kept up, filling the house with a fragrance of Primroses until February. As the Dendrobiums go out of flower, repotting or basketing should be attended to if found to be necessary, and but little water should be afforded them for some time afterwards—in fact, not until the young roots are seen to be making good progress—the young growths being very liable to damp off. The beautiful Saccolabium Harrisoni and its near companion plant, S. illustre, now in flower, should be in every good collection, as both are beautiful, besides being very fragrant. The plants will do well either in pots or baskets, but they like a light position, and much water must not be given them during the winter. The best way in which to ascertain if water is required is to feel the bottom leaves of the plant, and if these be firm no water need be given. The same remark applies to all sections of Aërides and Vandas, too much water being the chief cause of spot on the foliage. Temperature 65° by night, with a rise of 5° by day.

Cattleya-house.—Many varieties of Lælia anceps will now be passing out of bloom, and should be at once seen to, as they will almost immediately throw out great bunches of young roots from the base of the pseudobulbs last made, and if repotting be not done before these push out, there is great danger of breaking some of them, however carefully the operation is performed. The white variety introduced five years ago is the finest acquisition we have had for many years as a winter-flowering Orchid, and when once they have reached the flowering age, they are freer flowerers than the red forms; L. Sanderiana seeming to be the most floriferous, giving four and five flowers on fair-sized bulbs. Temperature 60° at night, 65° by day.

Intermediate-house.—Plants of the beautiful Lælia harpophylla are now opening their flowers. There was a time when the culture of this plant was not understood. It used to be placed as a rule at the warmest end of the East Indian-house, where it lingered between life and death, usually covered with thrips, and a fruitful source of trouble to the grower, and it was a very expensive plant to purchase at that time. If grown in peat and sphagnum moss in pots, with plenty of water throughout the year, it does well in this house. *A. G. Catt, Parkfield Worcester.*

FRUITS UNDER GLASS.

POT VINES which have set their bunches, should have their crop regulated, and the berries thinned. The roots will now be active and able to receive stimulants in the shape of warm liquid manure or clarified soot-water, or surface sprinklings of Thomson's, or some other artificial manure; slight top-dressings of turfy loam and fresh horse-droppings should also be frequently applied, the pieces of turf ultimately reaching several inches above the rim of the pot. Prepare and put in eyes for next year's supply, one eye in a 60-pot, potting firmly, in

rather light sandy soil; or put on a 4-inch square of turf, give a gentle bottom-heat of fermenting material, place near to glass, and in a temperature of about 55°. Yearling canes should be cut close back if they have failed to make fruiting sizes, and be not repotted till growth has commenced again.

Early Vinery. — Follow up the details previously given, taking advantage of every bit of sun-heat and light, and on mild days give plenty of fire-heat in the pipes, and at the same time admit air freely in the front, letting it pass near to the warm pipes, also open the lights a little at the top to get circulation without causing a draught. When the air is keen and frosty, ventilate in reverse order. Keep a look out for adventitious roots on the rods; if they be seen it is a sign that the ventilation has hitherto been imperfect—probably kept too close—and damp, which if continued, will cause the leaves to become warty on the under side. Disbud and stop shoots at the earliest opportunity, and remove superfluous bunches. Should mealy-bug have previously obtained access to the Vinery, perseverance now will oust him. Eggs which escaped, will now be found developed into the perfect insect, and a touch from a brush dipped in paraffin oil will kill the pest. Vines planted in outside borders should have their exposed stems well wrapped with hay-bands to protect them from frost; we once narrowly escaped a catastrophe by the removal of this covering by birds during a sharp frost.

Finish pruning and cleaning midseason and late vineries, and have all in readiness for starting. If a dressing be necessary, use Gishursts' compound, 6 to 8 oz. to the gallon, or the same quantity of soft-soap with a small addition of flowers-of-sulphur. Vineries started now, will ripen their produce in five months.

Peaches and Nectarines.—The early house will need constant attention during the setting of the flowers, especially as there has been so little sunshine, and the atmosphere is so damp. Go over the expanded flowers at mid-day with a camel's hair brush. As soon as the setting is complete, gradually increase the temperature. Remove at once superfluous and ill-placed fruit, and syringe regularly, securing a bracing, buoyant atmosphere. A second house should be started, and if a bed of fermenting leaves be introduced into the house, the moisture and escaping ammonia will help to swell up the buds.

Strawberry-house.—Plants may now be introduced in larger batches, according to demand; examine the drainage, and remove moss or filth from the surface; dip the plants in a solution of soft-soap and sulphur, afterwards laying them on their sides until they are dry. A little extra heat may be given to those earlier started batches now showing for flower, in order to draw out the flower-scape. La Grosse Sucrée still leads with us in all points, against Noble, King of the Earlies, and Pauline; those already set will now enjoy a shelf near the glass in a succession Pine pit or other warm-house, but are not good inmates for the vinery, as the early plants are almost always attacked by red-spider.

Melons.—Plants should be now ready for planting, preference being given to large pots for this crop; build up pedestals of dry bricks on edge, with a large turf on the top to receive the pots, filling up intervening spaces with sweetened fermeuting materials; insert the plant near to the side of the large pot, and leave plenty of space for top-dressing. A stake should be given, and by way of precaution from slugs or damp, a little bit of powdered charcoal around the stem.

Cucumber-house.—Plants do best when grown on the extension system in low pits, with a damp air and the least ventilation; under such treatment they are little troubled with insects. Old plants which have been bearing lightly through the winter will now respond to a liberal top-dressing of turfy loam and old Mushroom manure. If grown in pots as advised for Melons, replenish the fermenting materials, and increase the temperature and moisture. Encourage young shoots to stretch out, but do not stop them till several new leaves have been made; gradually remove a little of the old bearing wood and leaves. The temperature should be 70° at night and 80° to 90° by day.

Tomatos grown on as single cordons in 10 or 12-inch pots will ripen fruit early. Hackwood Park, Perfection, and Ham Green Favourite are good varieties to grow. Prepare for planting out later crops in soil made firm but not rich.

Figs are now pushing. Use the syringe vigorously, but do not omit to dry the wood daily, or very probably a good number of rusty fruit will be noticed. Keep the temperature at 50° by night, running up to 60° to 65° by day. *W. Crump, Madresfield Court, Malvern.*

THE HARDY FRUIT GARDEN.

ORCHARDS.—Pruning should be completed as soon as possible, and where the trees are old, and have been neglected, the first thinning should not be very severe, otherwise the check would defeat the object in view—increased fruitfulness. The centre of the tree must be opened out, to admit light, cutting back some of the main branches, and allowing a quantity of young wood to grow on, as this will give vigour to the tree, and the young strong shoots soon become studded with flower-buds, when the trees have been sufficiently opened to admit the light. The final thinning may stand over for another year. Dress the large wounds with lead-coloured paint, and if, as often is the case, moss and lichens abound, scrape the main branches and stems with a piece of hoop-iron, and wash them with a solution of quicklime, with a little soot put into it to take off the glaring whiteness.

Any trees which appear to be exhausted may have a heavy mulching of soil and manure; lacking these materials, road-scrapings and any soil which may be at command will stimulate them. Where the trees are very old, and the ground has become fruit-tree sick, it is much better to plant on fresh ground, either tillage or pasture, first seeing that any needed draining of the land is done, nothing being worse than planting on wet soils; and the drains must be deep, and near to each other, so as to carry off the water from beneath the lowest roots. Select scions from healthy trees for grafting, and lay them in a cool place out of the reach of sunshine. If it is intended to graft large trees, two year old wood as thick as one's finger answers the best, and the triangular notch method of cutting a stock is superior to cleft grafting for large trees, and of which it indeed is a modification. From the beginning of March till the middle of April is the best time to put on grafts.

Wall Trees.—The mild weather is beginning to tell unfavourably upon fruit trees, particularly the Peach, Nectarine, and Cherries against walls. In our climate it is advantageous to keep fruit trees, which often bloom precociously, from bright sunshine at the early part of the season, so that flowering is retarded. Peaches and Nectarines which have been untied or unnailed and supported securely by stakes driven into the soil in front of the wall, will remain untouched until we have a change in the weather. I would repeat this week my advice as to syringing with slaked lime-wash all fruit walls. Syringe once in three weeks any fruit trees that are not too forward in bud with soap-suds, into which a little petroleum has been well stirred. It forms a good preventive of green and black aphis. Apricots will soon be in full bloom. The due protection of the trees must receive attention. Next to glass as a protection to wall fruits moveable blinds are the best, and, where these are not available, netting, boughs of Spruce Fir and Yew may be utilised. Plums and Cherries, being of hardier constitution, will bear a few degrees of frost without injury. The weather hitherto has been favourable for the planting of fruit. No newly planted trees should be pruned at present, neither should they be tied or otherwise securely fastened before the soil has subsided. All other pruning should be completed as soon as possible, with the exception of Peaches, Nectarines, and Figs. *A. Evans, Lythe Hill, Haslemere.*

THE FLOWER GARDEN.

THE HERBACEOUS BORDERS.—The continuation of mild weather has caused most of the herbaceous roots to show signs of growth; therefore, where it is found necessary, dividing and transplanting should now be completed. In preparing the ground for planting or for new borders, let it be trenched, a dressing of well-decayed leaf-mould or manure being given heavy or light, according to its condition. Ascertain before planting a new border the height and nature of growth of each subject, as this should determine the position each will occupy, taking care that each clump of roots, or root be inserted deep enough, so that when the newly-dug soil has subsided, the root-stock is not 1 or 2 inches above the level. Anemones and Persian Ranunculuses may still be planted, and their flowers will form a succession to those planted in October.

Protection to Plants.—At the time of writing there is a prospect of frosty weather, and many of the spring-flowering bulbs being in bloom, they may suffer from the effects of frost unless afforded some sort of protection. Hyacinths and Tulips should have a mulching 2 inches thick of half-decayed leaves or Cocoa-nut fibre, and when showing bloom, branches of evergreens may be stuck in thickly between them.

All trees or shrubs which are not absolutely hardy are much safer if a mulch be placed around their roots; this may consist of leaves, litter, or coal-ashes. The varieties of Eucalyptus, which seldom withstand more than 12° of frost, should have their stems covered with hay or straw bands, and where the frost is intense, a double covering of the same, for if the tops are injured, by preserving the stem a fine specimen is still ensured for the coming season. Camellias, Nerium Oleander, Clianthus puniceus, whether on walls or not, should receive protection from mats or evergreen branches, and in no case omitting the mulching at the roots.

Shrubberies.—Continue the pruning and thinning of these where such is necessary, and clear out all the rubbish, which may be burnt with the prunings, the ashes, when mixed with the leaves, making a capital manure for flower borders. On light soils and where the roots of shrubs and trees are consequently near the surface, it is a great mistake to dig the ground at all, an annual hoeing being all that is needed. Where dead leaves are not unsightly, and there is no danger of their being blown out over the lawn, it would be advisable to allow them to remain. Blank spaces should be filled up, and in the case of evergreen plants, remove as much soil with the roots as may be possible; and in the case of all newly-planted trees or shrubs, secure them to stakes at first provisionally, and after the settling of the soil, permanently.

Seeds, &c.—Sow in heat, seeds of Dahlias, Aralias, Chamæpeuce, Wigandias, Solanum, Ferdinandia, Cannas, &c. Place stock plants of Verbenas, Lobelias, Ageratums, Fuchsias, Alyssums, &c., in gentle heat, for the production of cuttings. Cuttings strike better if they are taken from plants in a warm temperature, and spring-struck plants of all the above are far preferable to autumn ones.

Calceolarias, which may have been struck under hand-glasses or in cold frames, should be planted out in cold frames, or where they can be protected. Plant from 4 to 6 inches apart, in a compost of one-half well-decayed leaf mould, one part loam, and one of common sand, giving plenty of air on all favourable occasions. *D. C. Powell, Powderham, Exeter.*

THE APIARY.

THE month of January has been very remarkable in many respects. The thermometer has been up and down, and, with the very mild weather, the bees have been out. On some days one would have thought the bees were going to swarm, from the frantic way they were flying about. From various visits we have paid to the fronts of our hives, it would seem that as yet there has not been much mortality among the bees, as we could find very few dead ones about the entrances. But there may yet be much sharp weather and consequent mortality. It is also evident that some hives have begun to breed. This may be discovered with fair accuracy without opening the hives. If you see particles of wax lying outside the hives, you may be pretty sure that the bees are busy cleaning out cells, and that the queen is laying eggs in them. Though flights are very good for the bees, it must be remembered that a spell of such weather as we have had lately causes stores to materially decrease, and if there is any doubt as to the quantity being sufficient to carry on the bees till April, food must be carefully given. We have said before, that liquid food must not, on any account, be given yet. If you suspect stores are getting short, give the stocks about 3 or 4 lb. of candy each. Do this with as little disturbance as possible, and only in the middle of a fine day. Lift the coverings very carefully, and after puffing a little smoke on the bees to keep them down, lay the candy flat down on the frames immediately over the cluster of bees. Cover them all up warm at once. It is, however, a fact, that those bees which do not require any attention at this season of the year are the best off, and turn out the best. Though we believe firmly in letting the bees alone as much as possible at this season of the year, you may with great advantage frequently pay a visit to the apiary, and hook away dead bees. *Bee.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, Feb. 11 — Royal Horticultural Society: Annual General Meeting, at 11*l*, Victoria Street, S.W., at 3 o'clock; and Fruit, Floral, and Scientific Committees, at the Drill Hall, James Street, S.W.

SALES.

MONDAY, Feb. 10 — Lilium auratum, and Hardy Bulbs, at Protheroe & Morris' Rooms.

TUESDAY, Feb. 11 — Roses, Greenhouse Plants, &c., at the City Auction Rooms, by Protheroe & Morris. Nursery Stock, at The Nurseries, Wandsworth Common, by Protheroe & Morris.

WEDNESDAY, Feb. 12 — Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms. Lilies, Hardy Bulbs, Greenhouse Plants, &c., at Protheroe & Morris' Rooms. Nursery Stock, at The Woodlands Nursery, Maresfield, near Uckfield, by Protheroe & Morris (two days).

THURSDAY, Feb. 13 — 30,000 Liliums in variety from Japan, 20,000 Pearl Tuberoses, Orchids in Flower, &c., at Stevens' Rooms.

FRIDAY, Feb. 14 — Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, Feb. 15 — Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—39°.1.

The Royal Horticultural Society.

THE annual report of the Royal Horticultural Society has been circulated in anticipation of the general meeting on Tuesday next. In some respects it is a highly satisfactory document; in others, less so. It has a defect this year which is unusual in similar documents—it is too modest. In the year 1889, the Council was left pretty much to its general work—the period of revolution, migration, and reconstruction was passed successfully, and the managers had to settle down to their regular work. The work of the Society "cannot be said to have stood still during the year 1889." This is the opening paragraph of the report, and those who know what has been accomplished during the year will agree with us that it is far too modest a statement. Three conferences were held at Chiswick—yes—but what conferences!—has there been anything like them for utility in the annals of horticulture except the preceding meetings of a similar character under the auspices of the same Society? We know of none. The ordinary committee meetings have been as good and as interesting as they have been in former years. Much good work also has been done at Chiswick. The *Journal* of the Society has been published with greater regularity, and its contents have been quite up to the average.

In former years the contents of the *Journal* left little to be desired, except as regards regularity of publication; but this sufficed to stop all interest in it, and though the Fellows were entitled to it, they cared so little for it, that they did not even take the trouble to apply for it. Under the new *régime*, it is sent to the Fellows as it is published, and thus those residing at a distance, and who cannot make use of the Society's garden or attend its meetings, do obtain substantial value for their money. The work that has been done by the Society during the last few years in the matter of fruit culture deserves special recognition, the more so as it has been ignored in some quarters where a different treatment might have been expected—a fact that does not create much confidence in the knowledge of their business possessed by some who are desirous of taking the lead in these matters. Amongst other things we are told that the Conference Report on Apples prepared by Mr. BARRON is now published by the Society in a cheap edition, at the cost of 1*s*. 6*d*. only.

The 3 o'clock lectures have been varied and good, but the Drill Hall is not a favourable place for such gatherings.

The financial statement, we are not surprised to see, shows a balance on the wrong side, a circumstance that is not to be wondered at, considering the expenditure on the *Journal* and at Chiswick—expenditure that, we doubt not, will prove remunerative. The Temple show yielded some £408, but the cost was £431. The meetings and Conferences brought in only £29 (!), while the expenses for labour and other matters connected with them amounted in round figures to £135, to say nothing of the free labour bestowed by many of those interested. Taking the figures as they stand, they are very significant; the sixteen meetings and the three Conferences, each lasting over two days, cost collectively £135; the Temple show (two days) cost £431. Now, so far as pure horticulture goes, those sixteen meetings, or any one of the three Conferences, was far more valuable than the Temple show, fine as it was. We are not disparaging big flower-shows; they have their advantages; they are appreciated by a large number of Fellows who are not otherwise much interested in the work of the Society; they attract the public, and afford the Society an opportunity of showing what it is doing, and they give the commercial exhibitors a chance of doing some business; but when all allowance is made, the disproportion is still very large. The amount spent in advertising might be increased with advantage, especially in the populous neighbourhood surrounding the garden at Chiswick.

It is very evident that the guinea rate of subscription will not pay unless a very much larger number of subscribers join the Society, and every effort should be made to induce those interested in horticulture to join the ranks.

We are not pleading for charity sake, nor for a Society that has no record, or one that has its reputation to make; we are invoking aid for the Royal Horticultural Society, as the national representative and exponent of horticulture. Recollecting what its aims and objects are—the advancement of horticulture—we ask boldly what has any other Society accomplished? what even have all the so-called horticultural societies, put together, done that will bear comparison with the work done by the Royal Horticultural Society? We are, of course, not disparaging other societies—in their way they do good and useful work, but it is work professedly of a more restricted character, ephemeral and spasmodic in duration, devoted rather to the pleasure of the moment and to local interests than to the substantial benefit of horticulture.

One has only to turn to book to see this. The records of the Royal Horticultural Society are, from a horticultural standpoint, such as any society might be proud of. What society of like nature can show anything like it? None. And this has always been so; in times of turmoil and difficulty the horticultural record has been good. Assuredly, then, the Society has ample claims on the sympathy and assistance of all classes of horticulturists, the special societies, the local societies, the country gentlemen, the dwellers in villadom—all these should supply a large and constant stream of recruits. If the good work the Society has done and is doing could be brought home to these classes, we have no doubt that the Society could not only be maintained on a satisfactory financial basis, but resume those experimental and other researches which have in the past conferred so much honour on it.

It would be a marked injustice were we to conclude this notice without an expression of thanks to the Council for their services during the year, and if we single out the names of the Treasurer, and particularly of the Secretary, for special acknowledgment, it is because their devotion and their labours have been the theme of universal comment among those who have had the opportunity of watching the proceedings of the Society.

TURNER MEMORIAL PRIZES FOR 1890.—The following prizes are offered by the trustees for the present season. National Tulip Society. Exhibition to be held at Manchester. The date not yet fixed; probably the last week in May. For six distinct seedling Tulips; three rectified, and three breeders: 1st prize, 30*s*.; 2nd prize, 20*s*. For twelve distinct named Tulips, six rectified and six breeders: 1st prize, £3; 2nd, £2; 3rd, £1. At the Tibshelf Horticultural Society's exhibition the following prizes are offered for Roses, viz.: for twenty-four cut Roses, distinct (amateurs only), 1st prize, £5; 2nd, £3; 3rd, £2. At the autumn exhibition of the Royal Caledonian Horticultural Society, Edinburgh, September 10 and 11, twenty-four Dahlia blooms, distinct, show and fancy varieties: 1st prize, £5; 2nd, £3; 3rd, £2.

GARDENERS' ORPHAN FUND.—A meeting of the committee took place at the Caledonian Hotel, on the 31st ult., Mr. GEORGE DEAL presiding. The minutes of the last meeting having been read, Mr. A. F. BARRON read a list of the special sums sent in since last meeting, as follows:—Proceeds of a concert at Worksop, £56 4*s*.; Chrysanthemum show at Reigate, £50; Chrysanthemum show at Edinburgh, £5; from the committee of the Chrysanthemum show at Market Harborough, £1 1*s*.; and the sum of £10 12*s*. 3*d*. from six money boxes, that most active and sympathetic worker, Mr. J. HUGHES, of Birmingham, leading the way with the sum of £5 8*s*. Votes of thanks were passed to the contributors of the above sums. The Hon. Secretary read a letter from Mrs. WILDSMITH, of Heckfield, announcing the death of her husband, Mr. WILLIAM WILDSMITH, who was from the first an active worker in the interest of the Fund, and a letter of condolence was ordered to be sent to her. The proceedings closed with the usual vote of thanks to the committee.

RAILWAY RATES AND CHARGES.—At the adjourned meeting of the trade held last Friday at the Hotel Windsor, and at which Mr. HARRISON, of Leicester, presided, the various objections to classifications lodged by the Nursery and Seed Trade Association were considered, and the names of the witnesses to be called in support of the several objections were selected.



Fig. 28.—Lælia gouldiana: flowers rosy-crimson. (see p. 171.)

WORTLEBERRY WINE.—According to the *Zeitschrift für Obst. und Gartenbau* in Saxony, a description of wine similar to claret in colour, and made by J. FROMM, Frankfurt-à-Maine, from the Wortleberry, has been brought into notice, and recommended for use in hospitals.

KEW "BULLETIN."—The Kew *Bulletin* for February contains much useful information on the sugar production of the world, in a paper by R. GIFFEN, Esq., LL.D., Assistant Secretary, Board of Trade, presented to Parliament in May of last year, and issued to the public in June. There are also articles on the Manufacture of Quinine in India, the use of Maqui Berries for Colouring Wine, Vine Culture in Tunis, Phylloxera in Victoria, and the Botanical Exploration of Cuba.

CHRYSANTHEMUMS IN VIENNA.—Although the first Chrysanthemum exhibition held in Europe was held in Vienna in 1831, so little attention has been bestowed upon the plant in that city that the show organized last autumn was described as a "novelty." About 1000 plants were shown in 1831, belonging to fifty-five different varieties; this year the same number of plants represented 400 varieties. The massing of the plants in a large glass rotunda was described as very effective, but nothing of great excellence was noted.

EUCALYPTUS GLOBULUS SEEDING.—So far as we know, the fruiting of Eucalyptus globulus in the open air in these islands is extremely rare; but we have received lately some well-developed seed-vessels of the plant from Mr. ROBERTS, gardener at Tan-y-bwlch, North Wales. These were gathered from trees which were raised from seeds sown in March, 1882, planted out in the following May, and have remained unprotected ever since. They are now stately trees. That these rather tender trees stand out-of-doors and bear fruit speaks much for the mildness of the climate of the district in which they grow; but there are many other places in south-west England and Wales, and in Ireland, where an equally mild climate prevails, and where Eucalyptus globulus and E. coccifera may be planted with safety.

WILTS HORTICULTURAL SOCIETY.—The usual annual dinner of the Wilts Horticultural Society was held on the evening of the 31st ult, at the Council House, Salisbury, the MAYOR presiding. After the dinner, the business of re-electing the Society's officials, and reading a statement of the state of its affairs, together with the passing of a vote of thanks to the Honorary Secretary, Mr. H. W. WILLIAMS, brought the meeting to a satisfactory conclusion.

SOCIETY FOR THE ENCOURAGEMENT OF ARTS, MANUFACTURES, AND COMMERCE.—On Friday evening, February 7, at the Society's Rooms, John Street, Adelphi, London, W.C., a paper on "The Utility of Forests and the Study of Forestry," will be read by Dr. SCHLICH. The chair will be taken at 5 o'clock by Major-General J. MICHAEL, C.S.I.

ARUM LILIES IN THE OPEN AIR.—The conditions of cultivation adopted for a particular plant in a northern climate would naturally require modification to a greater or lesser extent when that plant is introduced to a southern spot. The mild, uncertain atmospheric influences of the latter have to be taken into consideration equally as much as the austerity and extremity of the former. The methods adopted by gardeners in one part of the country are naturally of great interest to those of the fraternity who have to battle with conditions widely different. For this reason, therefore, if for no other, the following account of Arum Lilies at Scilly will be read with interest:—To see Arums growing in their native beauty one should (writes a correspondent) visit the islands of Scilly, where they are evergreen; before the old leaves die away, the young ones come on to take their place. In good damp soil the plants attain to the height of from 4 to 5 feet, and so congenial is the climate that a moderately-sized root will in three years form a fine clump, composed of half-a-dozen or more flowering crowns and scores of offsets, each of which will, if planted, soon make nice plants. In fact, it is a hard matter to clean the ground after it has been planted with Arums for three or four years. The time of blooming extends from Christmas to midsummer. Sometimes they give out two crops of spathes in one season. Last year I had a fine batch, with the spathe showing white early in January. A sharp hoar-frost cut them all off; but they threw out fresh growth, and flowered freely in June. At the present time they are throwing up their spathes again. I have a friend who has been cutting for the last fortnight from growths in the open air, during which time he gathered one with a double spathe. Their culture is exceedingly simple, as they do very well in almost any ordinary soil; but the flowers are generally finer and better developed by an occasional watering with liquid manure. They must, however, be grown in a perfectly open spot, where they have not only the advantage of sun when in flower, but also when "at rest."

NUTS.—The male catkins and female blossoms are remarkably numerous, says a correspondent, on the Nut bushes in some districts of Kent, and alarm is felt by many that the extreme earliness of the bloom may result in a poor crop of Nuts, many female blooms being already fully expanded. Many more letters than we are able to publish have reached us, stating facts connected with the earliness of the bloom on the Hazel and its varieties, but in none do we find any notice of the flowering of the Byzantine Nut, Corylus Colurna.

LONDON GEOLOGICAL FIELD CLASS.—A course of four lectures on "The Tertiary Rocks on which London Stands," will be delivered by Professor H. G. SEELY, F.R.S., on February 15, and the three following Saturday afternoons, at four o'clock, by the kind permission of the Gresham Committee, at the Gresham College, Basinghall Street.

MILDNESS OF THE SEASON.—As proofs of the unusual mildness of weather prevailing over these islands, we have received from Mr. P. BARR flowers of a new species of Narcissus, N. cyclamineus, with small tubular flowers of a bright golden yellow—a very pretty subject for pot culture; Crocus Susianus, charming, deep orange-coloured flowers; C. Sieberi, purple blossoms, short in the petals, with conspicuous yellow anthers; and Galanthus Elwesii, one of the very best of Snowdrops. From Cork, Mr. B. HARTLAND sends a Japan Berberis, with a yellow rispe of flowers, deliciously fragrant. At Kew the plant refuses to bloom out-of-doors, so says our correspondent, but in Ireland it is different. The now well-known Ard Righ Daffodil came from the same place. This is certainly our earliest variety. In the neighbourhood of London the bloom-buds are prominent, but not open. Other Daffodils in bloom at Cork are North Star, Saragossa, Minerva, vasiformis? pallidus præcox, bicolor præcox; and of other things, mention may be made of Chionodoxa Lucillæ, Hepaticas, Aconite, and Triteleia.

THE ATTAR OF ROSES.—Rose water is extensively made in India. At Ghazipore, in Bengal, there are hundreds of acres laid out for the purpose. The harvest is in March and April, and the result of the distillation is to supply about one quart of Rose-water from each thousand of the blooms; but adulteration is very much resorted to, oil of Sandal wood being the medium, and the people of India do not seem to mind much whether they get the odour of the Rose or the Sandal for their money. It is comparatively cheap where it is made, costing 2*s.* or 3*s.* a quart even when unadulterated. Otto or attar of Roses is much more important and expensive. The origin of this condensed perfume is told in one of the romantic stories of the East. It is said that MOORJEHAN BEGUM, the favourite wife of JEHANGEER, was walking in her garden, through which ran a stream of Rose-water, when she noticed some oily particles floating on the surface. She had them skimmed off, and their aroma was found to be so delicious, that means were devised to produce the precious essence in a more regular way. The method is an extension of that which is used to produce Rose-water, but it takes 1000 bushes to supply about 2 oz. of attar, and its value is seldom less than £20. At that price, and unadulterated, it is sold mainly to Europeans, while in a less pure form it is vended in the native bazaars. It is bought by the Westerns, however, for manufacturing purposes, and not to be used in its pure condition.

KENT COUNTY CHRYSANTHEMUM SOCIETY.—The second annual meeting of the above Society was held at the Rink, Blackheath, on Thursday, January 30, and at which there was a good attendance of members. S. S. BRYANT, Esq., in the absence of their esteemed President, F. W. PRIOR, Esq., took the chair. After the annual report, and the very satisfactory financial statement for 1889 had been read by the Honorary Secretary, Mr. NEEDS, and adopted, the officers and members of the committee of last year, with one addition, were unanimously re-appointed. Suggestions were made to celebrate the centenary year by a suitable prize, and a trophy fund was duly started. The usual vote of thanks to the chairman terminated the meeting.

SHOW FIXTURES.—The spring or early summer exhibition of the Reading Horticultural Society is fixed for June 4, and the autumn show for August 27. The Reading Chrysanthemum Society's show has been fixed for Thursday, November 13; and the Richmond (Surrey) spring show is announced for March 18 and 19. The annual show of the Brighton and Hove Chrysanthemum Society has been fixed for November 4 and 5.

ORCHIDS.—Orchids to the number of 1000 from the collection at Blenheim Palace, were offered for sale by Mr. JOHN POPE, of the firm of Messrs. POPE & SONS, horticultural auctioneers, Birmingham, on the 29th ult. Amongst them were some rare species in flower, and for which there was a keen competition, notably plants in flower of Odontoglossum Ruckerianum, and Cypripedium nitens. There was a good attendance of buyers, and fair average prices were obtained.

EARLY FLOWERING SHRUBS.—From Coombe Wood, Messrs. J. VEITCH & SONS kindly send us shoots of various shrubs, viz, Hamamelis japonica, Japanese Witch Hazel, the brown calyces and long yellow filamentaceous flowers in clusters—very singular looking; H. j. arborea has dull brown and orange flowers, more densely set on the shoots than is the case with the first named species; Chimonanthus grandiflorus with inconspicuous primrose yellow and purple blossoms sparsely set on the young wood, Amygdalus Davidiana alba, white flowers showing abundantly on shoots two feet in length; Lonicera Standishi, the earliest of the honeysuckles to bloom; Pieris japonica (Andromeda), now opening profusely its pearly flowers in long racemes; and lastly, Cydonia (Pyrus) japonica Moorloozi, not differing much from P. japonica, excepting that the tint is somewhat softer.

M. R. C. AFFOURTIT.—Many of our readers will hear with regret of the death of M. R. C. AFFOURTIT, one of the editors of the Dutch gardening periodical, *Sempervirens*, and which occurred on Saturday, February 1, at the age of 65 years.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of the above society will take place at 8 P.M. on Monday, at the Caledonian Hotel, Adelphi Terrace, W.C.

LÆLIA GOULDIANA.

We herewith give our readers an illustration (fig. 28) of this beautiful winter flower, taken from a specimen which was in bloom last Christmas, and about the beginning of this year, in the collection of Sir Trevor Lawrence, Bart., M.P., the President of the Royal Horticultural Society, at Burford Lodge, Dorking. The plant in question had ten spikes, bearing together over forty flowers, their bright rosy-crimson sepals, petals, and labellum present a glowing piece of colour which would be attractive at any season of the year; but is doubly so in the middle of winter, when all outside the houses is in sombre garb. The plant, an introduction of Messrs. Siebrecht & Wadley, of New York, has frequently been mentioned in our columns, and its merits fully discussed. Lælia Gouldiana is the best of its section which has yet appeared, and it has been found easy to cultivate it in company with its congeners, L. autumnalis, L. anceps, &c.

THE LATE WILLIAM WILDSMITH.

Since the unexpected death of the late John Woodbridge, of Syon, one of our best known gardeners, there has been no member of the gardening fraternity whose decease, so unlooked for, has created more interest or elicited wider sympathy than has that of William Wildsmith, of Heckfield, at the comparatively early age of fifty-two years. Most deservedly ranking amongst our best gardeners, he, by dint of singular energy and force of character, had developed into one of the most widely known. Probably hardly a living gardener is better known than he was, and few will grudge him the reputation. Whilst possessed of some peculiarities which might under other circumstances have developed into marked eccentricities, yet those who thoroughly understood him and realised his singularly energetic character, and fully knew his undoubted goodness of heart, will have no difficulty in admitting that originality and force were in him such marked features as to excuse trivialities or defects not worth dwelling upon. We are rather concerned with undoubted virtues, with unquestioned capacities, and these in Mr. Wildsmith were very marked. His character was eminently impressed on the gardens where for over twenty-two years he was the presiding genius. Myriads of horticulturists found their way to Heckfield from time to time, and all came away charmed and delighted. The soul of the man was impressed in his work, and that work was some of the best and most perfect to be found in British gardening.

Born at Bradford, in Yorkshire, of which town the deceased sometimes referred to as his "native village," he brought all the acuteness and vigilance of the Yorkshireman into his profession. His first entry into actual gardening life seems to have been in the famous Suffolk gardens of Shrubland, where under a Mr. Taylor he first developed that taste for garden flower-bedding, which displayed itself in such beautiful form later at Heckfield. Later he was at Woolverstone with the veteran Sheppard, who is still there; also at Powis Castle, Welshpool, with Brown; after that at Chirk Castle, Denbigh, with another Brown; then at Wynnstay with a gardener named Bell; and finally he went to Heckfield, first as foreman under Dwerrihouse, and subsequently under Short, whom he early succeeded as head gardener at Christmas, 1867. That would make his service as gardener to Viscount Eversley first, and later to the Honourable Miss Shaw Lefevre, to have been a little over twenty-two years. It is worthy of note that Mr. Wildsmith survived his esteemed employer Lord Eversley just thirteen months. As was mentioned last week, he was the victim of an accident, which, nearly fatal in its effects at the time, distressingly affected his health always after. Driving home from Winchfield one dark night when returning from London, the horse shied at some object in the road, turning the cart over, and throwing Mr. Wildsmith and his then foreman, Mr. W. Lees, into a ditch. The younger man escaped unhurt, but the elder one was so injured in the back, that it was long before he recovered; indeed, to the last, the injury then inflicted made him a living martyr to pain. In spite of this affliction, however, his energy never quailed. Enthusiastic in his love for gardening, sufferings which would have proved too much for less ardent men, seemed only to stimulate him to increased exertions, and he worked and went about here and there, and literally everywhere, with an energy which was truly surprising. Only the most exacting of duties or physical weakness kept him from attending the meetings of the Fruit Committee of the Royal Horticultural Society, and of which he long was a member. He also furnished several papers to the Society's conferences and meetings, and was active at the Apple and Pear Conferences, especially also during the past year at the Vegetable and Chrysanthemum Conferences. His admirable abilities kept him in great request as a judge at horticultural shows, and through these engagements, apart from his Heckfield friendships, he made numerous acquaintances in all parts of the kingdom.

In years past he often showed how well fruit was grown at Heckfield, and if later he did not compete, it was chiefly because his physical weakness could not bear the strain. The beauty of the flower gardens at Heckfield, and the singularly admirable way in which every department was kept, came to be regarded as household words; and literally people by thousands flocked to see the place during the summer season. There are many far more pretentious gardens than Heckfield is, but none are more beautifully kept. Most happy in his relations with his employers, who entertained for him the warmest regard, he was also exceedingly successful in securing the esteem of those under him, and from Heckfield have gone forth during the past twenty years several first-class gardeners.

Beyond his well-known professional capacity, he was also endowed with exceeding good nature and large-heartedness. For years a subscriber to the Gardeners' Benevolent Fund; on the promotion of the Gardeners' Orphan Fund he threw himself into the work with zeal, and became, as a local secretary, a most valuable helper. We are constrained to say that few gardeners will be more missed than will be William Wildsmith. Shortly after his appointment as gardener at Heckfield he married Helena, daughter of the bailiff, Mr. Tate, who survives him. He leaves no children.

Few that have had the happiness of the personal acquaintance, or been associated in any enterprises with our late friend, but must pause to express regret at his death, and test to his marvellous energy, and surpassing ability and worth. Ever since the serious gig accident that so severely shattered him some time since, he worked against and mastered physical difficulties that would have vanquished most men, and yet possibly some of his best work in the garden and through the press has been done since his accident. Mr. Wildsmith was as worthy of our esteem as a man, as of our admiration as a gardener. Nothing could move him from his devotion to conviction, truth, and duty, within the domain of social or moral life, nor stop him in his onward progress towards the perfecting of the art of gardening. Whatever he did, he did with all his might, and in his own thorough-going way, seeking the elevation of gardeners and the improvement of gardening. The two objects could hardly be said to be separated in his widely cultured impulsive mind. The better the instrument the higher the work that may reasonably be expected from it, was probably the unspoken formula on which he based his lifelong labours for the elevation of gardeners through temperance, higher education, the best object lessons in the garden, and other ameliorative agencies. Though we are all the poorer for the loss of such a man, fortunately much of his best work still remains to us in print, and the memory of his taste and genius, and not a little of his most valuable horticultural work at Heckfield, will long live in the minds of his fellows, and will doubtless prove a source of strength and inspiration to the younger men who can hardly fail to have imbibed some of his character and enthusiasm as they grew up into wise men in horticulture, beneath the daily fostering of his wide experience. *D. T. Fish.*

NURSERY NOTES.

MESSRS. R. B. LAIRD & SONS.

A visit to the Royal Winter Garden Nursery of Laird & Sons' at West Coates, Edinburgh, is a treat to lovers of plants and flowers that may be equalled in a few cities, and surpassed in none out of London. This is especially true in mid-winter—the time when these notes were taken—when the spacious and handsome conservatory abounds in richly varied masses of forced flowers and foliage plants adapted to meet the large requirements of Edinburgh society then at home in the city.

In few establishments is forcing done more successfully than here. The success is due in a large extent to the special fitness of the equipments provided for the work, but the management is also faultless, as may be seen in the perfect specimens of Lilac and of Lily of the Valley and other flowers blooming before their time, and so profusely and tastefully displayed in the great show-house. Lilac, judging from the great number of plants in bloom, and of others in the forcing-houses in various stages of progress, and the large reserve of finely-budded stock standing in a cool-house, waiting to be drafted into the forcing-house, must be a great favourite with the fashionable customers of the firm. It is most in demand, it appears, in the form of cut sprays, and pays well thus, but sells sparingly, and is not profitable when the plants themselves are bought outright.

Behind the Royal Winter Garden are situated the numerous stoves, greenhouses, offices, and workshops of the establishment, in compact and orderly array, in the form of a square. The arrangement is unique in its way. To economise space, the counting-house, boiler-house, packing-sheds, storehouse, joiners'-shop, coach-house, and stables, occupy the ground-level on three sides of the square. Above these buildings is erected a suite of fine span-roofed plant-houses, the floors of which rest on iron beams, and are rendered damp-proof by cement, so as to prevent water from penetrating to the buildings underneath. Access to these plant houses is obtained from the ground level by flights of steps. Some little extra work is, no doubt, caused by this arrangement of the major portion of the plant houses, but there are countervailing advantages. The site is almost wholly surrounded by lofty dwelling-houses, which, had the plant-houses been built on the ground level, would have overshadowed them more or less in summer as well as in winter. But in their comparatively elevated position they receive a fair amount of light at all seasons, are removed from the influence of dust from the busy thoroughfares that bound two sides of the place, and are, by reason of their dryness and airiness, model wintering houses for the various classes of stock that find shelter in them.

These elevated houses are filled chiefly with hard-wooded plants. One of the first to be entered in the suite, we found, contained an excellent collection of New Holland plants and Ericas in fine saleable condition. Messrs. Laird find a growing taste for these springing up among their customers, and experiencing some difficulty in getting orders made up, even in London, when wanted, determined a few years ago to add a collection of them to their own stock. Two long

houses immediately beyond the New Holland-house are filled with half and full specimen Azalea indica, composed of the best of the old and modern varieties. We have rarely seen a more satisfactory collection of Azaleas. The plants are models in form, without objectionable stiffness, with foliage deep green in colour, perfectly clean, and every shoot tipped with flower-buds. The north house is a large one devoted entirely to greenhouse Rhododendrons, mostly young, and in fine saleable condition; but many also are of half and full specimen sizes. The collection is very complete, and contains the best of the older species and varieties, and the newer hybrids, such as Lord Wolseley, Princess Christian, Scarlet Crown, Williamsii, &c.

The remaining three or four houses in this elevated range are devoted to Pelargoniums of the various popular sections, and which are well represented and grown.

The houses and pits on the ground level within the square consist of stoves, propagating-houses, and cool store-houses for miscellaneous stock, and also for Ferns. One, the roof of which was almost covered with a plant of Lapageria alba—the mother of hundreds of others in pots which were staged beneath it—in various sizes, from layers recently potted up to established plants in 6 and 7-inch pots. The house contained besides a number of fine Cordyline indivisa. Another house noted was admirably adapted as a plant stove, and contained a splendid collection of Crotons and Dracænas in the best possible condition. Selections of these plants are grown, which, being mostly well known to readers of the *Gardeners' Chronicle*, we refrain from particularising. Some fine and rare Palms formed striking objects in this house, viz., Ceroxylon niveum, Livistonia rotundifolia, and Astrocarya mexicana, along with the Palm-like Pandanads, Carludovica elegans, and C. Drudei, each in well-developed plants. In a cool-house hard by my attention was arrested by a fine specimen of the rare and elegant Dracæna indivisa variegata, which is certainly one of the most refined-looking and graceful of variegated plants.

Table plants of the most popular kinds, new and rare Ferns, both stove and greenhouse, and miscellaneous flowering stove plants, occupied other houses, which could only be glanced at sufficiently to carry away the impression that at every point there was evidence of enterprise and cultural skill.

PINKHILL.

This branch nursery lies about 2 miles westward from the West Coates and the western limit of the suburb. It may be described as the laboratory of the firm, for here the supplies are chiefly reared for the ornamental departments. Few nurseries, especially in Scotland, are better situated as regards soil, aspect, shelter, and drainage. Some 40 acres have recently been added to the nursery area, so as to enable the extending requirements of the business to be met in a satisfactory manner, and the whole extent of nursery ground amounts to more than 60 acres. It is laid out on sunny slopes, and consists of a fine loamy soil, and is well protected on the north and east by wooded hills. The older part of the nursery in which the houses, to the number of about fifteen are built, was to the enthusiastic florist of twenty-five or thirty years ago a horticultural treasure house, and to which he was wont to journey annually for the newest and best Hollyhocks, Dahlias, and other floral gems. Florists' flowers are still a specialty of the firm, but to a lesser extent than formerly.

The ground formerly devoted to them is now occupied by shrubs and trees, and amongst them are some rare Conifers that are often regarded as being unsuited to the climate of Edinburgh, but which thrive well here. All the forms of Retinospora are luxuriant and of perfect colour; Abies grandis and Picea lasiocarpa, P. Parryana, Pinus aristata, and others of similar constitution exhibited vigorous and well matured growth. Olearia Haasti, which is not one of the most successful plants in these parts, was noted in an open quarter growing as vigorously as young Thorns, and the unusually large stock on hand of the plant, young and old, suggested that there must be a considerable demand for it for planting in suitable quarters.

About 8 acres are devoted to fruit trees, of which there is a very healthy stock of varieties of Apples, Plums, Pears, and Cherries, in the open quarters, while on the long stretches of walls were Apricots and Peaches, of good form and in fine health.

The houses are chiefly adapted to propagating and growing on young stock, and forcing flowers. Young Palms, such as Kentias, Arecas, Seaforthias, and others, best suited for table decoration, are reared here in large numbers.

Chrysanthemums—of which about 5000 are grown annually for the cut flower trade of the firm—are also largely propagated to meet extensive plant orders, especially in new and scarce varieties, and potting for these purposes was being actively pushed on at the time of my visit. In one lofty house in which hardy flowering shrubs were being forced, noble specimens of Rhododendrons Sir Joseph Whitworth, maculosum, Auguste van Geert, Michael Waterer, Prince of Wales, &c., were being pushed into flower. They were freely set with buds, and averaged 10 to 12 feet in height.

Imantophyllum, in all the improved varieties occupy a large space. They are being found valuable as room and corridor plants, either in or out of flower. Their characteristic style of foliage, and their disregard of draughts, and even drought, when growth is finished, render them favourites with those who have once given them a trial. But I must close with the remark that my visit to these excellent nurseries afforded as much pleasure as instruction, and cannot fail to do the same to other southern visitors to Edinburgh. *W. S.*

PLANTS AND THEIR CULTURE.

THE PLANT STOVE.—The temperatures given for last month, viz., 60° at night, with a rise of 10° by day, will still apply generally, and especially in cold sunless weather; and it is not safe to keep the warmth too high, for fear that we may have severe weather, with cutting winds, during February. Admit, when it is safe to do so, a little air about noon, it being of great benefit to the plants. Preparations should now be made for re-potting and top-dressing, but ere the work begins everything required should have been got in readiness, such as soils, which should have been got under cover some time ago, and suitable composts prepared for the different kinds of plants. When everything is ready, the work of potting, &c., is much better done in the houses than in the potting-shed if that be far away. Over-potting, should be most carefully avoided, especially of Palms and similar subjects. I have often seen these plants in pots double the size they required, and in such cases the ill-health induced was fatal to them. Let beginners anxious to grow their plants quickly take warning, and not afford a plant a larger shift than is really required. It is also advisable, when practicable, to take one genus of plants, and repot or top-dress them, as by this method of doing the work, the potting material employed can be slightly varied to suit different requirements. Most hard-wood stove plants and Palms require to be firmly potted, and the drainage to be carefully put into the tubs and pots, clean pots and crocks being employed. If a doubt should exist as to the desirability of shifting a plant, it is much better not to repot, but to carefully supply manures to such.

Dracænas, Palms, Eucharis, and Crotons, should have bone-dust added to the compost, and a few half-inch bones should be placed above the drainage; and for quick-growing plants, like Caladiums and Gloxinias, some decayed manure should always be added to the compost.

Crotons should have a large percentage of good, fibrous, yellow loam, and bones in the compost, and all old ties and stakes removed and made good at this time. Marantas, Ixoras, and Dipladenias need a large proportion of peat and some lumps of charcoal, with plenty of coarse silver sand. Any plants deficient in roots should be induced to make roots by the aid of mild bottom-heat. This plan cannot always be adopted in the stove, but a small pit or forcing-house may be utilised for the purpose. Carefully water all repotted plants, and keep the stove rather close for a time, and when all the work is done the warmth may be slightly raised, both day and night, and in fine weather, the air of the house should be kept moister.

Any climbers in the house should have some new compost added to the borders or pots in which they are growing, and the top growth should be regulated, and new ties given. The glass and woodwork should be thoroughly cleaned, and the house re-arranged. A few pots of early Gloxinias may be started, also Achimenes, if required early, but they are best later on, if not specially required. The Gloxinias should get bottom-heat to start them. *G. Wythes, Syon House, Brentford.*

EPIPHYLLUMS, AND THEIR PROPAGATION (FIG. 29).

THESE are the most generally grown and the most useful genus in the large family of Cactuses; and considering the ease with which they can be grown and multiplied, it is not surprising that they should be found in gardens where few others are cultivated. Moreover, they flower in winter, and can be had in flower practically when they are required. As is well known, small pieces of the branchlets root readily in the ordinary way as cuttings; but owing to the loose trailing habit of the plant, unless they are then grown in baskets or otherwise elevated, such plants are not seen to an equal advantage, as when they are grafted on stocks from 9 to 18 inches high. Although they can be readily grafted on almost any member of the Cactus family for general purposes, the strong growing Pereskias are considered to be the most suitable for tall specimens. P. Bleo is best, being a stronger grower than the more commonly employed P. aculeata. The operation itself is exceedingly simple, indeed, so much so that the operator may indulge in any fashion which may suit his purpose, with an equal certainty of success, provided he firmly secures the graft in an incision made in the stock. The entire length of the stock may be grafted with branchlets, but as I believe that standards are the most effective form to grow, a few pieces inserted round the top of a stock, with one good piece as a terminal, will be sufficient—or perhaps a terminal bit alone.

After having detached suitable pieces from the parent plant, make the base of the branchlet slightly wedge-shaped, and with a sharp knife cleave the crown, and make as many longitudinal slits in the stock as there are pieces to be grafted. The slits may be held slightly open with the blade or handle of a budding-knife while the grafts are being put in; and the tension of the stock is often sufficient to keep them in position without any further fixing; but a handy and ready means of fixing them is by transfixing them with one of the Pereskia spines; or, failing that way, they may be tied on. It is not necessary, nor even desirable, that the stocks be rooted before being grafted. Not only does previous rooting involve a loss of time, but the strong, ripened shoots of the last growth are in better condition for working than when further solidified during the process of rooting.

Cut up the shoots to the required length, then insert the number of grafts thought desirable in the manner advised, and pot each stock in a small pot, placing them all in the propagating house or in any fairly moist pit where the temperature ranges about 65°, and where in the course of a few weeks the stocks will have rooted, and the grafts become united to them. In order to make the most of them, they should soon afterwards be shifted into slightly larger pots, and tolerably larger heads may be grown in 48's. It is advisable to afford the plants a temperature of about that recommended for propagation, when, if all goes well, they should make nice decorative plants in the space of one year. As the autumn approaches, less heat and moisture must be given, and at the same time more air, until they are

in a state of comparative rest, when a temperature of 50° would be ample. From quarters such as these the plants may be brought on into flower in succession by putting them into more warmth. After the plants have done flowering, growth should be encouraged in the manner advised for the previous season.

The Pereskia is a vigorous rooting plant, and, with ordinary care, may be kept in good condition for several years; but when the heads get large and top-heavy, it is advisable to break them up for stock. Although the Cactus is not particular as to soil, a compost of good loam with enough sharp sand mixed in it to render it porous, and a good sprinkling of old lime mortar-rubbish, is a good mixture. The drainage should be good. Either of truncatum, but the prevailing colours are shades of red or rose, sometimes nearly white, and others with violet-purple markings. E. Russellianum has been ranked as a species; it is a distinct and desirable plant, especially the form called E. R. superbum. Another distinct form, with stellate flowers like a Cereus, and supposed to be a garden hybrid, is E. Gærtneri, which I believe to be the same thing as the plant introduced as Makoyanum; it is a very desirable plant, and should be included in every collection of Epiphyllums. When these plants are grown on their own roots considerable care must be taken not to overwater them, as they are strictly speaking leafless, succulent plants, few of which require much water, particularly when in a low temperature. *F. R.*

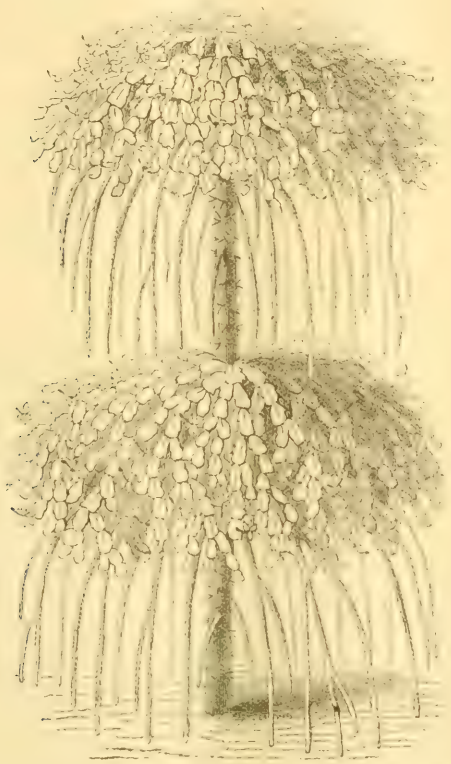


Fig. 29.—Epiphyllum truncatum grafted on a Pereskia stock. (see p. 172.)

the Pereskias named will make shoots in a season, about 12 or 14 feet long, so that comparatively few plants will suffice for a large number of stocks. Indeed, as an intermediate-house climber, these, when grafted their full length, make handsome objects when in flower; and if only wanted for cutting, a large quantity of flowers can be cut from such plants. Epiphyllums are also capital subjects for planting on rustic walls, in a similar way to that often practised with Ferns, but they dislike much decaying material about their roots, preferring to cling rather closely to the wall, with just enough covering over the roots to prevent their being dried up; of course, in this case there is no need for grafting, but plant goodly-sized pieces, and see that they are firmly fixed in position. There are a great many varieties of Epiphyllum, mostly of the species

Home Correspondence.

Pansies and Violas.—Amongst the names of florists' flowers to put on trial at Chiswick during the present year, I was pleased to find Pansies and Violas specially mentioned. These subjects are really beautiful, and will well repay the grower for any attention he may give them. I hope that some of the growers from the North who cultivate them extensively will send good collections, so that we may have an opportunity of seeing what may be termed a representative collection. Beautiful as the Pansies are, I think the Violas are of more consequence, being so much more valuable than those for bedding purposes, having also colours that are more decided, and flowering more freely. I would suggest that not less than six plants (more if possible) of each sort of Viola be planted together in short lines, as a better idea will thus be arrived at, for what particular purpose each sort is best adapted; for instance, some which are of dwarf, compact habit, should be chosen for edging or lines, while stronger or straggling growers would be more useful for massing, or to furnish cut flowers. The time is at hand when the planting of Violas, where they are intended to flower through the summer, must be performed. I should advise early planting—say in March—if the weather be favourable, so that the plants may obtain good hold of the soil before the warm weather commences. In cases where Polyanthus or other spring flowers occupy the beds the Violas are intended to fill during the summer, the best result will be obtained by taking the Violas out of the beds where they have been struck, planting them in a border, at about 4 inches apart. Then, in May, when the beds are cleared of the spring bedding, carefully transplant them, with as much soil as possible, into their summer quarters; and if the weather be dry at the time, give the soil a thorough watering, and, if possible, a mulching also. The Viola should especially commend itself to those who have a large flower garden to furnish, and but little glass accommodation, as the plants require no protection during the winter. *T. F. D., Valentines.*

Peach Dymond.—In the Mote Park Gardens, Maidstone, I recently had the opportunity of viewing a very heavy set of fruit of the above variety of Peach. This Peach has been referred to in these pages by different gardeners as being excellent for cultivation out-of-doors; but Mr. Davis speaks of it as being a good forcer. I was told that it had cropped constantly for several seasons at the Mote, and last year about fifteen dozen of fine large fruits were gathered early in May. The tree promises to be equally prolific this year. The variety has a hardy constitution, resists mildew better than some others, and promises to become still better known and grown both indoors and out. *H. Markham.*

Sambucus racemosus.—The plant which is here, was raised from seed gathered by me in the Albula Pass, Switzerland, in September, 1868. It grows freely in the lower part of the pass in open spaces amidst Pine woods, and is covered with red berries, so as to resemble masses of pink coral. I had the privilege of an introduction to the late Professor Heer, of Zurich, from whom I learnt the name. It was planted in a similar position here—an open space between Scots Fir. Unfortunately the soil is very dry, and, though it grew well and flowered, I have only twice seen a few small bunches of red berries, and, therefore, destroyed the shrub some years ago. Since the correspondence in your columns I have noticed three seedlings. A dead Scots Fir has been uprooted which opened the soil nearly 4 feet deep. Potatos were grown last year with dung and lime, and this year I have planted one of the seedlings, and hope for a better show of berries in a few years. To give you an idea how dry the soil is, there was a Picea Nordmanniana growing well, but it came to the front too much in a border where there are bulbs and small shrubs. It was decided to lift it and move it further back. My man dug around it, and could not find any roots until 3 feet below the surface, where a tap root which was much the same size below the ground that the trunk was above began to spread out, so the tree, which was 15 feet high, was destroyed. The root appeared to have gone down in search of moisture. I have no doubt that berries form on the Elder, but we have so many songsters here—a great contrast to the silent woods in Switzerland. *H. R., R.N.*

Outdoor bulbs and the bulb mite.—Gardeners, myself included, are often contributing their experience to your valuable paper with respect to their successes and failures in cultivating the Eucharis after they have been attacked by the mite. I find you add a foot-note to your correspondent, "W. H. Stephens," January 25, wherein you state with great truth, "The mite is common on other bulbs." But I do not remember ever reading any correspondence on the above heading. I am well aware that the following species of bulbous plants are subject to its attack, viz., Eucharis, Amaryllis, Valottas, Pancratiums, &c. But the attack of the mite on the outdoor species of bulbs was unknown to me until last spring, when on taking up a quantity of Hyacinths, Tulips, &c., which had been planted very deep, and which had each year become weaker,

and the blooms smaller in consequence. I attributed this to the deep planting, as I thought the bulbs did not come to that state of maturity which is essential for good blooming. I found a great many of them were decayed, and on examining them I found, by the aid of a lens, that they were infested with the mite; in fact, some of the Hyacinths were partially devoured by them. I had the bulbs conveyed to the kitchen garden and washed in the same composition, and treated in every way as recommended by me for the Eucharis in a previous number of the *Gardeners' Chronicle*, and afterwards laid out in the full sun, allowing them to remain in that position for a month, when they were stored in drawers until again required for planting. I found at planting time that these bulbs were in a sound and ripe condition, and not a single mite was perceptible. The bulbs which were the worst infested had previously been selected and thrown away. Thinking possibly there might be some of the depredators left in the beds, a good dressing of lime and soot was given them before digging the beds, and a pinch of the same mixture was put into each hole when planting the bulbs in the autumn, as I find this is the best remedy for maggot and grub-infested land. I therefore strongly recommend your correspondent, "D.," to try this simple remedy for his Narcissus bulbs, which are attacked by the Narcissus-fly (Merodon Narcissi). Just as the bulbs were peeping through the soil, I took out a few of them, and found they were in a satisfactory condition. *Alfred Bishop.*

HARDY FRUIT CULTURE.—Your comments upon the course proposed to be taken by the Fruiterers' Company in relation to the disposal of its after all very small subscription sum of £1600, fully justifies my strictures upon an absurd proposal made at the Fruit Conference, held at the Crystal Palace last October. There, when it was proposed to give the Fruiterers' Company a vote of thanks for what it proposed doing, and suggested that the vote was far more fitly due to the Royal Horticultural Society for what it had done in relation to fruit culture. Now after an immense amount of bunkum has been uttered in regard to the grand purposes of the Fruiterers' Company, we learn that the sum it has collected—only £1600 out of the expected sum of £5000—is to be handed over to the Royal Agricultural Society—of all bodies—for disposal. Nothing could be more absurd, because the Royal Agricultural Society cares no more for fruit culture than for flower culture, and, as a body, it is almost absolutely ignorant of what is fruit culture. If the money is to be expended in prizes for orchards, &c., it will be simply squandered. It is not prizes but practical teaching which the farming element needs, and if the fund could have been large enough to establish a travelling fruit lectureship, no doubt great good would in that way be accomplished. But it would require a big sum to found that desideratum. The best thing, therefore, would be to utilise the sum thus raised for the purpose of spreading broadcast such information on the subject as may be available for the benefit of the farmer, small amateur, and cottager sections of the community, Mr. Wright's prize essay, Messrs. Eyre & Spottiswoode's new hardy fruit pamphlet, Mr. Badger's prize essay of several years since, Sir J. Paxton's *Cottagers' Calender*—in fact, there is no lack of cheap books which, written specifically for the class to be instructed, might prove most valuable aids in promoting a knowledge of fruit culture, and inculcating a love for it also. *A. D.*

THE GARDENERS' PROBLEM.—Allow me another word on this subject. Surely the reason why it is impossible to imitate in our gardens the conditions under which plants grow in their own countries, is to be found mainly our inability to make the climate suitable for many of the plants we attempt to cultivate. How is it possible for us in the open air, with a range of temperature extending to some 50° Fahr., to imitate the climates of Central Asia or North America, with an "extreme range" of something like 150°? Yet here, where the temperature very rarely goes below 20° or above 80°, Pentstemons (natives, I believe, of Central North America) flourish in a way which can hardly be exceeded in their native country, growing into bushes with a strong woody stem, and living for many years in the open air. On the other hand, to show the effect on some plants of an apparently trifling difference in climate, the following fact is instructive. On the old heaps of waste from the lead mines near Buxton, Parnassia palustris (Grass of Parnassus) grows abundantly even on the steepest slopes. Go some 50 miles to the west, and try to grow this plant on the precisely similar mine waste heaps on Halkin Mountain in Flintshire (which, like the Buxton hills, is carboniferous limestone), and the chance of success, if the plant be left to Nature, will be very problematical. But go the foot of the Flintshire hills, and there on flat marshy ground at the level of the sea at Mostyn, you will find Grass of Parnassus in abundance. What causes the difference between the two localities? Simply (so far as I can see) this—the rainfall at Buxton in 1888 was 46 inches, while at Halkyn it was only 29 inches. *Alfred O. Walker. Neat y Glyn, Colwyn Bay.*

THE ROYAL HORTICULTURAL SOCIETY'S REPORT.—There is one little item in the report just to hand which merits attention, and shows in a marked degree the wisdom of reducing the rate of annual subscription to those who may wish to become guinea Fellows. During the past year, 93 Fellows have withdrawn through death or resignation. On the other hand, no less than 265 new ones have joined. Thus the balance in numbers is no less than 173. But that is not all, the loss of income arising from deaths and resignations is £126 2s., the gain £341, a balance of £213 to the good. But even further, the accession of new Fellows shows the amount to be curiously enough exactly £128 2s. from two-guinea Fellows, and £212 from one-guinea Fellows—ample evidence that the society must henceforth view as the backbone of its income the smaller subscriptions. *A. D.*

VANDAS.—In your last number, Mr. Douglas has a very interesting account of the Vandas at Messrs. Williams & Son's nursery, Holloway. It is also an article treating on the cultivation of Vandas generally, but Mr. Douglas has a sentence or two in it that I think require qualifying. It is an old saying, that doctors often differ; but a comparison of opinions on any subject can do no harm, but the opposite. The first sentence I mean is, "Vandas require but little shade," and here I differ entirely from Mr. Douglas. This may do in a smoky atmosphere in the neighbourhood of London, but in a clear country such as we have here a week of such treatment would suffice to turn the greenest plants possible into sickly, leggy, yellow things. We have here a house full of Vandas—about eighty good plants—this house, from its situation, never sees the direct rays of the sun, and in summer we shade heavily. The plants are here to speak for themselves, as green as may be, and leaves down to the pot. I know of several collections of Orchids, where Vandas are but a name, and simply from too free exposure to the sun. There is another thing that I would like to mention in regard to the cultivation of Vandas, and I think Mr. Douglas does not do so, that is, in potting a Vanda do not fill the pot full of crocks to within an inch of the top, let the roots go down amongst good clean sphagnum mixed with a few small clean crocks, and they will do far better than if hoisted up on a stone dépôt, as I have often seen done. The month of September is the safest time to overhaul Vandas. Another thing in regard to Vandas losing their leaves: nothing makes them do this quicker than by leaving the spikes of flower too long on the plant. I always have them cut off as soon as possible after being open. The finest form of Vanda suavis is one, I think that Mr. Williams sent out, called V. suavis Gottschalkii, large in spike, fine, bold, well-spotted flower, with a very deep pink stem. I quite agree with what Mr. Douglas says about temperatures, &c., and I hope he will pardon me questioning his views anent shading. *W. Thomson, Jr.*

NARCISSUS FLY.—Having noticed your answer to "D." in your issue of January 25, with illustrations see p. 118, of the Narcissus fly (Merodon Narcissi), in its various stages, perhaps the following additional information will be of use to him and many other readers of your journal. The bulbs of the Daffodil and of other species of Narcissus frequently refuse to vegetate, the usual cause being that the interiors of the bulbs has been eaten by the grub of the two-winged fly known to entymologists under the above name. The only way to avoid this disappointment is to examine each bulb before planting in the month of November, when on the outside of the bulb, in the manner depicted in your diagram, will be found one or two comparatively large, round holes. The bulb upon being cut open will be found to be more or less decayed, owing to the maggot (fig. 2 of the diagram) having sustained itself on the substance of the bulb during the summer and autumn months. This larva, upon close inspection, will be found to be somewhat like the flesh maggot, and not unlike a sheep bot, only that it is not furnished with spines, and instead of being whitish, its natural colour, it is changed to brown, owing to its having lived amongst the slimy matter which it has exuded, and which chiefly is one more cause of the rotting of the bulb. Towards the end of November the maggot is transformed into a pupa (fig. 3 of diagram), and it then eats its way out of the bulb near the roots, and then buries itself in the adjacent soil. The pupæ are dull brown in colour, egg-shaped, rough, and strongly wrinkled. In this state they remain until the following spring, about April, when the flies (fig. 4 in the diagram) issue forth. The fly again deposits its eggs upon the bulb, generally near the base of the leaves. The flies are very much in appearance like bumble bees, the colours being for the most part yellow, orange, and black; and they also bear a strong resemblance to the bot flies. However, they are readily distinguished from bees, in that they have only two wings; the horns and proboscis also are totally different, whilst again they have no stings. *Bernard Wilson.*

EARLY FLOWERING OF THE HAZEL.—I arrived here on the morning of the 31st ult. Walking round my garden, I was much struck by the early-flowering of the Hazel bushes. The catkins were out in great force, and the female flowers in bud in abundance. To-day they are for the most part out with their beautiful red blossoms. Not having lived here at this season since June, 1882, I cannot speak as to the intermediate years, but I recollect well how early the Hazel Nut was in flower that year. The thrush and blackbird were in full song on the 31st, and I heard the note of the bullfinch, though I did not sight the bird. *J. A. C., Northfield, Annan, Feb.* 3.

PASSIFLORA CŒRULEA.—The other day when passing up the High Street, Godalming, my attention was arrested by a specimen of this plant which has nearly covered the front of Dr. Parsons' house; and although the flowering season is long since passed, the plant had a large number of yellow, plum-like fruits. I question whether the fruit is not even more ornamental than the flowers. At all events, as viewed from the street, nestling as they do amongst the dark green foliage, the fruits are more conspicuous than those, and add greatly to the ornamental character of this plant. It is a curious fact that the best specimens of this plant which I remember to have seen were in or near busy thoroughfares. And I may mention another notable example on a house near the High Road, Chiswick, where the fruits were frequently very conspicuous during the winter. *F. R.*

MOUND CAVES AT HEATHERBANK.—Those of your readers who like out-of-the-way devices in gardening, as I do, may care to hear of the results from our little mound caves of which I wrote in the *Gardeners' Chronicle*, December 18, 1886, and will I hope experiment in the same direction. The first caves were built with too small pieces of stone, so after showing that the greenhouse Ferns such as Adiantum cuneatum and Pteris serrulata would stand the winter, the roof began to drop in. These were planted in February, 1885. We made a new series of mound caves and planted them in October, 1887, these had one large stone for each side, back, and roof; they have stood well, and the greenhouse Ferns in them are now green, and both have seedlings all along the sides of the stone, showing that they are all quite at home. In another set of caves, Cyclamen macrophyllum is thriving, and a number of different varieties of Adiantum are planted, but have not yet had time to establish themselves. I have tried a good many bulbs and tender Primroses, but these failed, I suppose from insufficient light. There must, I think, be many plants which would succeed as well as in a greenhouse. In very cold weather a slab or slate may be used across the mouth of the caves. *George F. Wilson.*

EVERLASTING PEAS.—In the hardy flower way, this is very useful for making a fine display, and for cutting. The more valuable are the white, which looks well in the foreground of shrubs, or in the borders of perennials, and the purple-flowered, which is a stronger grower. A good plan of employing these Everlasting Peas is in clothing the stems of trees that have not much top growth. A piece of

large-meshed wire-netting should be placed round the tree, and to this the plants will attach themselves. In borders, a few stout branches with the twigs and sprays attached are the best kind of support, and to these the plants should be allowed to cling as soon as they begin to grow. These Peas are raised from seeds, or increased by divisions early in the spring. To give these a good start, large holes should be thrown out to a good depth, and manure placed at or near the bottom, refilling the holes, and afterwards putting in the plants, and making the soil firm; seeds are best sown as soon as ripe in sandy soil under hand-lights. *J. S.*

CATS IN GARDENS.—Your correspondent "F. S." will find that if he requires a cat for his garden he will have to train up a kitten, and accustom it to wear a collar, and sometimes to be tied up. The kitten in time will take to this just as a dog does. Some years ago I trained two kittens in this way, as a protection to my Strawberry beds, Peas, &c. They were attached by a ring to a length of wire as in fig. 102, p. 728, vol. vi.; and the mother was tried at first, but as "F. S." says, she was not amenable to discipline and confinement. *W. I.*

ROSE STATISTICS.

(*Continued from p. 83*).

List X.

The Hardiest Teas, being Less Well, than Last (A).

1.	Mme. Lambard	15—0	15	18.	Belle Lyonnaise	14—3	12
2.	Marie Van Houtte	30—0	30	19.	Etoile de Lyon	12—0	12
3.	Anna Olivier	32—0	32	19.	Mme. de Watteville	12—0	12
4.	Souvenir d'un Ami	31—1	30	20.	Mme. Cusin	1—0	1
5.	Gloire de Dijon	26—0	26	20.	Jules Finger	8—0	8
6.	Francisca Kruger	24—0	24	20.	Isabella Sprunt	11—0	11
7.	Rubens	24—2	22	20.	Mme. Lambard	7—1	6
8.	Hon. Edith Gifford	23—2	21	20.	Grace Darling	6—0	6
8.	Jean Ducher	24—3	21	20.	Mme. Margottin	5—0	5
10.	Caroline Kuster	21—0	21	27.	Perle des Jardins	6—2	4
10.	Homer	20—0	20	28.	Souvenir de Pierre Notting	3—2	1
12.	Mme. Willermoz	16—1	15	28.	Souvenir de Paul Neyron	3—2	1
12.	Mme. Bravy	16—1	15	29.	Devoniensis	1—0	1
14.	Mme. Berard	14—0	14	30.	Niphetos	11—3	8
15.	Bouquet d'Or	13—1	12	31.	Comtesse de Nadaillac	6—1	5
16.	Catherine Mermet	16—4	12				

Briar Seedlings or Briar Cuttings for Stocks.

Judging from the opinions expressed in the Returns, it appears that, other conditions being equal or unknown, there is absolutely nothing to choose between seedlings and cuttings, for Rose stocks; yet each has its particular merits under certain conditions. Given a good deep rich well-drained soil, or a dry sandy or chalky soil, the seedling seems to be preferred. It roots deeper down into the soil, and can therefore better withstand the summer drought. The cutting, on the other hand, appears to be the best for shallow or heavy soils, or for damp, ill-drained positions. It roots somewhat nearer to the surface, and makes a fibrous web ready to absorb the surface feeding given; it is also more readily affected by the warmth and light of the sun. The cutting has another merit in the eyes of many, in that it is easier to bud on it, than on the seedling. It is said by some that the cutting also gives earlier and somewhat larger blooms, to which others reply, "But the seedling lasts the longer." In deep warm well-drained soils, therefore, or in over-dry ones, our "Returns" counsel us to choose the seedling, and in heavy or damp soils to choose the cutting, but in other cases seedling or cutting are good alike.

Manetti or Briar as a Stock.

Manetti does not find much favour; some, however, consider it better for light soils and for strong growers, and some think that for such it is immaterial which stock is used. The Briar, however, is insisted on as an almost absolute necessity for Teas and weakly growing H.P.'s. Manetti is said to give earlier blooms, and therefore if used partially, together with Briar for the main crop, it affords a longer succession of bloom. The consensus of opinion is decidedly against Manetti for heavy lands.

Value of "Own Root" Roses.

The general agreement on the inferiority of Roses raised from cuttings, and therefore growing solely on their own roots, as compared with plants budded on the Briar Seedling or Briar cutting, is very remarkable. It appears to be pretty generally agreed that "Own Root" plants take much longer to obtain, and when obtained, give inferior blooms. Some few, however, prefer "Own Roots" for very strong growers like La France, Ulrich Brunner, and the Duke of Edinburgh family. Some of the Returns remark that budded plants become "Own Roots" after two or three years from planting, and this is, in a sense, no doubt true, especially when the stock used is the Manetti; but when the union between bud and stock has once been good, although the Rose will make roots of its own above the union, and be so far an "Own Root," yet it will at the same time continue to draw nourishment for very many years through the stock roots also. The present Returns, therefore, advise us to continue to bud Roses, as not only being a quicker and easier method of propagation, but as also giving us better flowers.

In thus summarising and interpreting, to the best of my ability, the results of the returns sent in, I have endeavoured, as far as possible, to refrain from the expression of any single personal opinion, either of my own or of others; but I think it will be of interest to many to have before them the following note on stocks, which was enclosed in the return of Messrs. Cocker, of Aberdeen.

I have ventured only to add up Messrs. Cocker's list of experiments with forty-six varieties, with the following results:—

	Best.	Middle.	Worst.
Briar Cutting	18	13	5
Seedling Briar	12	19	15
Manetti	9	12	25

Similar experiments, carried out on a sufficiently large scale, in other places would give us very valuable results. *W. Wilks, in Journal of Royal Horticultural Society.*

LAW NOTES.

STRAWBERRY GROWING IN YORKSHIRE.

Harvey v. Lois Kirby.—A good deal of interest has been created amongst fruit-growers in Yorkshire by a singular partnership dispute, tried at the Driffield County Court, in which Mr. Harvey of Hutton Cranswick, an extensive Strawberry-grower, brought an action under seven heads, against Mrs. Lois Kirby, a large farmer at Scurf, near Great Driffield, the plaintiff claiming (1), dissolution; (2), accounts and inquiries; (3), a receiver and manager; (4), damages for breaches of the terms of partnership in neglecting to manure, and refusing to permit him to clean and look after the plants; (5), payment of whatever sum may be found due to the plaintiff on the taking of the necessary accounts; (6), in the alternative a declaration that he is entitled to a share of the profits for the year 1889; (7), such further or other relief as the case may require. The case first came on for hearing in September last when Mr. Kemp, barrister (instructed by Mr. Cooper of Beverley), appeared for the plaintiff, and Mr. Trigg (Jennings, Wigmore & Trigg), of Driffield, represented the defendant.

The particulars, as stated by counsel and witnesses, showed that in or about September, 1883, the plaintiff and defendant through her son entered by verbal agreement into a partnership in respect of the growth of Strawberries on land belonging to, or in the occupation of, the defendant, and the sale of the same, the defendant to allow the use of her land, provide manure, put in order, and give assistance for the rough work with her men and horses when required, the plaintiff to provide the Strawberry plants, clean and look after them, and sell the fruit, the profits arising from the sale to be equally divided. The partnership was carried on year by year up to and including the year 1886, but no settlement or statement of accounts had been made or come to between the parties since that time, the defendant refusing to come to any final settlement. Evidence was heard at great length, and in the result, His Honour, Judge Bedwell, ordered an account to be taken by Mr. Tonge, the Registrar, between plaintiff and defendant, with special instructions, the plaintiff to have his costs up to decree, with costs of counsel.

The case came on again at the Court recently, when the Registrar produced the accounts, and His Honour gave a verdict for plaintiff for £149 1s.

THE ALPINE GARDEN.

PRIMULA DENTICULATA ALBA.

This variety is by no means so devoid of beauty as was at first supposed, on seeing a weakly plant in bloom. It proves to be, however, a valuable addition to our spring flowers, with a constitution quite equal in vigour to that of the type. The large snowy-white balls of flowers are very sweet and attractive, and, if anything, they are a little earlier than the other forms of the species. It proves quite hardy in the open air, but to ensure full development of its delicate flowers, the plant should be covered with a light or other protection on the approach of boisterous weather. It may be propagated like other plants of the type, by simply cutting or tearing up the old crowns, and replanting the pieces in a free and rather rich soil.

Primula obconica.

No excuse need be offered in again referring to this handsome Primrose, which has already taken firm root as one of the best of our winter and spring-flowering subjects. It flowers with profusion, and, if treated liberally, for so long a time as to be hardly ever without bloom. The improvements in size of flower and in depth of tint have been very striking, within the last few years; and if the process of selection should go on, we may expect many valuable additions, and some, perhaps, capable of being cultivated in the open air. It seeds very freely, and if seeds are sown when gathered, no trouble will be experienced in raising plants. Its poisonous properties have not made themselves manifest to me, at least, and I have handled the plants in every way in the course of potting, trimming, and staking, with no bad result whatever. This, of course, does not prove that the plant may not cause irritation to others. *D.*

Primula amœna.

After enquiring in vain everywhere for three or four years for Primula amœna (M. Biebeastein, *Bot. Mag.*, t. 3252; E. Boissier, *Fl. Orient.*, iv., 26), I am afraid it is lost to English cultivation. Boissier described it as an intensely purple Oxlip. I find it mentioned in several modern books on gardening, as if it was a common plant; but P. cortusoides var. amœna is confused with it. Most of the Caucasian plants are so easily cultivated in England, that it is a pity this should have been lost. Perhaps someone who reads this may still possess it. *C. Wolley Dod, Edge Hall, Malpas.*

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending February 1, is furnished from the Meteorological Office:—

"The *weather* was very rough, squally, and wet at the commencement of the period, but subsequently became much quieter than of late, although it remained unsettled and dull generally, with rain at frequent intervals. At some of our more northern stations slight falls of snow were experienced.

"The *temperature* has been above the mean in all districts, the excess having ranged from 1° in

Ireland and 2° in 'Scotland, N.,' 'England, E.,' and over the western parts of England, to 4° in the west and east of Scotland and in 'England, S.' The highest of the maxima were recorded on somewhat irregular dates, and ranged from 52° in 'Scotland, N.,' and 'England, N.W.,' to 57° in 'Scotland, E.,' and 'England, N.E.' The lowest of the minima, which were registered either on the 29th or 30th, varied from 24° in Ireland to 30° in 'England, N.E.,' and 'England, S.,' and to 40° in the 'Channel Islands.'

"The *rainfall* has been less than the mean in the eastern and western parts of Scotland and in 'Ireland, N.,' and about equal to it in 'Scotland, N.,' and 'England, N.E.,' in all other districts an excess is shown.

"*Bright sunshine* has been less prevalent, as a whole, than it was last week, the percentage of the possible amount of duration having ranged from 13 to 26 in the Scotch districts, from 16 to 17 in Ireland, and from 14 to 31 over England.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Accumulated. Above (+) or below (−) the Mean for the week ending February 1.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1880.	Below 42°, difference from Mean since Jan. 1, 1880.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1880.	Total fall since Jan. 1, 1880.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1880.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 +	8	25	+ 41	— 61	0 av.	20	8.2	13	9
2	4 +	12	27	+ 47	— 85	4 —	24	4.8	26	18
3	3 +	11	20	+ 52	— 79	0 av.	20	2.0	31	18
4	2 +	10	25	+ 55	— 70	6 +	23	2.4	25	22
5	3 +	13	25	+ 58	— 75	5 +	24	3.2	24	21
6	4 +	27	9	+ 84	— 100	3 +	23	3.1	16	18
7	4 +	20	10	+ 54	— 97	3 -	31	8.5	15	14
8	2 +	17	11	+ 57	— 94	3 +	30	4.9	15	14
9	2 +	26	8	+ 68	— 47	3 +	28	5.8	14	18
10	1 +	11	20	+ 40	— 59	2 —	30	5.1	16	22
11	1 +	26	14	+ 51	— 52	3 +	29	6.9	17	22
12	3 +	39	0	+ 92	— 38	2 +	29	4.5	23	20

The districts indicated by number in the first column are the following :—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, February 6.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

Our market now presents as dull an appearance as we have seen for many years past, scarcely anything being on offer beyond Grapes, which comprise only a few samples of first-rate quality, and which are speedily rising in value. Foreign goods consist principally of Reinette de Gris from France, Pine-apples from St. Michaels, and Tomatos from Canary Islands. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve ...	1 6–	7 0	Lemons, per case ...	12 0–20	0
— Nova Scotia, brl.	12 0–25	0	Pine-apples, Eng., lb.	1 0–	1 6
Cobs, per 100 lb. ...	140 0–	...	— St. Michael, each	2 0–	6 0
Grapes, per lb. ...	2 0–	5 0			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100 ...	8 0–	10 0	Mustard and Cress, punnet ...	0 4–	...
Beans, French, lb. ...	0 9–	...	Onions, per bunch ...	0 5–	...
Beet, red, per dozen	1 0–	2 0	Parsley, per bunch...	0 6–	...
Carrots, per bunch...	0 6–	...	Rhubarb, per bundle	0 6–	...
Cauliflowers, each ...	0 3–	...	Seakale, punnet ...	2 0–	...
Celery, per bundle ...	1 6–	2 0	Shallots, per lb. ...	0 6–	...
Cucumbers, each ...	1 0–	1 6	Spinach, per bushel...	1 0–	...
Endive, per dozen ...	2 0–	...	Sprue, per bundle ...	1 6–	...
Herbs, per bunch ...	0 4–	...	Brussel Sprouts, pr lb.	0 3–	...
Leeks, per bunch ...	0 3–	...	Tomatos, per lb. ...	1 0–	...
Lettuces, per dozen...	1 6–	...	Turnips, per bunch, new	0 4–	...
Mushrooms, punnet	1 6–	...			

Potatos: — Stock increasing, and, except for best samples, prices are tending downwards. Further arrivals of new Potatos, the demand for which is somewhat slow. Best red-soil Magnums and Regents, 100s.; Yorks (Mog.), 90s.; other samples vary from 40s. to 80s. per ton. First arrival of Canary New Potatos to hand :—Kidneys, 10s. to 22s.; Rounds, 10s. to 12s. per cwt.

J. B. Thomas.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0–18	0	Ericas, various, doz.	8 0–24	0
Aspidistria, doz. ...	18 0–42	0	Ferns, in var., per dozen	4 0–18	0
— specimen plants, each	7 6–10	6	Ficus elastica, each .	1 6–	7 0
Azaleas, various, each	2 0–	3 0	Foliage plants, various, each	2 0–10	0
Begonias, dozen ...	4 0–12	0	Hyacinths, p. doz ...	9 0–12	0
Christmas trees, doz.	4 0–24	0	Lily of the Valley, p. doz. pots	18 0–24	0
Cyclamen, dozen ...	15 0–24	0	Marguerites, doz. ...	6 0–12	0
Cyperus, per dozen .	4 0–12	0	Palms in var., each	2 6–21	0
Dracæna terminalis, per dozen	30 0–60	0	Pelargoniums, scarlet, per dozen ...	6 0–	8 0
— viridis, per doz.	12 0–24	0	Roman Hyacinths, per dozen pots ...	9 0–12	0
Epiphyllum, per doz.	12 0–18	0	Solanums, per dozen	6 0–12	0
Euonymus, in var., per dozen	6 0–18	0	Tulips, doz. pots ...	8 0–10	0
Evergreens, in var., per dozen	6 0–24	0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun. ...	2 0–	4 0	Narciss., paper-white, French, doz. bun.	3 0–	6 0
Acacia (French) bun.	0 9–	1 6	— Eng., doz. sprays	0 9	1 0
Azaleas, doz. sprays	0 9–	1 6	Pelargoniums, scarlet, 12 spr.	0 9–	1 6
Bouvardias, per bun.	0 8–	1 0	— double, doz. sprays...	1 0–	2 0
Callaethiopica, 12 bl.	3 0–	6 0	Primulas, double, 12 sprays	1 0–	1 6
Camellias, white, doz.	2 0–	4 0	Roman Hyacinths, Eng., doz. sprays...	0 9–	1 6
— various, per doz.	1 0–	2 0	Roses, Tea, per doz.	1 0–	3 0
Carnations, 12 blms.	1 0–	2 0	— coloured, dozen.	2 0–	4 0
Chrysanth., 12 bun.	4 0–12	0	— French, dozen ...	1 0–	2 0
Cyclamens., 12 blms.	0 4–	0 9	— red, per dozen ...	2 0–	3 0
Daffodils, doz. blooms	0 9–	1 6	— Safrano, dozen...	1 6–	2 6
Eucharis, per dozen	3 0–	5 0	Spirea, doz. sprays...	1 0–	1 6
Gardenias, 12 blooms	12 0–24	0	Stephanotis, 12 spr.	9 0–12	0
Heliotropes, 12 spr.	0 6–	1 0	Tuberoses, 12 blms...	1 6–	2 0
Lilac, white, Fr., bun.	4 0–	6 0	Tulips, doz. blooms...	1 0–	2 0
Lilium, var., 12 bl....	2 0–	6 0	Violets, 12 bun. ...	1 0–	2 0
Lily of the Valley, doz. sprays ...	0 6–	1 0	— French, bunch ...	1 6–	2 0
Maiden Hair Fern, 12 bun.	4 0–	9 0	— Parma, bunch ...	3 6–	5 6
Mignonette, 12 bun.	2 0–	4 0			
— French, per bun.	1 6–	2 0			
Marguerites, 12 bun.	3 0–	6 0			

Orchid-bloom in variety.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure (quarter), for the week ending February 1:—Wheat, 30s. 1d.; Barley, 32s. 2d.; Oats, 18s. 6d. For the corresponding period last year:—Wheat, 29s. 9d.; Barley, 26s. 7d.; Oats, 16s.

SEEDS.

London: *Feb.* 5. — Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report that there is now a fair seasonable demand for field seeds. Scarcity still prevails for choice English Red Clover seed, while ordinary qualities are cheap and plentiful. Rather more attention is being devoted to Trefoil. Alsike, and white remain firm. Very low prices are asked for Italian and perennial Ryegrasses. Bird-seeds are dull. Blue Peas, trade quiet, but steady. Haricot Beans continue cheap and good.

FRUITS AND VEGETABLES.

Spitalfields: *Feb.* 5.—Good supplies of all kinds of green vegetables. Short supply of English and foreign fruit, &c. Demand very quiet for all sorts. Market glutted with Potatos. Prices:—English Apples, 4s. to 7s. per bushel; American do., 16s. to 24s. per barrel; forced Rhubarb, 1s. 3d. to 1s. 9d. per dozen bundles; Savoys, 2s. to 3s. per tally; Brussels Sprouts, 4d. to 8d. per half sieve; Spinach, 1s. to 1s. 6d. per bushel; Turnip-tops, 1s. to 1s. 3d. per sack; Sprouting Broccoli, 1s. to 1s. 6d.; do. 8d. to 1s. per sieve; Seakale, 1s. to 1s. 6d. per punnet; Curley Kale, 9d. to 1s. per bushel; Greens, 6d. to 1s. per dozen bunches; Turnips, 1s. 6d. to 2s. 6d. per dozen bunches; Parsnips, 2d. to 3d. do.; Horse-radish, 1s. to 1s. 4d. per bundle; Celery, 4s. to 8s. per dozen bundles; Carrots, 17s. 6d. to 26s. per ton; Cauliflowers 3s. 6d. to 5s. per tally; Endive, 1s. 6d. to 2s. per dozen; Mustard and Cress, 1s. to 2s. per dozen baskets; Cabbage Lettuce, 1s. 6d. to 2s. per dozen; English Onions, 8s. to 8s. 6d. per cwt.; Bordeaux do., 6s. 6d. to 7s. 6d. per case; Spanish do., 7s. 6d. to 8s. 6d., do.; Belgian do., 6s. 6d. to 7s. per bag of 110 lb.; Dutch do., 6s. 6d. to 7s., do; Parsnips, 4d. to 8d. per score; Beetroots, 4d. to 6d. per dozen.

Stratford: *Feb.* 4.—Supply has been good during the past week, and a fair trade was done at the following prices: — Cabbages, 1s. 6d. to 3s. per tally; Savoys, 3s. 6d. to 5s. 6d. do.; Turnips, 25s. to 35s. per ton; Carrots (household), 30s. to 40s. do.; do. (cattle feeding), 20s. to 25s. do.; mangolds, 14s. to 18s. do.; Swedes, 14s. to 19s. do; Onions, English, 10s. to 11s. per cwt.; do., Spanish, 7s. 6d. to 9s. per case; Apples, English, 3s. to 4s. per bushel; Watercress, 6d. per dozen; Sprouts, 1s. 9d. to 2s. 6d. per flat; Celery, 6s. to 10s. per dozen roll.

POTATOS.

Borough and Spitalfields: *Feb.* 4. — Quotations:—Regents, 45s. to 85s.; Hebrons, 40s. to 95s.; Magnum Bonums, black land, 40s. to 45s.; Bedfords, 40s. to 55s.; Lincolns, 45s. to 70s.; Yorks, 55s. to 76s.; Scotch, 50s. to 95s.; Imperators, 40s. to 75s. per ton.

Spitalfields: *Feb.* 5.—Quotations: — Magnums, 40s. to 60s.; Regents, 45s. to 70s.; Champions, 45s. to 55s.; Imperators, 45s. to 70s.; Hebrons, 45s. to 60s. per ton.

Stratford: *Feb.* 4.—Quotations: — Scotch Regents, 60s. to 70s.; Magnums, 60s. to 85s.; light English do., 50s. to 65s.; dark, do., 40s. to 47s. 6d. per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 78s. to 98s.; do., inferior, 40s. to 75s. Best hay, 60s. to 90s.; do., inferior, 26s. to 50s. Straw, 28s. to 40s. per load.

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

Azaleas: *W. P.* It is not usual to cut down Indian Azaleas after flowering, this operation being performed with more advantage before the plant has bloomed—the plant is not exhausted by its efforts to bloom, and the season of growth is longer. Early winter pruning, or in the case of old plants whose wood does not readily break into growth, hard cutting back may be practised in October, and the plants kept cool and in a state of medium moisture, in fact, the plants are best when sunk in a bed of damp coal ashes, sand, &c. As soon as protuberances appear on the stem and branches, place in gentle warmth. Thinning of the shoots will have to be done, after it can be seen which are the best, and best placed. Azaleas may have straggling shoots cut back after flowering, that is if you wish to make the plant stiff and ungraceful.

Black Blotches on Sycamore Leaves: *D.* The black patches seen nearly always on Sycamore (Acer pseudo-platanus) is a species of Rhytisma, a true parasite, whose mycelium penetrates the leaf tissues, and the cells of the leaf perish, thus forming the black patches; or they exist simply to support it. When the leaf falls, the fungus generates its spores. It is still an open question if the Acers, &c., suffer much from the attacks of the parasite.

Carnations Diseased: *Loxwood.* Your plants are attacked by the destructive brown mould, Helminthosporium echinulatum, figured in our issue for August 21, 1886. Pick off and burn every affected leaf.

Concrete Walks: *Concrete.* Better leave the damaged concrete walks as they are until the

winter is past, and then you may coat them with a thin "slip" of Portland cement, made with about two-thirds cement to one-third fine clean sand. A little fine sifted gravel might be strewn over the surface and pressed into it.

DOUBLE NASTURTIUMS: *D. R.* These plants do not seed, and must be raised from cuttings. They are very pretty useful plants for decoration, growing rapidly during the summer. For summer use strike in autumn; keep the plants growing slightly in winter, and push them on as spring approaches. For winter use strike cuttings in late spring, and grown on in a cold pit, and later out of doors, do not stint them at the root; by winter the strong growers should be in 12-in. pots.

GRAVEL PATHS FOR CONSERVATORY: *D. B.*—These are pleasant-looking, and may be kept in very good order by damping and rolling them when the surface gets loose. Usually the floor of the house where gravel paths are employed is also of gravel or Derbyshire spar, and which answer well, provided the floor has been efficiently drained—an easy matter generally. For this kind of conservatory some large plants are required to give it a furnished appearance. Small plants may be put at the front of groups and beds of tall and medium-sized plants, grouping them at salient points, and with the aid of a few large pots on which to elevate the middle and back-row plants, and moss to put around and over the pots, pretty effects may be obtained. Small wire baskets, vases, and tables for holding the choicer subjects, add variety to a conservatory so laid out, and look infinitely better than staging. The arrangements may be varied in the spring, when the hardier plants go out of doors, and the more robust palms, if there are any, will do well enough in the cool conservatory; and again in September, when plants are brought indoors. It is merely a question of putting the gravel of the walks in other directions. In doing this avoid the two extremes of needless crookedness or severity in the outline. If the house has shady or badly lighted parts, where choice plants would become shabby, hardy and half-hardy evergreens in pots or tubs answer well, and keep all their foliage throughout the winter. We mention Thuias, Laurels—especially the Portugal, Camellias, Pittosporum, Tobira, P. undulatum, Engenias in variety, Myrtles, Aucubas—male and female, Pontic Rhododendrons, Aspidistra lurida, New Zealand Flax, Astelia Banksia—an elegant, robust grass, good for a vase or centre plant, Ivy, and, less so, Euonymus Japonica.

HYACINTH FLOWERS PINCHED OFF: *Nemo.* See p. 90, in our issue for January 18 last. The case is identical.

INSECTS: *G. H.*—Your Scotch Fir shoots are pierced by the Pine Beetle Hylurgus piniperda (fig. 30).



FIG. 30.—PINE BEETLE.

Pinching off the infested shoots and burning them is the best remedy. It is stated that decaying wood or bark is the favourite breeding place of this insect, so that material should be collected and burnt.

NAMES OF PLANTS: *Helleborus.* 1, Helleborus colchicus; 2, H. lividus probably—why send only a bloom?—*J. W.* 4, Cotoneaster Simonsii; 5, Viburnum Tinus.—*T. R.* 1, Woodwardia radicans; 2, Nephrolepis exaltata; 3, Lastrea variegata; 4, Todea africana; 5, Aspidium coriaceum; 6, Cibotium Barometz; 7, Polypodium glaucum; 8, Adiantum Sancta Catherinæ; 9, Litobrochia incisa; 10, Maranta ornata; 11, Maranta argentea striata.—*T. B.* Crinum amabile. *T. A. D.* Dendrobium Linawianum, D. monoliforme of gardens.—*T. Williams.* Odontoglossum Humeanum, a supposed natural hybrid between O. cordatum and O. Rossi.—*E. W.* Cornus mas.—*J. M.* Thermopsis nepalensis.—*H. J. C.* 1, Lamarckia aurea; 2, Allium stamineum; 3, Lavandula Stæchas; 4, Rhagdiolus stellatus; 5, Linum pubescens var.?; 6, Atriplex rosea.—*G. W. C.* Tillandsia (Anoplophytum) stricta.—*W. Martin.* Seems to be a species of Macaranga, but we cannot say which one, without flowers or some knowledge of the native country, as two or three kinds have similar leaves.

PHYSIANTHUS ALBENS: *E. T.* It seldom fruits under cultivation.

SLUGS: *W. Martin.* The objects sent are a curious species of slug (Testacellus scutellum), provided with a very small shell, which forms a shield or protection to the heart. Like other slugs it feeds on vegetables. *W.*

SOAP NUT: *G. H. Pugh.* The plant is Sapindus saponaria; it requites good sandy loam and leaf mould. It is a tree with pinnate leaves and panicles of small flowers.

STRAWBERRIES: *W. P.* It will almost be a waste of fuel and labour to force the plants if they fruited last year. Had they been shifted into large pots in August, and the formation of crowns encouraged, there would be some chance of a crop—there is none now.

COMMUNICATIONS RECEIVED.—A. D.—Shellac.—A. G. C.—W. Woot & Son.—W. H. S.—P. Sewell.—H. A. B. (New York).—R. D.—J. G. B.—J. H.—A Sufferer.—C. W. D.—A. D. W.—Thos. Meehan.—D. C. R.—E. T. C.—E. C.—J. H.—J. S.—J. B.—W. H. B.—W. Kemp.—J. W.—D. T. F.—R. A. B.—N. E. B.—Street & Co.—J. Sweeney.—B. M.—F. W. B.—W. R.—J. Stevens.—J. W.—B. Wilson.—F. C. G.

CATALOGUES RECEIVED.

WILLIAM WATT, Cupar, Fife, N.B.—Vegetable and Flower Seeds.

VILMORIN-ANDRIEUX & Co., 4 Quai de la Mégisserie, Paris—Seeds, Bulbs, Strawberry Plants, &c.

JOHN SHARPE & SON, Bardney, Lincolnshire—Abridged and Trade List of Seeds, &c.

VARIORUM.

PODOCARPUS SPICATA.—Mr. Buchanan gives an account of a Matai which was found prostrate in the bush, and over which three broadleaf trees (Griselinia littoralis) had grown, enfolding it in their roots; on felling these trees it was found that they were upwards of three hundred years old, but the Matai was perfectly sound, and was split up for fencing-posts.* Mr. Blair† states that a Matai which had been prostrate in Waikiwi forest from "time immemorial," had a Fuchsia with a trunk 9 inches in diameter growing across it. Used for weatherboarding, and similar purposes, it is found in good sound condition after twenty-eight years, with every appearance of enduring for an indefinite period. House-blocks, fencing-posts, and piles, are found in excellent condition after being down from fifteen to twenty years, or longer. I found sleepers on the Taupiri tramway with the heart perfectly sound after having been in use nine years, which is the more remarkable on account of their having evidently been taken from young trees. I believe that, so far as data are available, this exceeds the average life of a Totara sleeper. *T. Kirk, in "Forest Flora of New Zealand."*

TRADE NOTICE.

WE are informed that Messrs. Richard Sankey & Son, potters, of Bulwell, Nottinghamshire, have taken 50 acres of clay-land in the vicinity of Bulwell, and intend to greatly develop their existing business.

* *Transactions New Zealand Institute*, vol. ix., p. 182.
† Blair's *Building Materials of Otago*, p. 176.

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,, Ne Plus Ultra	12s. 0d.	,,
BEET, Nuttings, Dwarf Red, improved ...	1s. 6d.	per lb.
CARROT, James Scarlet, Intermediate ...	56s. 0d.	per cwt.
,, St. Valery	70s. 0d.	,,
,, Chantenay	75s. 0d.	,,
ONION, Bedfordshire Champion	8s. 6d.	per lb.
,, Silver-skin, for pickling	2s. 6d.	,,
PARSNIP, Improved Hollow Crown ...	32s. 0d.	per cwt.
,, ,, Elcombe's	35s. 0d.	,,

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OF GARDEN OPERATIONS.

(TWO HUNDRED AND FIFTY-SIXTH THOUSAND.)

By the late SIR JOSEPH PAXTON, M.P., Reprinted from the *Gardeners' Chronicle.*

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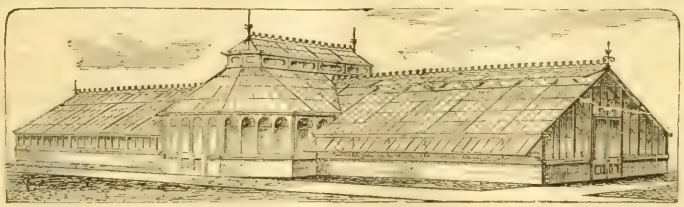
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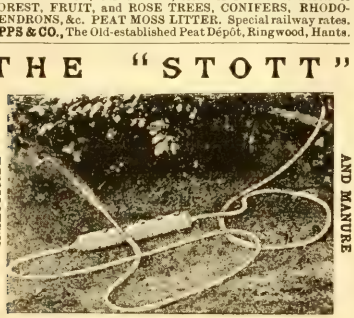
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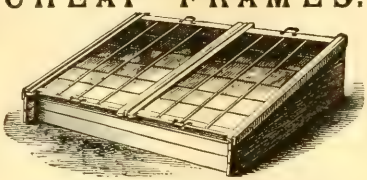
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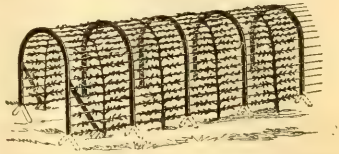
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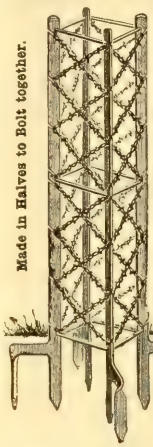
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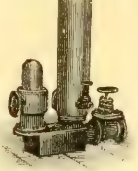
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Yours faithfully,

Messrs. Hill & Smith. J. WEARING.



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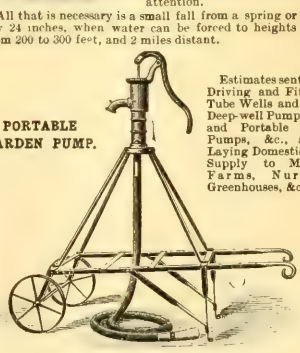
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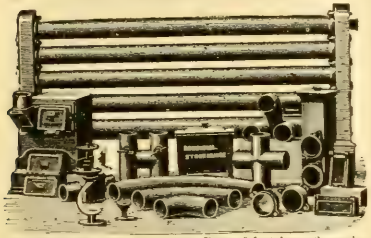


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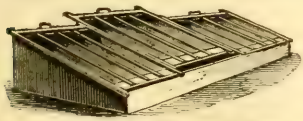
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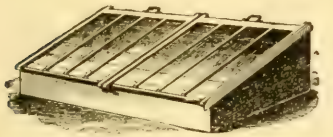
The illustration shows a Three-light Frame, 12 feet long by 6 feet wide. Height at front 11 inches, height at back 22 inches. Made of thoroughly seasoned redwood deal, sides and ends 1¼ inch thick, screwed together at the angles, and with the necessary parting pieces and runners for the lights, which are 2 inches thick, strengthened with iron bar across, and fitted with iron handle complete. All parts painted three coats of best oil colour, and light glazed with 21-oz. glass, nailed and bedded in good putty.

1-Light Frame	... 4 ft. by 6 ft.	CASH PRICES	£2	0 0
2 ,, ,,	... 8 ft. by 6 ft.		3	0 0
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GARDENING APPOINTMENTS.

Mr. PETER COCKBURN, for the last twelve years Head Gardener to D. Y. STEWART, Esq., Barassie, Ayrshire, has succeeded the late JAMES BELL as Head Gardener to Lord BLANTYRE, Erskine House, Glasgow.

Mr. T. VAGG has succeeded Mr. W. KING as Gardener to J. THEOBALD, Esq., M.P., The Bedfords, Havering-atte-Bowers, Essex.

Mr. T. TROLLOPE, late Gardener to Colonel H. STRATTON BATES, Twyford Lodge, Winchester, has been appointed as Gardener to Mrs. CONWAY SHIPLEY, Twyford Moors, Winchester.

WANT PLACES.

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CLERK, BOOK-KEEPER, or any trustworthy position. Thirteen years' experience, Nursery and Seed Trade. Excellent references, London and country. H., Mr. Hurl, Knap Hill, Woking, S.W.

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REMARKABLE SUCCESS IN THE PRODUCTION OF FRUIT.

GRAPES.

From Mr. PERKINS, the Right Hon. W. H. Smith, M.P., Henley-on-Thames, *August* 23, 1888:—"I have used several Vine Manures, but not any have ever equalled **Le Fruitier**, through which I attribute my success last year in obtaining FIVE FIRST-CLASS PRIZES."

From Mr. CHAS. MARTIN, Lord Dacre, The Hoo, Welwyn, Herts, *January* 18, 1890:—"Your **Le Fruitier** had a marked effect upon my Grapes this season, especially on Madresfield Court and Gros Colmar. His lordship said he never had Grapes so fine as this year. . . . There was a very marked improvement in the quality of Gros Colmar—much finer flavour with thinner skins."

Mr. ALLIS, of Old Warden Park, who has taken 1st prizes for Grapes, &c., at Sandy show, for eight years consecutively, says (letter dated September 14, 1888):—"I have this season used your **Le Fruitier** for Grapes, and have found them better coloured where it has been used, and carrying a good bloom. Lady Downes are better finished than I have had them for some years."

From Mr. G. M. BREESE, Lord Leconfield, Petworth Park Gardens, *September* 28, 1888:—"I have given your **Le Fruitier** a fair trial this season, and have no hesitation in stating that it has been very beneficial to all plants and fruit trees that I have applied it to. Cucumbers and Tomatos have greatly improved in a short time after its application. I THINK IT AN EXCELLENT MANURE FOR VINE BORDERS, especially when mixed with the soil as a top-dressing. I saw a marked improvement in some old Vines, both in size of bunch and berry. Chrysanthemums like it, and all other plants that require high feeding."

From Mr. G. CLAYDON, Woodbury Hall, Sandy, *September* 6, 1888:—"I have used **Le Fruitier** for Vines, Peach trees, and Strawberry plants, and we find the Grapes had much larger berries than we have had them for years, and we find it a great help to finish Peaches."

From Mr. G. H. RICHARDS, Lord Normanton, Somerley, Ringwood, Hants, *July* 25, 1888:—"More than a two years' trial of your **Le Fruitier** has convinced me that it is a preparation which would be difficult to improve upon as an all-round Manure for Vines, either in pots or planted out. Some Manures recommended for Vines produce luxuriant foliage and strong wood, without however touching the fruit itself in a corresponding degree. **Le Fruitier** seems to benefit the fruit quickly."

PEACHES AND NECTARINES.

From Messrs. INGRAM & WHITFIELD, Aylesbury, Bucks, *July* 16, 1888:—"We have much pleasure in sending you a small present of the fruit grown by your **Le Fruitier**. We thought it would be more satisfaction for you to see the fruit which gained the prize, which we consider highly satisfactory, and we trust it will be the means of increasing the sale of some further order to follow."

From Mr. C. GOLDSMITH, C. A. Hoare, Esq., High Trees, Redhill, *January* 10, 1890:—"**Le Fruitier** is one of the very best Manures I ever used, especially for Peaches and Nectarines."

From Mr. G. H. RICHARDS, Lord Normanton, Somerley, Ringwood, *October* 17, 1887:—"I may say that the trees to which the Manures have been applied have carried double the number of fruit; the fruit all finished satisfactory in all that we could desire in point of size, colour, and flavour."

From Mr. COX, The Warrens, Bushey Heath:—"My Peaches this year averaged half a pound each, and I have had the heaviest crops this year I ever had, for which I thank **Le Fruitier**."

From Mr. GAIGER, The Gardens, Blakewell, *January* 11, 1888:—"I find **Le Fruitier** a most excellent Manure for fruit trees. I have used it with good results for Peaches, Nectarines, &c."

PEACHES IN POTS
PEARS IN POTS.
STRAWBERRIES.

From Mr. THOS. NUTTING, J. B. Maple, Esq., M.P., Childwickbury, St. Albans, *September* 18, 1888.—"As I have grown my pot Peaches, exhibited at Harpenden show, with your **Le Fruitier**, it may interest you to know that the dish of six fruits weighed 3 lb. 2 oz.; the tree carried about two dozen fruits."

From Mr. G. H. RICHARDS, Lord Normanton, Somerley, Hants:—"I send you a photo of four Pear trees in pots, grown and fed with your **Le Fruitier**. Size of pots—two 14, and two 11-inch diameter; number of fruit, 165; average weight of fruit, ½ lb. each. This speaks for itself."

From Mr. T. B. LEADBETTER, A. Wilson, Esq., Tranby Croft, Hull, *July* 27, 1888:—"After giving your **Le Fruitier** a fair good trial upon pot Strawberries, I am well satisfied with results; the fact being that I never had forced Strawberries so fine, both in flavour, size, and colour, as they were this season, fed entirely with **Le Fruitier**. My employer often spoke of their size and quality, and said he never had forced Strawberries so good."

From Mr. T. WOOLFORD, A. Palmer, Esq., East Thorpe, Reading, *February* 7, 1888:—"Your **Le Fruitier** appears to be particularly suitable for pot Strawberries. Plants on which I tried it finished nearly double the crop, and of better quality than others did of the same sort, grown side by side and watered with manure water composed of horse and cow droppings and soot."

Mr. Lippincott's Agent, of Aylesbury, *July* 20, 1888, *writes as follows:*—"Our Strawberries and Vines were dressed with your **Le Fruitier**, and we took 1st prizes in the amateur class at the late show."

MELONS.

From J. OSBORN, J. N. Mappin, Esq., Southgate House:—"**Le Fruitier** has proved to be very successful in my Melon-house."

From Mr. W. J. EMPSON, The Gardens, Ampthill House, Ampthill, *January* 25, 1890:—"You have rightly named your **Le Fruitier** '*The Perfection of Plant Food.*' It is the best Manure I have ever used. I cut Melons, last year, fed with your **Le Fruitier**, weighing from 6 lb. to 8 lb. each."

VINES IN POTS.

From H. PERKINS, the Right Hon. W. H. Smith, M.P., *May* 9, 1889:—"I should like you to see some pot Vines which I have fed with **Le Fruitier**, everyone that has seen them say they have never seen better. I believe it to be the best Manure for Vines in the market."

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THE GARDENERS' CHRONICLE, Vol. VI., Third Series, JULY to DEC., 1889.
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POTATOS and GARDEN SEEDS. All the best kinds, in Large or Small Quantities. Also an immense stock of Garden Seeds at very Low Prices. All Seedsmen and Market Growers will do well to consult our Price LIST, to be had free of
HARRISON AND SONS, Seed Growers, Leicester.

2000 SEAKALE ROOTS for Forcing, a capital lot specially grown for extra fine produce, 10s. per 100 (cash with order).
G. H. COPE, Gardens, Holnest Park, Sherborne.

LOCKIE'S PERFECTION CUCUMBER.—The finest Cucumber in cultivation for exhibition or general use. Fourteen first class certificates and prizes.
Wholesale Agents, Messrs. HURST AND SON, 152, Houndsditch, London.

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the manufacturers.—CHALDERON AND COLDWELL, M'FG. Co., 223, Upper Thames Street, London, E.C.
The largest makers of Lawn Mowers in the world.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us, 1 cwt. and over carriage paid, London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next.

2000 LILIUM AURATUM, including several lots of immense Bulbs; also LILIUM KRAMERI, SPECIOSUM, and others, from Japan; a large assortment of English-grown LILIES and Hardy BULBS, TUBEROSES, GLADIOLUS, TIGRIDIAS, BEGONIAS, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, February 17, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 18, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

450 TREE PEONIES,

in 56 distinct varieties, embracing many varieties of exceptional beauty, many having been awarded Certificates by the Royal Horticultural Society. Drawings will be shown at the time of Sale.

8000 LILIUM AURATUM,

Splendid Bulbs, in excellent condition.

4800 various LILIES from JAPAN, comprising—

500 Lilium platyphyllum	1800 L. longiflorum
1100 L. speciosum rubrum and album	600 L. Krameri
	400 Double Tiger Lilies
400 L. elegans species	100 Japanese Iris

Also fine Bulbs of Lilium Neilgherrense, Washingtonianum and Humboldti.

54,000 COCOS WEDDELLIANA SEEDS.

450 Standard and Dwarf ROSES, 150 AZALEAS and CAMELLIAS, 200 FICUS, PALMS, and AZALEA MOLLIS from Belgium, Greenhouse and Stove FERNS from an English Nursery.

26,000 FREESIA REFRACTA ALBA, 800 VALLOTTAS, and 200 CALLAS from the Cape. A very fine assortment of English-grown LILIES.

400 NARCISSUS EMPEROR and EMPRESS.

TIGRIDIAS, GLADIOLUS, AFRICAN TUBEROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 19, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

NURSERY STOCK from SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, February 20, at half-past 12 o'Clock precisely, large quantities of NURSERY STOCK from Sample, including :—

4,000 Privet	2,000 Azalea mollis
3,000 Cupressus, of sorts	3,000 Laurestinus
2,500 Thorns and Quicks	6,000 Lily of the Valley, Berlin Crowns
5,000 Seaforthias	
200 Dracænas, of sorts	3,000 Golden and Green Strawberries
5,000 Arabias	1,000 Larch

400 Rhododendrons, named sorts; Fruit Trees, in great variety; and quantities of other Stock.

Samples will be on view on morning of Sale.

Catalogues forwarded on application.

Friday next.—Orchids.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 21, at half-past 12 o'Clock, the first good importation of the rare and beautiful CALANTHE SYLVATICA NATALENSIS. This species has large ornamental leaves like Calanthe vestrifolia, and fine heads of large white and mauve flowers. Also a few established plants of the white CALANTHE TEXTOREI, and the rose CALANTHE PLEIOCHROMA MAJOR. Also for cold frame or cool house, the following new or rare DISAS: Disa graminifolia, blue; D. purpurascens, violet; D. lugens, lilac with extraordinary large-fringed-emerald green lip; D. lacera, various shades of blue; D. venusta, blue with white-fringed lip; D. racemosa, rich crimson; D. tripetaloides, white, pink, and red; and other rare species of Disa, POLYSTACHYI and SATYRICUM.

On view morning of Sale, and Catalogues had.

Friday Next.—Angræcum pallidum.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. Horsman & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 21, at half-past 12 o'Clock, a very fine lot of the rare ANGRÆCUM PALLIDUM; also, from Messrs. F. Sander & Co., 50 lots of ORCHIDS, in Flower and Bud, comprising among other fine things, Phaius tuberculosus, 25 lots of Dendrobium nobile—a fine lot from Northern India. From this importation the beautiful Cooksoni has flowered, and also a pure white form; also the rare and beautiful Gramnatophyllum Measuresianum, the new and splendid Dendrobium Macfarlanei; ditto, Freemanii,

On view morning of Sale, and Catalogues had.

Orchids in Flower. Special Sale. Tuesday, Feb. 25.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of ORCHIDS in FLOWER will take place as above, for which they will be glad to RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Highly Important Sale of very Choice and Rare ORCHIDS, STOVE PLANTS, AZALEAS, HEATHS, CAMELLIAS, and other VALUABLE PLANTS, being the well-known Collection formed by the late Robert Paterson, Esq., 47, Grange Road, Edinburgh, comprising:—

ORCHIDS.—These were procured, in many instances at great expense, from the best known Growers, and are not only the best types of their kinds, but are Large Handsome Specimens, clean, and in excellent health. Amongst other Rare Varieties the following may be named:—Cattleya Trianæ, Dendrobium densiflorum, Dendrobium Farmerii, Dendrobium superbum, Dendrobium thyrsiflorum, Dendrobium fimbriatum oculatum, Lælia purpurata, Aerides Fieldingii, Aerides Sanderiana, Aerides virens Dayanum, Sobralia macrantha, Cœlogyne Massangeana, and other varieties; Cypripedium Druryi, Cypripedium Calurum, Odontoglossum vexillarium, roseum, and superbum; Sobralia xantholeuca, Dendrobium speciosum, and many other rare sorts.

MESSRS. LYON AND TURNBULL will SELL by AUCTION, within their Rooms, No. 51, George Street, Edinburgh, on WEDNESDAY NEXT, February 19, at 12 o'Clock, the above important COLLECTION of ORCHIDS and other PLANTS, to which they respectfully direct the attention of Growers and Exhibitors.

Particulars in Catalogues, which will be sent to applicants.

Mount View, Sheffield.

SALE of the SECOND PORTION of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS, formed by the late David Ward, Esq., J.P. The Collection is in the best possible condition, is one of the finest in the district, and includes specimens from several well-known collections. This Sale will include a fine lot of Dendrobium Wardianum and Dendrobium nobile, magnificent specimen Cymbidium Lowianum, with sixteen flower-spikes; four large Cœlogyne cristata, &c. Also STOVE and GREENHOUSE PLANTS, Rhododendrons in pots, including five specimens of Lady Alice Fitzwilliam; six fine Lapageria alba, Camellias, Fruit Trees in pots, &c.

MESSRS. WILLIAM BUSH AND SON respectfully give notice that they are instructed by the Executors to SELL by AUCTION, at the residence, as above, on WEDNESDAY and THURSDAY, March 5 and 6, at 11 o'Clock each day, the Second Portion of the above VALUABLE COLLECTION, comprising upwards of 500 lots in Bloom and Bud.

Catalogues and orders to view may be had of the Auctioneers, at their Offices, 2 and 3, East Parade, Sheffield.

Wednesday Next.

CHOICE-NAMED Standard, Half-standard, and Dwarf ROSES, including many of the best known varieties; CARNATIONS and BORDER PLANTS, Pyramid and Dwarf-trained FRUIT TREES, RHODODENDRONS, in Flower and Bud; Hardy Ornamental SHRUBS and CONIFERS, LILIUM AURATUM, Home-grown LILIES, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, February 19, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next, February 20.

VALUABLE IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 20, the following ESTABLISHED ORCHIDS: The new

GRAMMATOPHYLLUM MEASURESIANUM, one of the most beautiful of modern introduction.

DENDROBIUM MACFARLANEI, new, and very fine.

LÆLIA EYERMANIANA, new nat. hybrid, majalis × autumnalis.

ODONTOGLOSSUM EDWARDI, fine specimen, with fine spike, covered well with bloom.

CATTLEYA SCHORIELDIANA (true), in flower, grand var.

LÆLIA CINNABARINA, a noble specimen, with five flower-spikes.

DENDROBIUM CILIATUM, rare Dendrobe.

ONCIDIUM TETRAPETALUM, rare and pretty.

ONCIDIUM CRUCIATUM, in flower, extremely rare

RENANTHERA STONEI, magnificent, and extremely rare.

PHAIUS TUBERCULOSUS, splendid plant, with flower-spike.

CATTLEYA MAXIMA PERUVIENSIS, fine specimen plant, the grand dark variety.

CYPRIPEDIUM CURTISII, fine plant in bud.

" ROTHSCHILDIANUM, fine plant in bud.

" AMESIANUM, fine plant in bud.

" ŒNANTHUM SUPERBUM, fine plant.

" LEEANUM SUPERBUM, fine plant.

" TONSUM, fine plant.

And many other valuable and popular varieties.

On view morning of Sale, and Catalogues had.

Thursday Next.—February 20.

VALUABLE IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38 King Street, Covent Garden, W.C., on THURSDAY NEXT, February 20, at half-past 12 o'clock precisely, by order of Messrs. Sander & Co., CATTLEYA GASKELLIANA, a fine lot of Plants, and in first-class condition. This lot is from the batch that our collector found far away from the known habitats of this variety, and we are sanguine that many interesting surprises are in store for purchasers from this lot of plants. CATTLEYA SPECIES, Imperialis type, these again were collected quite out of the track of previous consignments, they doubtless belong to the same section that has recently furnished us with such eminently grand forms as Hardyana, Massaiana, &c. Also a fine lot of sturdy well-shaped plants of VANDA CŒRULEA, the blue winter-flowering Vanda. DENDROBIUM NOBILE, in fine condition, many large masses, and probably many very fine forms. The purple Dendrobium Freemanii, and golden Chrysanthemum; Lælia harpophylla, orange-scarlet; AERIDES SANDERIANA, the finest Aerides; LÆLIA GRANDIS, old gold and deep rose; CYPRIPEDIUM SANDERIANUM, longest tailed Cypripedium; CATTLEYA WARNERII, Imported, and many other CHOICE and VALUABLE ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.

SEVERAL THOUSAND GRAND BULBS of LILIUM AURATUM and many other LILIES, from Japan; 10,000 extra fine PEARL TUBEROSES from America, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT February 20.

On view morning of Sale, and Catalogues had.

To Nurserymen and Florists.

GENUINE BUSINESSES WANTED.

Send full particulars to

A. W. WARREN, Horticultural Valuer, 59, West Street, Brighton. No charge unless Sale is effected.

WANTED TO RENT, a Small NURSERY, or a DWELLING-HOUSE with Ground suitable.

W. B., 4, Clissold Park Villas, Paradise Row, Stoke Newington, N.

FOR SALE.

ABOUT 3 ACRES of FREEHOLD LAND,

SUITABLE FOR A NURSERY,

With about 16,000 super. feet of Glasshouses recently erected thereon. Also two Blocks containing four Cottages.

Situated 20 Miles south of London.

For particulars apply to PROTHEROE AND MORRIS, Cheapside, London, E.C.

To Gentlemen, Gardeners, and others.

TO BE SOLD, the Lease of a SMALL NURSERY and FLORIST BUSINESS, in a first-class position in south-west district. Owner retiring from business. About half an acre of Ground, with Dwelling-house, Hothouses, and Frames.

For further particulars, apply by letter to M. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

East Retford, Notts.

TO BE SOLD, by Private Treaty, a first-class NURSERY (glass only), consisting of 6000 square feet, in full working order. A splendid opportunity for a good man. Retford is within a short distance of Newark, Sheffield, Doncaster, Leeds, Bradford, and Lincoln Markets. For full particulars apply, F. W. HODSON, Groveleigh Nurseries, Retford.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease, for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

KENT.—TO BE LET, a well-established NURSERY, about 4 Acres; capital Dwelling House, 4 Greenhouses, heated; Seed and Florist Shop, with Shed and Store-room, the whole standing in a good position in a rising neighbourhood. Nineteen miles from Covent Garden. Rent, £60. Stock at valuation, which is young, clean, and healthy.

D. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

SEEDSMEN who conduct their Sales and Shows without offering alcoholic drinks to their customers, are requested to send catalogues to W. W., Ripley Court, Ripley, Surrey.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Have an immense stock, to which they are constantly adding, and all are offered at the lowest possible prices. LISTS with Prices and particulars post-free on application to the Company,

THE VINEYARD AND NURSERIES,

GARSTON, near LIVERPOOL.

RED CURRANTS, Raby Castle and Red Dutch. COB NUTS, strong well-rooted plants. APPLES, Pyramid, good sorts, 5 to 7 feet. Scarlet CHESTNUTS, fine trees, 6 to 9 feet. STRAWBERRY PLANTS, Vicomtesse Hericart de Thury, Stirling Castle.—TODDINGTON ORCHARD CO., Winchcombe, Gloucestershire.

SEEDS and BULBS—VEGETABLE, FLOWER, and FARM.—CATALOGUES free. 10 per cent. off for cash. Penny Packets, 1s. for 13.; 100 for 4s. MUSHROOM SPAWN, Peck, 1s. 2d.; Bushel, 3s. 9d.

Write, GARDENER AND CO., 62, Strand, London, W.C.

Fine Standard and Dwarf Named

RHODODENDRONS are offered, with every other description of well-grown NURSERY STOCK, at a low price, by

W. H. ROGERS, Red Lodge Nursery, Southampton.

To the Trade.

FERNS—FERNS—FERNS.—In twenty most saleable sorts—ADIANTUM CUNEATUM, POLYPODIUMS, CYRTOMIUMS, PTERIS, &c., at 12s. per 100, packed free for cash. PTERIS CRETICA CRISTATA, few other kinds from stores, 6s. per 100, 50s. per 1000.—J. SMITH, London Fern Nurseries, 140, Loughborough Road, Brixton, S.W.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

STRAWBERRIES.—Leading kinds, in 3½-inch pots, for immediate Planting or Potting on for Forcing. Send for LIST.
FRANCIS R. KINGHORN, Sheen Nurseries, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

The Successful Transplanting of Large Trees and Plants.

BOOK ON TRANSPLANTING LARGE TREES AND SHRUBS. Post-free on application.
CHARLES R. KELLY, Landscape Gardener, Tarporley, Cheshire.

To the Trade.
CHOICE VEGETABLE SEEDS.

H. AND F. SHARPE'S Special Priced LIST of VEGETABLE SEEDS comprises all the best varieties under cultivation of 1889 growth, and of the very finest quality. The prices will be found very advantageous to purchasers.
Seed Growing Establishment, Wisbech.

Bulbs and Seeds for Spring Planting.

ANT. ROOZEN AND SON, of OVERVEEN, HAARLEM, beg to announce that their New BULB and SEED CATALOGUE for Spring, 1890, is now ready. It contains full details of their extensive Collections of Gladioli, Dahlias, Lilies, Begonias, Pæonia sinensis, and other Bulbs for Spring Planting, and also of a large Collection of CHOICE FLOWER SEEDS, which can be recommended with every confidence.
The Catalogue will be sent, post-free, an application to themselves direct, or their Agents, Messrs. MERTENS & Co., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Seed saved from Prize Plants. In beautifully illustrated Packets, choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 3s. 6d.; 6 White, 3s. Tubers, Named Singles, from 12s. to 42s. per doz.; Unnamed Seedlings, 12s. to 21s. per doz.; Bedding, choicest, 6s. and 9s. per doz.; choicest Named Doubles from 42s. per doz.; Unnamed, very choice, 24s. and 30s. per doz.; choicest Mixed, 18s. per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

AUSTRALIAN SEEDS.
LUCERNE, GRASS SEEDS, PEAS of sorts, PALMS, EUCALYPTI, CYCADS, CASUARINA, &c., Seeds and Plants.
We shall be pleased to quote Purchasers at any time.
Bank Drafts must in all cases accompany orders.
Offers of Sole Agencies for Seed-men's Sundries, Utensils, &c., requested.
STEPHENSON AND JOHNSON, Seed Growers and Merchants, 9, King Street, W., Sydney, N.S.W.

To the Trade.
SEED POTATOS.

H. AND F. SHARPE are prepared to make very low offers of all the principal kinds of Seed POTATOS, grown expressly for Seed purposes from the finest selected stocks. The samples are very good, and free from coarse and diseased tubers.
Seed-growing Establishment, Wisbech.

"Now is the Time to Plant Trees."

ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.
The Nurseries, Trinity Road, Wandsworth Common.

Special Cheap Offer.

ISAAC MATTHEWS AND SONS have to offer 100,000 very fine plants of RHODODENDRON for forcing, Cunningham's White, Jacksoni, Caucasicum pictum, PONTICUM RHODODENDRON, from 3 to 6 inches, and intermediate sizes up to 1 feet, about 600,000; Seedling Hybrids, in sizes from 4 to 6 inches to 3 feet, about 100,000.
HOLLIES, Common LAURELS, Portugal LAURELS, English YEWS, CUPRESSUS RETINOSPORA, AZALEAS, 200,000 strong 4-yr. and 5-yr. THORN QUICK.
For prices and particulars apply to the Nurseries, Milton and Wetley Moor, Stoke-on-Trent.

To the Trade (surplus).

WM. BAYLOR HARTLAND offers the following from SEEDS, Crop 1889:—
AQUILEGIA, Munstead White.
AURICULA alpina, &c.
CHIONODOXA LUCILLÆ.
,, SARDENSIS.
PRIMULA OBCONICA, fine selected.
PRIMROSE, yellow BEACONSFIELD, fine large strain.
POPPIES, Snowdrift and Mikado.
DAFFODILS from his celebrated collection.
Price on application.
*** DAFFODILS, Cut Blooms of Ard Righ, per 1000 from open ground.
Seed Warehouse, 24, Patrick Street, Cork.

B. R. DAVIS'S New, Rare, and Beautiful BEGONIAS.
The best Illustrated Descriptive CATALOGUE, with Cultural Directions, sent free on application. Begonias for Exhibition, Conservatory, Greenhouse, and Bedding, Double and Single.
B. R. DAVIS, Begonia Grower, Yeovil Nurseries, Yeovil, Somerset.



SELECT
VEGETABLE & Flower SEEDS
Seed Potatos, Garden Tools, & Sundries.
Best Qualities Only. Prices most Moderate.
Delivered Free by Rail or Parcel Post.
Illustrated Descriptive Priced Catalogue, No. 370
Post Free on application.
DICKSONS (*Limited*) Nurseries & Seed Establishment **Chester.**



CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.—Too well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by parcel post, 1s.
None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.
WM. CUTBUSH AND SON, Nurserymen and Seed Merchants, Highgate Nurseries, N.

SEED POTATOS.
To Grow in GARDEN or FIELD, or for EXHIBITION.
THE REAL WHITE ELEPHANT.
A White Elephant Potato with a pure white skin—a great improvement on the old variety. Grand Market or Exhibition sort. Send for Descriptive CATALOGUE, the most complete in the Trade, containing description of most sorts worth growing.
J. WATKINS, Potato Grower,
POMONA FARM, WITHINGTON, HEREFORD.

SEEDS.
VEGETABLE and FLOWER SEEDS of the very best quality, carriage free.
CATALOGUES Post-free on application.
THE LIVERPOOL HORTICULTURAL CO.
(John Cowan), Limited,
THE VINEYARD and NURSERIES, GARSTON, LIVERPOOL.

PURCHASERS OF TREES should send for our special offer.
DICKSONS Nurseries, CHESTER.



To the Trade.
MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give Special Quotations for all the leading kinds of MANGEL WURZEL and TURNIP SEEDS, of the finest quality, and raised on their own Farms from picked transplanted bulbs. The prices are very low this season.
Seed Growing Establishment, Wisbech.

Cucumber "Lockie's Perfection."

CHARLES TURNER, having purchased the Stock of this sterling new variety, is much pleased to introduce it, and can with the greatest confidence recommend it as the best Cucumber ever sent out. Price per packet, 1s. 6d. and 2s. 6d. Descriptive CATALOGUE upon application.
The Royal Nurseries, Slough.

QUICKS—QUICKS—QUICKS.
Strong transplanted Quicks, large quantity.
10s., 12s., and 15s. per 1000. Samples on application.
JOHN FERKINS AND SON, 52, Market Square, Northampton.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.
J. J. CLARK, Goldstone Farm, Brighton.

GEORGE COOPER, SEEDSMAN, Bedford.
Special offer. Terms, cash:—

BEANS, Dwarf French, Ne Plus Ultra	16s. 0d.	per bushel.
,, ,, Canadian Wonder	13s. 0d.	,,
,, Early Longpod	5s. 6d.	,,
PEAS, Leicester Defiance	10s. 0d.	,,
,, Ne Plus Ultra	12s. 0d.	,,
BEET, Nuttings, Dwarf Red, improved	1s. 6d.	per lb.
CARROT, James Scarlet, Intermediate	56s. 0d.	per cwt.
,, St. Valery	70s. 0d.	,,
,, Chantenay	75s. 0d.	,,
ONION, Bedfordshire Champion	5s. 6d.	per lb.
,, Silver-skin, for pickling	2s. 6d.	,,
PARSNIP, Improved Hollow Crown	32s. 0d.	per cwt.
,, ,, Elcombe's	35s. 0d.	,,

WM. PAUL AND SON respectfully invite orders for the following TREES and SHRUBS, which they are able to offer at specially reduced rates:—
ABIES DOUGLASII, 6 to 8 feet, 18s. per dozen.
,, ORIENTALIS, 5 feet, 24s. per dozen.
ACACIAS, 8 to 10 feet, 6s. per dozen.
ALDER, 12 to 14 feet, 12s. per dozen.
AUCUBAS, 3 to 4 feet, 24s. to 36s. per dozen; 4 feet by 4 feet, 60s. per dozen.
BOX, Green and Variegated, 4 to 5 feet, 12s. per dozen.
BEECH, Purple, 10 to 14 feet, 36s. to 60s. per dozen.
BIRCH, 8 to 10 feet, 6s. per dozen.
CEDRUS ATLANTICA, 10 to 12 feet, 60s. per dozen.
,, DEODARA, 8, 10, and 12 feet, 5s., 7s., and 10s. each.
CHESTNUTS, Horse, 10 feet, 12s. per dozen.
,, ,, scarlet, 10 to 12 feet, 30s. per dozen.
CRYPTOMERIA ELEGANS, 4 feet, 24s. per dozen.
,, JAPONICA, 7 to 9 feet, 36s. per dozen.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 18s. per dozen.
ELM, English, 6 to 8 feet, 4s. per dozen; 10 to 14 feet, 9s., 12s., and 18s. per dozen.
,, Huntingdon, 12 to 14 feet, 15s. per dozen.
,, Wych, 10 to 12 feet, 9s. per dozen.
FIRS, Larch, 4 to 6 feet quartered, 4s. per dozen.
,, Scotch, 5 to 6 feet, 6s., 9s., and 12s. per dozen.
,, Spruce, 6 to 7 feet, 12s. per dozen.
GLEDITSCHIAS, Standards, 12s. to 15s. per dozen.
HOLLIES, Green, named sorts, 8 to 10 feet, 84s. per dozen.
,, Silver, 8 to 10 feet, 120s. per dozen.
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THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 15, 1890.

THE ADVANTAGE AND UTILITY OF PLANTING WASTE LANDS.*

THE planting of waste lands has formed the subject of much discussion and enquiry in all societies interested in rural economy, and the advantages accruing therefrom have been anxiously considered by all parties interested in the possession and management of landed property. From this fact alone, it is difficult to throw much new light on the subject.

To say that there are great benefits arising from the afforesting of our waste lands is only stating a truism, and the object of such a paper as I have been requested to give, is not so much to enforce what is so generally admitted, as to endeavour to show the advantages arising therefrom in a perspicuous form, and if possible arouse greater interest in, and demonstrate the necessity of rectifying, if possible, what is really a great national neglect.

Perhaps of the three kingdoms, Scotland has done more than any other to rectify this mistake, but that does not arise so much from a national predisposition to plant (although her ancient name of Caledonia would entitle her to some such claim), but from the fact that of the three kingdoms, possibly she possesses more waste land than any other, and planting is the only means whereby many of her bare hills and comparatively barren plains could be profitably utilised. We in Scotland, however, have had many noble examples of proprietors who early seemed to realise the necessity of planting; notably amongst those we may mention the names of the Dukes of Athole and Argyll, as well as Lord Haddington and many others, who, in the latter end of the last and early in the present century did much to arouse the planting spirit in Scotland, and their successors have reaped a rich harvest from their large-minded foresight. In our own day, immense tracts have been planted by the Duke of Richmond and Lords Seafield, Lovat, and Breadalbane, besides many others

* A paper read by Mr. C. S. France, at the Aberdeen Horticultural Association, on January 8, 1890.

whom we might name, and whose properties are now luxuriant in wood, where before it was sterile waste.

These proprietors deserve well of their country, because while each may be said to have planted with the primary view of improving their own properties, they have at the same time been adding greatly to the national wealth. With all those noble endeavours, however, to clothe our hills with a crop of Nature's noblest products, there is still much to be done to fully clothe our waste lands. The question naturally arises, then, why is planting now at a comparative standstill? We answer that there have been many influences at work during the last twelve or fifteen years to hinder its progress; not the least important of which has been the depressed state of agriculture. There has also been very great political fearfulness and want of confidence in the existing state of things, thereby inducing proprietors who would otherwise plant, to desist from doing so. Many have not the means, on account of their largely reduced rentals; and even those who have the means, are not disposed to use them, because that spirit of change which is pervading all our institutions induces many to think that neither they nor their heirs may ever reap the benefit of the outlay. This, however, opens up a great national economic question, which it is obvious that this is not the time nor place to discuss.

Our object is, if possible, to show that under comparatively adverse circumstances, it would pay to plant, and that the doing so is not only advantageous, but useful to the possessor of land, as well as being a national necessity. The wise saying put into the mouth of the Laird of Dumbydikes by our great national novelist, "Aye be stickin' in a tree, it will be growin' when you're sleepin'," was no less true then than it is now, and it would be well if many of our large landowners would realise the full import of these words.

The first question that meets you when you propose planting is, will it pay? In this age of pure £ *s. d.* in all undertakings, this is naturally the first inquiry. Now let us see if it will pay.

Speaking from many years' experience, I have no hesitation in saying that it will. It may not give such an immediate return as a crop of grain or Turnips, nor will the planter reap the full benefit of the "paying," but as a capital investment, I say, and am prepared to show, that it will pay. Let us give an example or two, and in doing so, I do not state them as problematical possibilities, but the examples I will give are drawn from facts which have come under my own personal observation and experience during the last thirty years.

Before, however, going into this more fully, I wish to safeguard myself against a common error which many writing on this subject have fallen into, viz., the over-estimating of the profits of woodlands. It is quite easy with respect to the ultimate profits of plantations to show a state of things which will represent a clear gain under any circumstances. In fact, this is too much the practice of all speculative calculators, whether as planters of trees or any other crops.

We are not, however, desirous to go beyond absolute facts in endeavouring to show that planting trees is the most profitable crop to grow under all circumstances; nay more, we affirm that such is not the case, but we wish to show that there are thousands of acres of waste lands in the United Kingdom at present not worth more than from 1*s.* to 2*s.* per acre, and which if judiciously planted, would gradually yield a handsome return to the proprietor, and eventually be a source of great national wealth. It is obvious that the certain lapse of time which must necessarily intervene between the planting of trees and their attaining a disposable size, must render any calculation made at the time of planting extremely problemetical, therefore these calculations must be treated with very considerable caution; but while this is so, there is another and equally important factor, which can never be properly estimated, and which may represent quite as much, as the pure enumeration of certain results represented by £ *s. d.* in a given time, and that is the advantage and utility of planting in its relation to the enhancing of the value of neighbouring exposed lands, by the shelter it affords, and the ameliorating influence it produces on the climate, thereby making land for other crops fertile which before was comparatively unproductive. In planting waste plantation lands, therefore, plantations should be laid out with a joint view to all or any of the advantages attendant upon them, and money so invested should be looked upon as the investment of capital in the same way as any other investment of land or property; therefore, with respect to the actual value of trees in plantations as tangible capital, this can only be calculated in relation to the additional value conferred on adjoining lands by the improvement of the climate, as well as adding beauty to the landscape, which in itself is no mean consideration in the value of property. In high and bleak situations, the proper distribution of plantations, either in screens or irregular masses, have increased the value of adjoining lands by, in many cases, one-third. When, therefore, we take into consideration the intrinsic value of the products of these plantations in addition to this, I think we make out a very fair case in favour of planting as an investment.

(To be continued.)

New or Noteworthy Plants.

COLCHICUM PROCURRENS,* *Baker, n. sp.*

I have now, through the kind help of MM. Barbey and Autran and Mr. Dewary, got to the bottom of the curious Colchicum with a creeping rhizome, from Asia Minor, on which Mr. Barr asked my opinion a few weeks ago. It appears that it inhabits the mountains in the neighbourhood of Smyrna—that it was discovered by Mr. Whitall, and that it has been distributed in England under the name of Merendera sobolifera. It closely resembles that plant in its rootstock, but Merendera has no perianth-tube, and M. sobolifera has very narrow perianth-segments and leaves contemporary with the flowers. Our plant has a long perianth-tube, an autumnal flower very like that of Colchicum autumnale, and leaves that do not appear till spring. I have never before seen a Colchicum with a creeping rhizome. A plant with that character from the mountains of Laconia, in Greece, is described by Boissier in the *Flora Orientalis*, vol. v., p. 146. It was discovered by Professor Orphanides, and named by him Colchicum Boissieri, and upon this Boissier's section, Blastodes, is founded. The plant from Smyrna, it was obvious, was closely allied to this, but we had no specimens of it for comparison. Now MM. Barbey and Autran have kindly lent me the type specimens, and I find that Mr. Whitall's plant is distinct specifically. C. Boissieri has only two leaves to a cluster, and they are longer and more acute, its spathe is herbaceous and green, its rhizome is more slender and cylindrical, with a curious tooth from its anterior edge, and it is not hooked at the end. We have received the Asia Minor plant at Kew under the name of Merendera sobolifera, and it is now producing its leaves in the herbaceous ground; and it is most likely it has been distributed in other collections under the same name. *J. G. Baker, Kew.*

* *Colchicum (Blastodes) procurrens, Baker, n. sp.*—Rhizomate repente cylindrico horizontali, vel obliquo extremitate uncinato tunico membranaceo brunneo; foliis tribus vernalibus linearibus obtusis; flore solitario autumnali; spatha cylindrica tubo quam limbo duplo breviore; segmentis oblanceolato-oblongis sesquipollicaribus haud tesselatis; antheris luteis filamento æquilongis; stylis staminibus æquilongis.

Rootstock a horizontal or oblique thick fleshy rhizome an inch or more long, with a thin brown membranous tunic, hooked at the end, from which the flower of the previous year has come, not bearing any tooth on the upper margin. Leaves three to a sheath, produced at the beginning of February, linear, 1-6th inch broad, dull glaucous green, channelled deeply all down the face. Flowers one to a spathe, produced in October. Spathe pale, scariose, cylindrical, 3 inches long, oblique at the throat. Perianth with a pale cylindrical tube protruded 2 inches from the spathe, altogether 4 inches long; segments oblanceolate-oblong, above an inch long, plain bright lilac, with a distinct groove down the claw. Stamens ¾ inch long; anthers lanceolate, yellow, sagittate at the base, about as long as the filaments. Styles reaching to the top of the anthers; stigmas small, terminal, capitate. *J. G. Baker.*

Eucharis amazonica.

A plant so generally popular—and deservedly so—as Eucharis amazonica, receives always great attention from the gardener, and any methods of culture which may have resulted in an abundance of large blossoms and healthy foliage are eagerly sought after.

The plant figured on p. 193 is, as will be seen, an example of first-class cultivation, and an object of beauty which any gardener might point to with pardonable pride. We will let our correspondent, Mr. W. Dean, of Solihull, Birmingham, who kindly sent the photograph in November last year, describe this plant and its culture in his own words:—

"One of the finest specimens of this plant we have yet seen has recently flowered at The Henburys, Moseley, Birmingham, the residence of G. F. Lyndon, Esq. Eucharis are well grown here, one plant especially deserving notice, because of its size, its perfect health, and colour and size of the foliage, and abundance of fine flowers. This plant is in an 18-inch pot, and about six years old, and has had four repottings in the last four years. It is 4½ feet high, 5 feet through, and had 36 flower stems, with quite 220 blooms on them, the flowers large, and the foliage in the best of health. Mr. John Bluck, the gardener, uses a soil composed of good loam, a little leaf soil, some broken sandstone, and a few half-inch bones, with plenty (quite six inches) of drainage to allow water to escape freely. He finds that the roots adhere to the sandstone, and evidently derive benefit therefrom. The plants are kept through the winter and spring in a temperature of from 60° to 65°, but when blooming they are removed to a cooler house, but if kept too long, then the foliage suffers and decays. Watering is an essential point with Mr. Bluck. He uses very little directly on the soil, and then only in hot weather, and manure-water, and resorts to frequent syringings into the foliage, always with clean manure-water, using this freely in the growing season, but he never allows the plants to dry off. Too much soil in the pots and too much water at the roots Mr. Bluck holds to be injurious, and he trusts more to the copious syringings of the plant with weak manure-water. Some diseased bulbs of Eucharis sent to the Henburys some time since were washed and placed in a pan of sand with sphagnum at the bottom, where they grow freely, and were soon restored to health.

The Apricot.

Why is it that the Apricot is not more largely grown? Is it on account of its uncertainty of fruiting, the dread of branches dying off so mysteriously and so frequently, just as the fruit is beginning to ripen? or is it because of the collapse of

the flower-buds just as their expansion is expected? It may be that all these reasons may account for its neglected cultivation. If my conjectures are the right ones, I have no hesitation in saying that such bogies as these, which are so easily laid, ought not to frighten gardeners who have far greater difficulties to surmount in their daily occupation. Let us take the dreaded evils mentioned *ad seriatim*. First, "the uncertainty of fruiting." This is common to all fruits, and to Apricots more than other trees, so that I will not lay too much stress on this fault, because I believe the evil may to some extent be overcome. Apricots are usually far too precocious. As this year many of the flower-buds were half expanded on January 16, failure will almost certainly ensue if sharp frosts set in, if the trees remain unprotected. The application of efficient protection, therefore, meets one half of this difficulty of uncertain bearing; the other half is not quite so easily remedied, being due, as I believe, to the immaturity of the young shoots, and the consequent imperfect development of the fruit buds, so that even if they do not drop prematurely, they are barren of pollen, and so fail to set. A partial, and only partial, remedy, is to select the most favourable aspect for the trees, and I find that one that is due west is far better than the due south side, on both of which we have had good crops of fruit, but the west has proved itself the better. There is one other item which in some degree may prove helpful in warding off this uncertainty of fruiting and that is the application of slight autumnal protection to trees that have made growth late in the season, and which, when early frosts set in, get crippled, and the wood remains immature. I do not pretend to have fathomed the why and wherefore that trees die piecemeal, but I have also not been able to accept as correct any of the many theories which have been propounded on the subject; in fact, I have given up in despair, the attempt to ascertain the reason why it is that branches of Apricots die off so mysteriously, but I claim to have found a remedy, and that is the keeping a reserve stock of young trees to replace those that die off in this manner. By this means I have been able for years to keep every foot of the wall that is devoted to Apricots fully furnished with fruit-bearing trees.

Next, as to the "collapse-dropping of the flower buds just as they seem likely to unfold:" the most common cause of this, I believe, to be drought, dryness at roots in autumn, at which season it is just as necessary to have the roots in full activity as it is when the fruit is swelling off, and the same vigorous root action should be encouraged till the buds are hard and brown, there would then be little cause for alarm as to bud dropping. Immaturity of buds, by reason of ungenial autumn weather, is no doubt sometimes the cause of a percentage of the buds dropping, but in



Fig. 31.—Eucharis amazonica. (see p. 192.)

the majority of instances, autumn drought is the cause. The disposition that we all feel to "rest and be thankful" after the harvesting of a good crop of fruit, tends to the forgetfulness of the fact that the fruit of next year is being manufactured, and this, and the neglect of the trees after gathering the fruit, are sure to end in failure. On our light soil, we find it necessary to water the trees even more copiously after the fruit is gathered than previously, and rarely indeed have we to complain of an Apricot crop that is under average.

Having no practical experience of growing the Apricot under glass, I feel reluctant to say anything on the subject; yet from examples of culture in some neighbouring gardens, I have formed a very decided opinion as to the merits, or rather demerits, of the system. I said "demerits," and surely that is the right term to apply when never once have I seen through a long series of years trees under glass bearing what one would be justified in describing as one-third of a crop, and in many seasons not a fruit at all. I shall, therefore, have to change my views greatly before I am prepared to advise the growing of Apricots in orchard-houses, either planted out or in pots. The latter mode might possibly be successful, because, the trees being portable, they could have the desired rest and exposure to the atmosphere by plunging the pots in leaves. But at what a cost of labour a crop of fruit would be bought! Watering, top-dressing, housing and unhousing! No; I'll have nothing to do with growing Apricots either in pots or in houses. I will let well alone, and keep to growing the fruit on walls having a west aspect, and in soil not enriched by animal manure other than such as is applied to the surface in the form of mulchings; but in good sound loam, with a fair percentage of chalk, added to loams that have not this ingredient in a natural state, and pounded oyster-shells and half-inch bones, if obtainable, should be added at the rate of 1 cwt. to every three loads of loam. This kind of compost is the perfection of an Apricot soil, less the pounding to be done soon as the trees are planted; and the harder it is rammed at that time the better will the roots be, because having, as it were, to fight their way through the hard soil, side rootlets are formed, whilst the principal roots are boring their way to the outside limits of the border. Having tried nearly all known varieties of Apricots, I have reduced the number to four; they are Shipley's, Royal, Moor Park, and Peach, sometimes called Grosse Pêche. *W. Wildsmith.*

[This article has a sad association, as being the last written for us by its lamented author. ED.]

PLAN OF A GARDEN AND SURROUNDINGS.

THE garden (a plan of which, and the grounds surrounding it, see fig. 32) was laid out for a gentleman near Emsworth by Mr. Baines, of Palmer's Green, N. The place is situated at a short distance from Emsworth, on its northern side, and the London, Brighton, and South Coast Railway—from which the place may be seen—bounds it on the southern side. The sea, which comes close up to the opposite side of the town, is about a mile distant from the property, and although the influence of the sea air is felt, most of the best kinds of evergreens and deciduous trees and shrubs thrive and do well, many things succeeding which, further inland, suffer in severe winters. In the planting, only well proved species and varieties of Coniferæ have been used, those that are doubtful, or that only succeed in exceptional localities, being excluded. The best kinds of evergreen shrubs, and all the best deciduous flowering shrubs and trees, including many fine things that are not now so often met with as their merits entitle them to be, have been introduced in quantity. The shelter belts on the outer portions of the grounds consist mostly of Pinus Laricio and P. austriaca, with small growing deciduous flowering trees at intervals in front.

As is often found in districts near the sea, there is not very much undulation in the surface for a considerable distance; but the land falls gently from the site of the house on the eastern side, and also to the west, in which direction, as well as to the north, there are extensive views.

Only the garden and its immediate surroundings are shown in the plan. In the general arrangement of the place, convenience in getting about it, as well as appearance, have been kept in view, and provision has had to be made for a small herd of cows and other farm stock. The letters indicate as under:—

A. Orchard.
B. Farm buildings.
C. Yard.
D. Stables.
E. Coach-house.
F. Range of plant and fruit houses.
G. Herbaceous border.
H. Kitchen garden.
J. Herbaceous border.

A GARDENERS' PROBLEM.

I DO not remember to have read anything so interesting as the correspondence upon this subject. It goes down to the very root of the matter, and enables one's perhaps somewhat hazy ideas of the relation between botany and cultivation to assume form and substance. A man who has never grasped the first principles of plant-life, though he may succeed to a certain extent by "rule-of-thumb," can never make a really good gardener or cultivator; and a good solid foundation of knowledge in this or any other calling, one may build up anything; without it only a shaky superstructure can exist, which may topple over at any moment. The foundation cannot be too strong; our knowledge of first principles cannot be too great; and there is nothing like discussions of this kind to strengthen the one and increase the other. I am not an "authority," but cannot refrain from saying a few words on the subject, if only as one who has given this and kindred matters some considerable amount of thought and study, from the point of view of a practical cultivator.

There can be little doubt that Mr. Dyer is perfectly right as regards the greater part of his remarks and premises, though I cannot agree with him *in toto*. In the problem referred to, we come face to face with a seeming anomaly, almost a paradox. Nature is usually so consistent, so just; her laws, like those of the Medes and Persians, are unalterable, and try as we may, we cannot cheat her in the smallest degree. This is doubtless one reason of the intense reverence accorded to her by those who know her best. We see, we admire, we revere, but we cannot always understand or follow her in all her marvellous operations. Now and then the student of Nature must expect to meet with such a problem as the one in question, and though no exact and positive answer to the question of "why?" or "how?" may be found, still inquiry, argument, can do no harm, but may and probably will do good.

The matter may be argued thus: Nature, the all-wise, having the entire management and distribution of the innumerable genera of vegetation in her own hands, would, it might be presumed, allot to each individual the position and conditions best suited to its greatest well being and highest development. But in practice we find that, to all appearance, this is not exactly the case, and that—again I say apparently—better results are obtained under greatly, if not totally, different conditions to those under which the plant exists in a state of nature; and again, more puzzling still, that when we attempt to imitate these natural, and, therefore, supposittiously best conditions, we frequently fail altogether. This can only be accounted for in one of two ways, either we are altogether wrong in our conclusions, or else there is some good and cogent reason for the apparent anomaly, which we cannot, or have not yet, fathomed.

For my own part, I incline to believe that it is almost entirely a question of conditions. Every plant that grows succeeds best under not one, but a certain set of conditions. Disturb one, and you must alter others; if we cannot imitate the whole, we must discover a totally or largely different set. Here it is that the empirical skill of the true gardener comes in. As Mr. Dyer justly remarks, a really expert cultivator knows instinctively what a plant, with the nature of which he may be unacquainted, requires. He must proceed tentatively, and may not succeed at first, but sooner or later he will do so. Like a skilful physician, he must be an expert at diagnosis, he must have the power of seeing through the plant, as it were, and though destitute of any definite guide to ascertain, as by instinct, what will suit it, and what not.

Constitution is an excellent word as applied to plant-life. Without doubt, every plant that grows possesses a constitution equally with a human being, and the similarity between the two may be worked out to a really marvellous point. The chief difference is that it does not, as a rule, vary in different individuals as it does in the human and other animals, or, at least, in nothing like the same degree; generally speaking, any set of conditions or treatment that will suit one individual of a given species and variety will suit all.

The facts upon which the discussion is based are indubitable; let me cite a few instances that have come under my own notice. Take for example, the common Azalea indica, of which so many thousands are annually imported from the Continent. In Holland they are grown in beds of soil composed chiefly of leaf-mould and sand; but if we plant them in similar material here they fail! With us nothing suits them like peat. Then look at the Persian Cyclamen, which in its native state flourishes in sandy loam on the rocky hillsides of Palestine, where for six months out of the twelve it is literally roasted. In this country we find it succeeds best in a partially shaded spot in summer, the pots being plunged in some moisture-holding material, and the soil never allowed to become dry! If dried off according to the old practice, the roots dwindle and die. Take the Arum or Calla again: here we must keep it growing all the year round, giving abundance of water throughout the hot weather; but I have never seen it flourish as it does in Australia, where, between the parched soil and the blazing sunshine, the plants get such a roasting, that from about February till July or August they are absolutely leafless, and get not a drop of water perhaps for months. Yet under these conditions I have turned a plant with two crowns out of a 6-inch pot into ordinary soil, and, without any attention, in two or three years' time it became a grand clump a yard across, bearing thirty or forty blossoms at a time!

The Correas, Epacris, Ericas, and other hard-wooded plants of Australia grow for the most part in a poor sandy loam, which becomes soaked and sodden during the winter or rainy season, and parched to an incredible degree in summer. In the "stringy bark" (a variety of Eucalyptus), where this class of plants is very abundant, the soil is generally a fine, nearly white sandy loam—just such stuff as builders like for making mortar; yet here we must grow them in peat, and give water with the greatest care during the season of rest. There Cucumbers and Melons luxuriate in the open ground, exposed to the full blaze of a tropical sun, and yet seldom, if ever suffer from red-spider.

The fact is, that it is simply impossible to imitate here exactly the conditions under which many exotic plants are found in a state of Nature. Temperature we can control, of course, and moisture also, both atmospheric and in the soil, at least to a large extent. Shade, too, we can give; but what about light and atmosphere? The limitless flood of dazzling light, the dry, crisp, tense, stimulating atmosphere of an Indian, an African, or an Australian summer, it is absolutely impossible to imitate here even in a faint degree. Fortunately for us, the set of conditions under which a plant is found to succeed naturally is not the only one in which it can

exist or even flourish; a largely different set will often answer the purpose nearly or quite as well, and sometimes better. Instead, therefore, of terming the constitution of plants generally singularly inelastic, I should say rather singularly elastic. Were it otherwise, we should find it impossible to cultivate many subjects at all in our climate. A knowledge of the normal conditions under which a plant is found is undoubtedly a guide to the treatment proper to it, but by no means an infallible one.

out moisture, which generally obtains in this country; the other the rest in intense heat, without moisture. Thus, in Mexico and some other parts of the world, plants remain dormant during the intensely hot season or summer, and bloom in the rainy season or winter. But is a resting period an absolute necessity after all? In the Sandwich Islands plants are growing, flowering, and fruiting all the year round pretty equally, and the time at which a crop, say, of Sugar-cane, or what not, is to be harvested, is

ploughed up, do millions of Eucalyptus seedlings spring up immediately where there were none before? *B. C. R.*

—— A few years ago I took some young Helleborus fœtidus from a chalky slope near Maidstone, and planted them in my sandy, sloping garden; every one of them died in winter, in spite of watering, &c. I then procured some more from Arundel of the same size, and also from a chalky slope, and planted

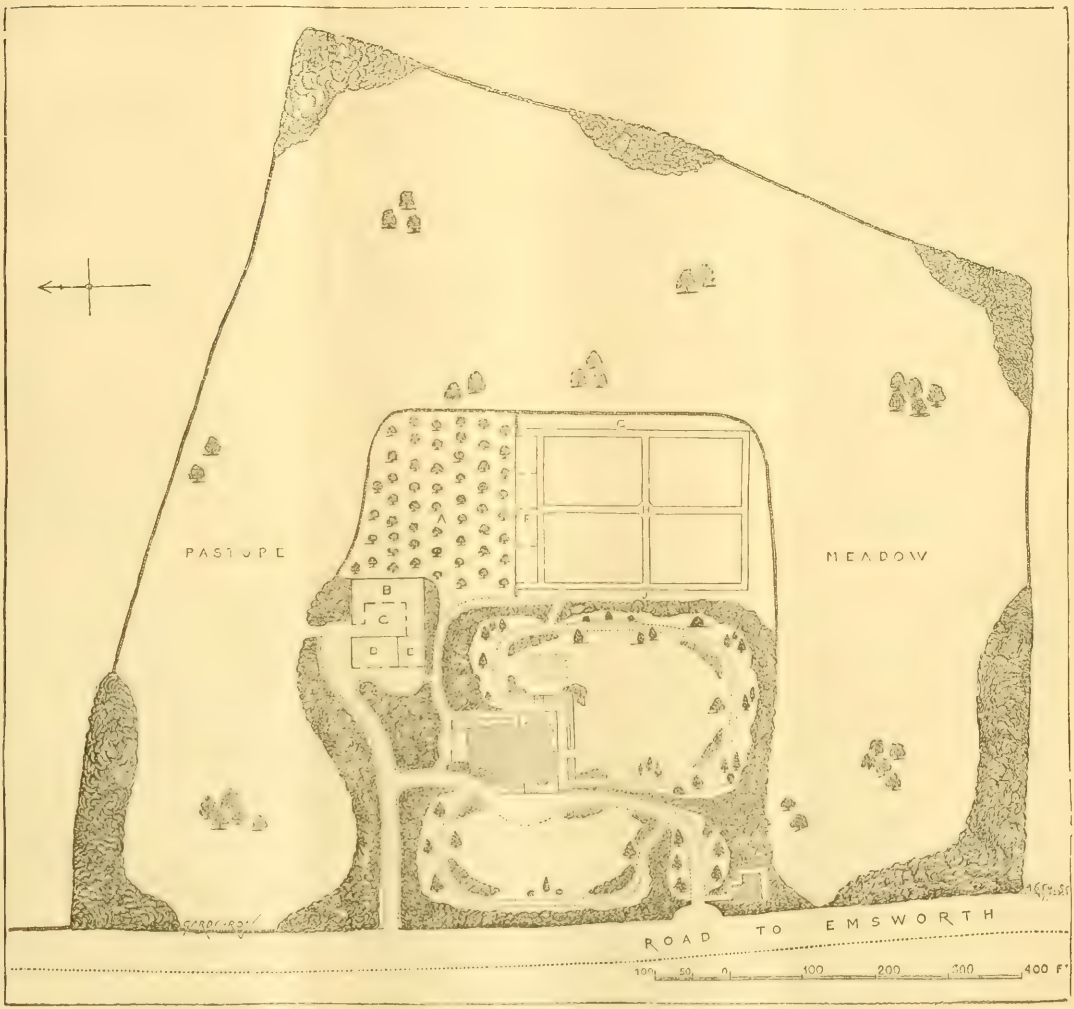


FIG. 32.—PLAN OF A GARDEN, ARRANGED BY MR. BAINES. (SEE P. 194).

As regards the question of rest, that opens out, if possible, a still wider field for speculation or argument. It is generally regarded as an acknowledged fact in English horticulture that for almost everything a period of rest, as complete as possible, is desirable, and in many cases it is absolutely indispensable. But the conditions of such rest vary in a remarkable degree. Briefly, it may be said that there are two principal ways in which plants rest or hybernate—one in a low temperature, with or without moisture, which generally obtains in this country; the other the rest in intense heat, without moisture. Thus, in Mexico and some other parts of the world, plants remain dormant during the intensely hot season or summer, and bloom in the rainy season or winter. But is a resting period an absolute necessity after all? In the Sandwich Islands plants are growing, flowering, and fruiting all the year round pretty equally, and the time at which a crop, say, of Sugar-cane, or what not, is to be harvested, is determined by the season of sowing or planting. It seems to me that the elasticity of plant constitution—of Nature's laws, rigid as they are in many respects—is simply marvellous.

But Nature abounds in the marvellous. Why does the common Nettle almost invariably follow the footsteps of man, though unknown before? Why does white Clover almost always appear in soil that has been brought up from a great depth? Why, when a bit of land in the Australian bush is simply ploughed up, do millions of Eucalyptus seedlings spring up immediately where there were none before? *B. C. R.*

—— A few years ago I took some young Helleborus fœtidus from a chalky slope near Maidstone, and planted them in my sandy, sloping garden; every one of them died in winter, in spite of watering, &c. I then procured some more from Arundel of the same size, and also from a chalky slope, and planted them on chalk refuse (of whiting manufacture) about a foot deep. They are now vigorous plants, not only flowering freely from decumbent stems, but forming vigorous erect shoots for next year's flowers, after the manner of the plant. There is one tor on Dartmoor consisting of trap rock, known as Bochs Tor—the only trap hill on the moor—and at a limited range, neither above nor below, a belt round that hill, there grows a little moss, Glyphomitrium Daviesii, which grows nowhere else on the moor, and

is, I believe, nowhere found on other kind of rock. There is another little moss, Didymodon gemmaceus, occurring only (so far as is known) in three counties in Great Britain, but invariably on thatch just beginning to rot, and capable of holding a limited amount of moisture, but it is found nowhere else. Now, these two latter plants seem to point out in almost speaking manner that the conditions by which their life is bounded are narrow, for they refuse to grow anywhere or everywhere, although two other mosses, Funaria hygrometrica and Ceratodon purpureus flourish almost anywhere and everywhere in the habitable globe. I doubt not, however, that there is a relation between the structure and chemistry of the plants and their life, regulated by laws of which we are ignorant at present, a plant may in one place meet with conditions which do not favour its vegetative growth, and its reproductive growth then develops at the expense of the vegetative or *vice versâ* but the undue development of flowers can scarcely be considered (except by the horticulturist), a sign of the vitality or vigour of the plant any more than the numerous and often beautiful offspring of many consumptive mothers. An instance of the *vice versâ*, is I think, the Horseradish, which I believe never fruits in this country. Some of the conditions of its life are met and it vegetates strongly, but it is like the little moss Œ lipodium Griffithii which fruits freely near the summits of the Welsh mountains, but on the mountains of the Arctic zone barely subsists and produce only gemmæ. At present we are like the doctors of past ages, who gave remedies which relieved or cured, "they did, but they didn't know why;" but now modern chemistry has shown what the action of the drugs was due to, and in a few cases has even proved how the active remedial agents are produced. The gardener has hitherto experimentally found out what suits various plants, but as Professor Huxley intimates, "The gardener doesn't know why the conditions do suit."

I must own I quite agree with Professor Huxley's objection about the word constitution as applied to a plant, just as I object to the term catalytic in chemistry, or catalepsy in pathology. A term like these often blocks the way to further enquiry. I believe in making the conditions of a plant as natural as possible, if you first ascertain carefully what those conditions are. For instance, if the Parsley Fern be planted with a "stone in the middle of the tuft," as some recommend, it does not do so well as if the natural conditions are exactly followed, viz., its roots in water which trickles under the stones. Anyone seeing some of the Australian plants growing in dry sand, and not ascertaining if there is water below, might naturally try to grow the plants in sand, and be surprised at the plants not growing in what was too hastily concluded to be their natural condition.

There appear to me to be conditions in every plant's life absolutely essential to its growth, and others not essential. Two of these I take to be temperature and degree of moisture. These may possibly be connected with the thickness or thinness of the cell-wall, as in the Oleander and Dahlia, or with the ratio between evaporation and absorption, as in the Lilac (where the stomata are said to be 160,000 to the square inch). I feel sure, with Professor Huxley, that the constitution is dependent on certain laws, and that so long as we are content with a word to cover our ignorance of these laws, we shall not investigate them. *X.*

—— Of course, it is to be admitted at once with Herr Max Leichtlin, that "a gardener having a knowledge of plant geography, and the climatology of the various countries of the globe, is more likely to be successful in his empirical work than another who has no notion at all of the above sciences." Those words are self-evident enough; I only believe that they do not take one very far. If I were to put Lilium Washingtonianiumin dry, calcareous soil, or Rosa berberidifolia in a dark overhung spot at the back of my house, or Saxifraga Vandelli in stiff clay on the level, it is certain that the swamps of America, and the sandy stretches of Persia, and the high Alps of the Tyrol, would rise up in judgment against me, and such malpractices would be condemned; but I submit that, with a knowledge by all that, many experiments may still be required before these three plants will be satisfied; and I venture to think that the surprises and mystifications of a garden are so great as to throw one on empiricism more than anything else. I daresay it may result in killing off a lot of valuable things (as Max Leichtlin seems to fear), but one would have gained knowledge of it so as to triumph in the end; so it has been here, I am sure, times without number. One of my greatest pleasures is to see plants growing quietly and vigorously at last, which used to cause me the utmost anxiety and bother. But this has come about only after experiments that were repeated again and again, and over the dead bodies, so to say, of many and many departed friends. I can only speak for myself, and the garden in which I have been working for more than twenty years. I remember when I began to make a collection of plants, and some new thing came into my hands, that I always made a point of questioning it about its original habitat, and I tried to find out from books what its natural surroundings are, and what therefore I imagined it would require. The next thing was to imitate those conditions in the most servile manner possible, and the next following upon that was to see my new possession fading away and perishing before my eyes. This made me think, and I could not help coming to the conclusion that there was a screw loose somewhere, if the expression may be used, which vitiated the proceedings altogether. The next effort was this: I have tried a difficult and heart-breaking sort of plant in several varying ways, and not infrequently it has succeeded in that which antecedently to experience I should have deemed to be the least likely of all. Here was a new revelation, and it led me at once to compare one thing with another, and to look for enlightenment alike in failure and success. If it be true, as Sir Charles Strickland says -and I think it is true—that "not only every species, but every individual plant has a constitution of its own which requires to be studied," it follows from it that incessant watchfulness, very careful comparison, and a sort of mental tabulation of different rates of progress, must be conducive to—or rather it should be said, indispensable for—any cultivator's success. Let me give an instance or two of what I mean. I suppose Mutisia decurrens is admittedly a very troublesome plant to manage; it is apt to look well one day, and it may the very next day be smitten like Jonah's Gourd to the ground. I have seen it at Kew, and then I have seen it not. It has well-nigh broken my heart times without number. When I consulted my books I could get very little more information about it than that it is a native of the Andes and New Grenada. As to complying with its own natural conditions, I might as well have tried to do so if it had been a denizen of the moon. What the whole thing has turned on in my case has been the prosaic matter of drainage. It is, however, rather a difficult one to decide, for too much drainage will dry it up, and starve it in that way, and too little may cause some stagnation of water about the roots, and that is fatal at once. The whole business is one of proportion, and nothing in the world that I can see could have made this plain, but experiment and failure. Intelligence from the Andes would not have been likely to say that a slight elevation of a few inches above the level of the ground is beneficial to this Mutisia in many gardens of England. Or to take another instance of the same sort of thing, only more direct perhaps to the point. Knowing, as everybody else knows, what a study Mr. Churchill has made of the Primulas of the Alps—and how great an authority he is with regard to them—and also knowing that he would be sure to help me if he could do so, I asked him about a year ago before making a rather large rockery for their reception, what hints he could give me regarding any special requirements. I have his very kind letter on the table before me, which gives the view of a most skilled and accomplished botanist. It runs thus in one place, "I should say they do best between pieces of rock, with a minimum of soil for their roots to run into," and I dare say it may be so in the mountains, and this is all my friend had in his mind's eye when he was thinking about them—but then his point of view was not my point of view at all, and I was certain that death and destruction would have waited on them in my arid and burnt-up garden if I had squeezed them in that way. What they want here in my garden—and I speak of none other, for it is the only one I have tried—is a sufficiently retentive soil—and plenty of it to insure moisture in summer. Given only that, and of course shade, so as to make it to be possible, and Primulas do not any longer sigh for the Alps at all. But experiment only has made this plain.

The most forcible illustration, however, which I have to offer of my position comes from the Continent. As your readers are doubtless well aware, one great crux of gardeners during the last few years has been the growth of Clianthus Dampieri with success. It is one of the most magnificent flowers in the world—but, hitherto, it has not been so amenable to culture as could be desired. The reason for repeated failure I believe has been that efforts were only made to reproduce Australian conditions in Europe, and this was found to be impossible. Now, however, the problem has been solved in a very simple manner. A nurseryman at Quedlinberg, near Berlin (Louis Vieweg) grafts Clianthus Dampieri on C. puniceus, and all difficulty is over at once. Clianthus Dampieri was the glory of a garden in Kent last year, and I trust it will be of mine during the ensuing summer. Its splendour is magical. The Dean of Adelaide told me a few days ago of the enchanting prospect he has beheld when a large tract of country was quite reddened with this glorious flower. It is only very certain, however, that Clianthus Dampieri never managed to produce such a wonderful effect by getting itself to be grafted on C. puniceus. The ingenuity of the Quedlinburg nurseryman has done better for it in Europe than any imitation of Nature could have done.

Sometimes it is to be admitted that experiments mock me, and then I am altogether adrift. I have always considered Lithospermum Gastoni to be a difficult plant to establish, and because of that it seemed well to try some three or four plants I lately received in widely different places, so that I might get on with perhaps one or two. But this time there was not a failure among them, and even leaf-mould upon the level seems to be quite as acceptable as the more orthodox and dry calcareous soil on an elevated spot. It is a mystery which I cannot unravel except by throwing myself on the dictum of Sir Charles Strickland, to which I have referred above. These prosperous specimens must have a far hardier constitution than any others which I received before. Instance upon instance might be given where plants seem to lose their proper characteristics altogether. The late Sir George Hutt always used to say that the way in which I grow Rosa berberidifolia with success differs *in toto* from the way in which he used to see it growing in Persia, and I am equally certain that the way in which he saw it growing in Persia would be destructive to it here. I have seen Anemone vernalis growing by the hundred in pure peat at the foot of the vast Glacier d'Otemna; but here it will put up with anything, and is not particular at a'l. Polygala Chamæbuxus purpurea does far better in undiluted leaf-mould than in anything else; but I suppose it never heard of such a thing before all the days of its life, and so one might run on to any amount. Plants seem to me to forget from whence they came, or, at any rate, to think little about it; and assuredly there is very often a fallacy when we think we have translated the conditions of one country into those of another. The prince of all gardeners in Europe says that Tropæolum speciosum (*vide* p. 141) will not grow to the best advantage in a southward position. There can be no doubt at all about that in Baden-Baden, and perhaps in Chili,

from whence it comes; but is he not confusing cause and effect? I submit that what Tropæolum speciosum hates so much is to have its little wiry rootlets dried up; and as bright sunny exposure is oftentimes conducive to that, it so far, but only so far, declines to submit to it; but take it to some very dripping locality, and where the rays of the sun have not the fierce violence which they evince at Baden or in the Isle of Wight, and it will surprise me if Tropæolum speciosum will think much about a difference between a northern and southern situation, excepting that it will like the latter the better. If an inhabitant of the Orkney Isles went to Chili for his servile imitation about this plant, I suspect that he would find out his mistake. But before many weeks are over, I hope to be enlightened about a great many things at head-quarters from Max Leichtlin himself.

With regard to the two instances which Mr. Elwes has given, I have been told—though I have not yet tried it myself—that nothing improves Cypripedium spectabile so much as copious libations of manure-water, but surely it must be innocent of all that in its own native woods, and the best Disa I ever saw was growing in water, though I never heard of its being counted as an aquatic—so elastic was it, however, with regard to this point.

When Professor Meehan of Philadelphia, U.S.A., was last in England he visited my garden, and what seemed to strike him more than anything else was the way in which Cypripedium spectabile succeeds in it. He said "We cannot grow it so well in America."

Now it is certain that no black peat or peat of any sort is used for its sake, and yet according to the American professor there is nothing left to be desired about the matter at all, or, as it might be more strongly put, we can by the aid of experiment grow Cypripedium spectabile much better in this country than it can grow itself in its own home. I have seen precisely the same thing happen with plants in other places. I am sure that Ramondia pyrenaica a few years ago was quite as happy in Mr. Hammond's hands at St. Alban's Court near Canterbury as it is in the Pyrenees.

I know that Mr. Elwes is a most accomplished traveller and botanical gardener, and I wish he would teach me many things; but I cannot help thinking that it is just because he is so well acquainted with the habitats of different plants that he tries to imitate them too narrowly. I suppose it is the totality of their surroundings which is the really important thing that plants have to consider, and perhaps one thing out of gear disarranges and neutralises all the rest. At any rate, I am not much of a believer in a successful imitation of Nature when it goes to great lengths. I think that some empirical adaptation of the means that we have at command to the wants of our plants is more likely to answer—if not at once—yet still eventually it will be so, and the whole business in my eyes comes to this: we must interrogate our favourites by day and by night, month after month, and year after year; it is a matter of sympathy and devotion to their wants more than anything else, and if they do vouchsafe to tell us a little about their desires by a sickly appearance or sudden death, which sends us into mourning at once, or by their radiant smiles which serve only to captivate and delight, we must alter our methods accordingly, trying this and then trying that. We must be ready to change, modify, and improve, we must be bound to no *à priori* conclusions whatsoever, and I for my part humbly throw in my lot with the Director of Kew Gardens, and I think he was quite right when he said that "the conditions under which plants exist in Nature afford very little information for cultural purposes." *Henry Ewbank, Ryde, I. W.*

—— The information afforded by travellers and botanists as to the conditions under which plants live is usually very imperfect, and useless to the gardener. Many botanists are deficient in a knowledge of the conditions of plant life. A well-known botanist held the opinion that Orchids should not be syringed, because he considered the spongy aerial roots to have the faculty of condensing moisture, and his Orchids would have perished had the gardeners not syringed the plants surreptitiously. It was wrong to put Impatiens Sultani in a dry stove (p. 117), merely because it grows in Zanzibar; where it springs up in the rainy season. So the roots of the Narras do not grow in the burning sands—they descend beyond them into moist soil. *A German Professor.*

Trees and Shrubs.

CEDRUS ATLANTICA FASTIGIATA.

M. Carrière, in the *Revue Horticole*, figures and describes a pyramidal form of the Atlantic Cedar, with branches ascending like those of the Lombardy Poplar. It is a seedling, raised by M. Lalande, of Nantes.

PLANT PORTRAITS.

Aërides Houlletti, *Orchidophile*, January.

Cattleya intermedia, var. Candida splendida, *Gartenflora*, January.

Chrysanthemum Rose Laing, *Revue de l'Horticulture Belge*, February.

Datura sanguinea, *Bulletino della Società Toscana d'Horticultura*, December, 1889.

Odontoglossum constrictum, *Orchidophile*, December.

Phalænopsis amabilis, *Revue de l'Horticulture Belge*, February.

Rose Grace Darling T., *Revue de l'Horticulture Belge*, January.

Sobralia xantholeuca, *Revue Horticole*, January 1.

ODONTOGLOSSUM PESCATOREI.

[See Supplementary Sheet.]

The remarkable example of Odontoglossum Pescatorei shown in the Ink Photograph is from the collection of Mr. J. B. Mirrilees, of Redlands, and was grown by his gardener, Mr. George Russell. The flower-panicle measured 4½ feet from base to apex. The first branch of the panicle was 18 inches up the stem, and that and a good many others of its immediate attendants, were also branched; in fact, there were fourteen racemes ranged up the stem, with twenty subsidiary ones from these lateral branches, the complete inflorescence containing 130 blooms! Mr. Russell says he has grown the plant six years; when he got it the bulbs were the size of beans; now they are quite as large as hens' eggs, and large ones, too.

This is an example of cultivation, when one looks at the plant and to surroundings, that begets a certain amount of reflection. Cultivation, as we generally understand it, looking at cereals, or root-crops, or Vines, or Peaches, or Apple trees, or Dahlias, Chrysanthemums, Pansies, or, in fact, most plants grown either for profit or effective display, is largely the work of the nutritive forces presented for root-feeding below ground. Of course, light and sunbeams must be there in sufficient force to aid the underground work in finishing the desired outcome. But here is quite a converse case. The feeding particles in the small area of a 9-inch pot do not of themselves materially aid this, what might be called unique development of blossoms. There are thousands of plants all over the country as well served in that way with fibrous peat, sphagnum, and potsherds; but the outcome of cultivation is not the same, even by approach. Doubtless there are some varieties, as we all know, of many species of Orchids far more floriferous than others, but a panicle of 130 flowers surely is wonderful, even with all our advancing skill, and is something to aim at. It is not a *lusus naturæ*, I maintain, but well considered, well balanced, skilful cultivation.

All plants under glass, and living in a forced atmosphere, are liable to the invasion of a host of insects; in fact, they are as much heirs to troubles of that kind as mankind to the troubles and their complications that they require to endure. Shutting the door against invaders of that kind will help to finish up a first-rate article in the matter of efflorescence, but it will not accomplish the manufacture of such a pseudobulb, and the evolution of such a quantity of flowers, as in this Odontoglossum Pescatorei.

What appears to me to be the potent working element in building up this consolidated mass of matter is the cool, very cool and moist summer temperature. Although O. Pescatorei is a continuous grow throughout the year, it seems to swell up its pseudobulbs in June, July, and August in greater degree than in the other months of the year, only it cannot endure a high or dry temperature during the months that are named; hence why cultural successes are not more general. All these Alpine Orchids, coming from barrancas 6000 to 8000 feet in the Andes of New Granada, live more upon "climate," so to speak, than upon "soil." Mr. George Russell evidently understands this, and his success with that and other species from cool regions is very pronounced, and does him very great credit. *James Anderson.*

A HISTORY OF ENGLISH GARDENING.

(Continued from p. 74.)

Garden-Flowers of the Tudor Period.—The following list contains the names of all the garden plants that are known to have been cultivated in the gardens of the early Tudors. The notes have been taken from contemporary sources, and they are in all cases quoted directly from the authorities named:—

Acanthus.—"Groweth plenteously in my Lordes gardin at Syon." (Turner, *A New Herbal*, 1551.)

Affodil (Asphodel).—"And now I have it in England, in my gardin from Italy. (Turner, 1551.)

Almond.—"Groweth in Italie and Highe Germany in the fields, but in England onely in gardens." (Turner, 1548.) "Some growe in England, but I have hearde of no great store of the fruit of them." (Turner, 1551.)

Apples.—They were sold by costarmongers in the streets of London (Skelton, *Poems*, vol. i., p. 109), and fetched about 7*d.* the hundred (Brewer, vol. ii., p. 1515). Several varieties were known (*Grete Herbal*, see under "Cherye"); but only Costards, Pippins (Roger's *Agric. Prices*), and Queenings (*Henry VIII., R. of P.*, 1520), are named.

Apricots.—Introduced in 1524 by Wolf (see Gough's *British Topography*, vol. i., p. 133). "We have very few of these trees as yet." (Turner, *Names of Herbs*, 1548.)

Artichokes.—Turner (1548) mentions "gardine Artichokes," and they appear to have been extensively cultivated (*Henry VIII.'s P. P. Exp.*, 1533).

Asarum.—"It groweth in England onely in gardines that I wotte of." (Turner, 1548.)

Asparagus.—"In England it groweth nowhere else that I knowe of but in gardens." (Turner, 1548) "Let growe two years and remove." (Tusser.)

Auricula.—They are mentioned under their old English name, "paggles," by Tusser. Two varieties were known—the "grene" and the "yellow."

Barberry.—"Berberis growe wylde in the hedges and woodes in Germany, but in England only in gardines." (Turner, 1548.) The fruit was much esteemed; a present of "Berberis" from "a poore woman" is mentioned in *P. P. Exps. of Henry VIII.*, 1532, p. 258.

Batchelor's Buttons.—Mentioned by Tusser among the common garden plants.

Basil.—"Groweth in England only in gardines." (Turner, 1548.) The plants were grown in pots:—

> "Fine Bazell desireth it may behive lot
> To growe as a Gilleflower trim in a pot."
> Tusser.

Bay tree.—"Bai-trees are common in gardins in the south part of England." (Turner, 1548.)

Beans.—Mentioned by Tusser, and very extensively cultivated in England at this period.

Beet.—"Beetes growe in England, as farre as I knowe, in gardines only." (Turner, 1548.) "This herb is common, and groweth in gardaynes." (Macer.)

Borage.—Mentioned by Tusser among his garden herbs. "Groweth in gardaynes." (Macer.)

Blites (Amaranth).—"I have seen it growing in my Lordes gardines at Shene." (Turner, 1551.)

Bullaces.—Tusser mentions among his orchard fruits two varieties: the black and the white.

Cabbage.—Mentioned in the *Grete Herbal*, and also by Tusser. Turner has a good figure of the plant in his *New Herbal*.

Camomile.—"In Englande so plenteous that it groweth not only in gardines, but also iiij miles above London it groweth in the wyld field." (Turner, 1551.) Macer (1528) says that it "groweth moste in gardines."

Cardo Benedictus (Blessed Thistle).—"Groweth nowhere in England that I knowe, but in gardines." (Turner, 1548.)

Carrots.—"Carrettes growe in all countries in plentie." (Turner, 1548.)

Cherries.—"Of them ben many different manners in taste and goodness as there ben of Pears and other fruyte." (*Grete Herbal*). They were very widely cultivated, and varied considerably in price. In 1525 they were as much as 1*s.* a lb. (Roger's *Agric. Prices*), whilst in 1542 they were sold for under 1*d.* a lb. (ibid.). In 1533 some 100 trees were sold for 6*d.* (*Chapter House Accts.*). Presents of choice Cherries were often sent to Henry VIII. and his household, and there are many entries in his *Privy Purse Expenses* which refer to these. One entry is especially interesting: "1530. 5 June.—Item to the servant who brought a present of Cherries to my Lady Anne from the Mayor of London, vjs. viij*d.*" (p. 48). In the *Privy Purse Expenses of Princess Mary* (p. 159) is one item: "Cherries to make conserves."

Coleworts.—"This herbe is common and groweth in gardaynes." (Macer.)

Coloquintida. "Groweth only in gardines in England." (Turner, 1548.)

Cornflowers, called by Tusser "botles." He mentions three kinds: "red, blew and tawnie."

Cowslips.—Mentioned by Tusser among the garden flowers cultivated in his time.

Cress.—"Growe nowhere but in gardines." (Turner, 1548.) "Sowe with letuse in spring." (Tusser.)

Cucumbers.—"In England groweth only in gardines." (Turner, 1548.) "Plant in April." (Tusser.)

Currants, Red.—"Rybes is a reed bery growing on a lytle small tree." (*Grete Herbal.*)

Cypress.—"Growe in greate plentie in my Lordes Graces gardines at Syon." (Turner, 1548.)

Daffodils.—Mentioned by Tusser.

Daisies.—"Of all sorts." (Tusser.)

Dracunculus.—"Groweth only in gardines in England." (Turner, 1548.)

Eglantine.—"Groweth much in gardines in England." (Turner, 1548.)

Fennel.—"Groweth in gardines in all countries." (Turner, 1548.) Boorde says, "This herbe is seldom used, but its seedes be greatly occupied."

Fetherfew.—Mentioned by Tusser.

Figs.—"There are divers Fig trees in England, in gardines." (Turner, 1548.)

French Broom. "Spartium, a bush called of some gardeners, Frenche Broome. It is found now in many gardines in England, in my lorde's gardine at Shene, and in my Lord Cobham's gardine, a lytle from Graves End." (Turner, 1548.)

French Mallow.—Mentioned by Tusser.

Garlic.—"Groweth in gardines only. . . . Ramsey variety groweth also in gardines." (Turner, 1548.)

Galingale.—"Groweth in my gardine in England." (Turner, 1548.)

Germander. "In England I sawe it nowhere savyng only in gardines." (Turner, 1548.)

Gilleflower.—A very common plant in the early Tudor gardens. "Slippes of Gilleflowers" were purchased in 1533 for planting in the Royal Gardens at Hampton Court. Tusser mentions three kinds—the "red, white, and Carnations," and remarks that they should be "set in spring in pots, pails, or tubs, and planted out in somer in beds."

Gooseberry.—"It groweth only that I have seen in England in gardines." (Turner, 1548.) It was cultivated in some of the Royal gardens belonging to Henry VIII. in 1516. (Brewer, vol. i., p. cxv.) Tusser says, that the bush should be planted in September.

Hollyhock.—Mentioned by Turner (1548), and also by Tusser among the garden plants of the period. The latter author mentions three varieties, the "red, white, and Carnation."

Hysope.—"Groweth in gardines only in England as far as I have seen." (Turner, 1548.)

(To be continued.)

Orchid Notes and Gleanings.

Lælia anceps Dawsoni and its varieties.

I have had an opportunity of seeing a very large number of varieties of the white Lælia anceps in Mr. Holbrook Gaskell's, Mr. A. Heimes', and Mr. George Hardy's collections—not small pieces, as in days gone by, but in reality comparative donkey-loads; and although there are numerous little bits of variety in the way of colour, and in the way of length of segments and breadth of labellum, there is nothing, in my opinion, to warrant such a multiplicity of names, as really they are all more or less forms of Lælia anceps Dawsoni. They are no more entitled to be called Stella, vestalis, Schrœderiana, Sanderiana, &c. —we mean as tending towards clearing up the confusion in Orchid nomenclature—than any variety of anceps itself, or any of the numerous forms of Odontoglots which certainly would not be tolerated unless they were supremely good forms. Of course, every one is entitled to christen his "ain bairn."

The best cultivated and the best flowered plant of them all is at Woolton Wood. It bears seven scapes each five-flowered, and is a gem of the first water, as can easily be conceived, with thirty-five fully expanded flowers upon it. (Is this not the best flowered plant in collections?) This one is named Schrœderiana. Another one, called vestalis, is quite identical with the Schrœderiana, and both were named by the late Professor Reichenbach himself. Of course, with the limited material before him, and the different styles of culture, there might also be slight variety; but there is not the slightest doubt of the two plants being identical, and there was plenty of material to compare with and judge from, being no less than ten good varieties, and in all about eighty flowers. The one named Sanderiana is a much smaller form, has a smaller lip, and is not a form that we can look upon as being equal to those named above, although it has a better and higher coloured blotch in the lip.

It is now well into the end of the third decade since we first flowered and described Lælia anceps Dawsoni, and from that day to this we have never had any difficulty in identifying the plants either in flower, or out of flower. Mr. George Hardy has some very nicely-grown plants from the original stock; he has also a plant—quite a barrow-load, in fact, of one named Schrœderiana—which is identical with Mr. Gaskell's vestalis, &c. Not one of the forms that have come under my observation equals the original one for broad petals—so broad, indeed, as to close well into its sepaline fellow. Its lip, too, is equally characteristic for breadth, and the blotch is much more solid, and better defined than that figured in the *Orchid Album*. The colour of the upper portion of the labellum does not prominently shine through as indicated in that work. Doubtless among the many in commerce we shall have varieties turning up with the form, substance, and general features of Lælia anceps Dawsoni, possibly better, but none yet have come up to the florists' standard of that valuable Lælia. The Schrœderiana form covers a large area, but it wants form, and the solidity of that fine purple blotch that so distinguishes the flower of the one that was dedicated to my late distinguished employer and friend, Thomas Dawson. *J. A.*

Goodyera discolor.

This little Orchid is the gem of the whole family, Ranking with Anæctochilus in the beauty of its leaves (especially if the variety Dawsoniana be included), it has the additional merit of producing very pretty flowers; it is also easily grown. The leaves are of a deep velvety-green above, and of a purplish tinge underneath; they are divided obliquely by a white midrib. The spike is erect, and bears a dozen or more flowers, all the parts of which are pure white except the column, which is yellow, and, together with the lip, is curiously twisted, and in this respect resembling a Mormodes. It may be grown in an ordinary moist stove, potted in peat, with a little sand and chopped sphagnum moss mixed, and freely supplied with water. Propagation is effected by cutting the rooting portion of the stem into lengths. It is now flowering in the warm Orchid-house at Kew.

Epidendrum Wallisii.

There are not many species belonging to the huge genus Epidendrum of which so much can be said in favour as this. It was introduced from New Grenada a few years ago, and has not as yet become common; but as importations continue to arrive, and its cultivation is better understood, it will eventually find a place in most collections. It belongs to that section of the genus with tall, slender, leafy stems, which, in this instance, are 2 to 3 feet high, and rendered distinct by the small black-purple, warty dots with which they are covered. The sweetly-scented flowers are produced from the apex and at the upper nodes. The sepals and petals are of a rich yellow, marked with a few crimson spots; the lip is broad, and fan-shaped, yellow at the base, the greater portion being white, beautifully pencilled with rose-purple lines. The column is of the same rich yellow colour as the petals, and the whole flower measures 1½ inch across. The flowering season of this species extends over several months. A plant at Kew has been in bloom now for a considerable time, and still continues to push forth flowers. It should be grown in the Cattleya-house, potted in peat fibre and sphagnum moss, and kept moist at all seasons. Thrips are very apt to settle in the points of the growing shoots; it is advisable, therefore, to occasionally use tobacco-powder to dislodge them. *W. B.*

A fine Lycaste Skinneri alba.

In the collection of D. Henderson, Esq., Gracemount House, Liberton, Edinburgh, there is in flower a plant of Lycaste Skinneri alba, with twelve spikes, showing thirteen flowers. Is this in any way unusual? Two of the flowers spring from one stem. The flowers are very fine ones. *James Hallett.*

Cypripediums from Liverpool.

The collection of Reginald Young, Esq., Sefton Park, Liverpool, now boasts of over one hundred species and varieties of Cypripedium, and flowers sent show that the culture of the plants is well understood. Specially interesting are two forms of C. Harrisianum×, and two of C. callosum, which go far to demonstrate the wide difference sometimes to be found amongst forms of the same plant. The hairy warts on the upper side only of the petals of C. callosum make a feature which distinguishes it from C. barbatum, and in one of the forms sent by Mr. Young, these are in one flower confined to three bearded warts only, while in the other the warts extend along the whole length of the petal. Two flowers of C. villosum were also very fine, also those of C. Measuresianum× and C. Io grandis×, present those fine hybrids in a good aspect. Sprays of Dendrobium Ainsworthii roseum×, and D. Leechianum×, represent the latter as the better variety; and a curious Odontoglossum Rossii majus, with pale green spotting; some fine flowers of Oncidium splendidum, Sophronitis grandiflora, and Angræcum eburneum are included.

Aërides Vandarum.

I do not remember to have seen noted the exquisite Lily of the Valley fragrance of this species. A specimen of the plant bearing several sprays of pure white flowers, 2 inches in width, is in bloom at Mrs. Brightwen's, The Grove, Stanmore, under the care of Mr. Odell. It is in growth similar to Vanda teres, and its membranous flowers are unlike those of any other Aërides, although the botanical features are those of the rest of the genus. *J. O'B.*

Cypripedium hirs tissimum.

A noteworthy example of this fine old species is now in bloom in the Burford Lodge collection, under Mr. W. White's charge. It has ten flowers on six spikes. Instances of twin-flowered Cypripediums often occur, but four examples of it on one plant is an occurrence of some rarity. *J. O'B.*

Orchids at Glenthorne, Harrow Weald.

The pretty conservatory adjoining the residence of Alfred Borwick, Esq., furnishes an admirable example of the usefulness of Orchids when well grown for arranging with other plants; indeed, the bulk of the display in the conservatory is obtained by the employment of Orchids. In the background is a large flowering white Indian Azalea, with some smaller Azaleas, and the soft-tinted A. mollis; and at the sides are Callas, and plants of Dendrobium nobile, D. Ainsworthii, and D. Wardianum. With these are dozens of fine plants of Lycaste Skinneri, some of the specimens bearing from fifty to sixty flowers; and about thirty plants of the best variety of L. Skinneri alba, of which some half-dozen are still in flower. A double row of well-flowered specimens of Cœlogyne cristata, among which the Chatsworth and Trentham varieties were distinguishable, surrounds the groups, and these again with Maidenhair Ferns, the whole having a fresh and charming effect.

Among the plants in the Orchid-houses, many noteworthy things appear, and especially two specimens of Cymbidium Lowianum, with five spikes each, one with 140 flowers, and the other 108. The Lycastes and Cymbidiums grow to great proportions, which Mr. Gilks, the gardener, attributes in a great measure to the use of "Jensen's Fish Potash Manure" when the plants are actively growing. Apart from this, the Lycastes at Glenthorne are potted in soil of about the same nature as that in which Hyacinths are usually potted. This kind of fish manure has been given to most growing Orchids in Mr. Borwick's collection for some years, and with increasing success. Doubtless many who have tried the substance have erred by continuing its use after the growths of the plants were fully made up. In a cool frame in front of one of the Orchid-houses stood a large batch of Sophronitis grandiflora in remarkably healthy condition, the pans in which the plants were growing being almost hidden by the growths. *J. O'B.*

Orchids at Cheriton, Beckenham.

Orchids are numerously and well grown by H. C. Marks, Esq., at Cheriton, Beckenham, Kent. In the several houses devoted to them a correspondent states there are now in flower Lycaste Skinneri Measureiana, with fourteen flowers; Cypripedium Lecanum superbum has about twenty-four flowers; Dendrobium nobile nobilior is a fine plant, good sized flowers, and well flowered; the plants of D. Wardianum are nearly all of the giganteum type, and are well done by Mr. Cross, the gardener; Odontoglossums are equally well grown, and have a house to themselves; Oncidium Kramerianum is one of the largest as well as darkest flowers, and is a very striking object. Oncidium varicosum Rogersii, the true variety, is another beautiful Orchid. Our correspondent kindly sent a long list of Orchids grown or in flower in Mr. Marks' garden, but as it is wholly destitute of critical remarks, we must demur to its insertion, although it shows that the selection of species and varieties is an excellent one,

Plants and Their Culture.

Miscellaneous Items of the Stove.—Cuttings of varieties of Coleus may be taken and inserted singly or several together in light sandy soil, and when rooted the old plants may be thrown away. Poinsettias in pots, &c., after flowering should be placed on their sides in an intermediate house, and receive no water. Seeds should now be sown of Gloxinia, Begonia, and Impatiens sultani, and the plants from this sowing will be of great use if well grown. A sowing of the Torenias in variety may now be made; these plants are invaluable for filling baskets, or placing in the front of the stages, and they remain a long time in beauty if removed to a cooler house when full grown. Seeds of any kind of stove plants requiring a long time to germinate should be sown at once.

Amaryllis (Hippeastrum) seeds should be sown at this date. The bloom of the earliest Amaryllis will soon be over, and the bulbs should be repotted, very carefully watering them for a time, and giving them abundance of light to prevent the foliage getting drawn. A compost consisting of good yellow loam, a little leaf-soil, and good rotten manure, with a small quantity of coarse sand, should be used, and only a slight shift be given. If several bulbs are together in one pot, it is best to divide them, rather than over-pot. The soil round the bulbs should be made very firm, plenty of space for water being left. Cuttings of the useful Euphorbia jacquiniflora should be put into the propagating bed as early as possible, the old stock plants being kept rather dry for a few days before removing the shoots; I find that doing this prevents the damping off of the cuttings. The cut surface of the cuttings should be allowed to get dry before inserting them. Well coloured young shoots of Crotons, if taken off now, make nice plants; and Dracænas which have lost their lower leaves should have some moss placed round them near the bottom leaves, and be kept moist, when they may be taken off in a few weeks. When rooted and potted off, a little bottom-heat will push them on rapidly. The old stools will produce a number of young growths, which should be taken off and placed singly in small pots in bottom-heat; these will soon strike, and should be grown in bottom-heat for a few weeks. *Geo. Wythes, Syon House.*

Fruits Under Glass.

The Pinery.—Thoroughly overhaul the differen departments, washing the glass and woodwork with soap and water, and the brickwork with a wash of hot lime, in which a little flowers-of-sulphur is put, and give the annual coat of boiled linseed oil and lamp black to bottom heat and other hot water pipes, as a preservative against rust. Destroy with scalding water obnoxious insects and their haunts, these are spiders, crickets, cockroaches, and woodlice. Respecting bottom heat for Pines, there is nothing better than a bed of good Oak leaves and tan, although the renovation of the beds is attended with the risk of too great heating at first. It is this danger which has given rise to the modern system of hot water pipes with less tan or leaves over them, and which ensures to the grower the most complete control over the warmth furnished. Whichever system is adopted, a small quantity of the most decayed portion of the materials should be sifted out and removed, it being replaced by new, in order to secure a lasting heat ranging between 75° and 90°. If a point beyond 90° is reached, "cupping" and elongation of the leaves takes place, which are sure signs that the roots now having their feeders at the outside of the pots are suffering. By way of relief, the pots should be rocked backwards and forwards a few times, holding the plant firmly at the time, which will allow of the escape of some of the heat. The cavities thus formed, should be filled up again with a rake when the heat has subsided to a safe point.

Fruiting House.—Plunge any Queens showing, and those expected shortly to show, fruit at the warmest end of the bed, these being slightly more delicate, and taking less time to mature than the Charlotte Rothschilds, Cayennes, and other large fruits. Press a little turfy loam round the collars of the plants, to steady them; to any that are unduly dry, put some kind of mark, so that it may be known which are those that require more water later on. A practised hand will readily detect this by the weight when handling them. The gentle check caused by replunging will at once cause many plants to show signs of flowering and root activity, and all such should receive copious supplies of warm guano-water, the strength of which may be increased from time to time. With the increase of light, let the humidity of the house increase, and afford the plants a dewing over daily, but beware of filling the axils of the leaves with water. Night temperature 70°, or a few degrees less in frosty or windy weather; day temperature may reach 90°, if a little air be put on early in the day. I prefer to give a little side ventilation, if the air pass over the hot-water pipes, and trust to evaporation by means of the laps of the glass, &c.

Succession-houses may be filled up with plants potted in September last, and treated similar to the above, excepting that a few degrees less warmth be given, especially at night, with a little freer ventilation during the day, to prevent the drawing of the leaves. In potting suckers, give ample drainage, and place the plant on a firm seat, with compost made firm with the potting stick. Rather than detach small suckers from stools, we prefer to await their further growth. Detached, newly potted suckers should be kept humid in an intermediate temperature till rooted. Take care of all approved old stools for stock purposes, discarding any of the narrow-leaved or deteriorated plants, for it is only the healthy suckers which will ever make good plants.

Pot Vines.—Any of these which are now thinned, may be safely urged onward with liquid manure, giving a temperature of 70° at night. Keep a little front ventilation on if the air can be passed over the pipes, and a day temperature of 80° to 90°, with a genial atmosphere. The early permanent Vines will now be in flower, and the house may be kept slightly drier, but do not remove any shoots during the setting of the blossoms. Shake the rods daily, and if Madresfield Court is amongst the Vines, save some of the falling pollen from the Black Hamburghs on a piece of clean paper, for the purpose of fertilising the former. In doing this, first draw the dry hand down the bunches of Madresfield to remove the globules always present. The variety is apt to produce seedless berries unless this be done, but the cracking of the berries is extremely rare when forced early. When the Grapes are sufficiently advanced, and the best placed as well as the best set bunches have been selected, all superfluous clusters should be removed, preparatory to thinning the berries. Ventilate as advised for pot Vines, and maintain a night temperature of 55°, and by day of 65° to 70°. Inside borders must be frequently examined, and if found necessary they should be watered previous to the flowering period with tepid water. The roots are not active enough as yet to take manure water, *W. Crump, Madresfield Court.*

The Kitchen Garden.

Sowing of Seeds.—The uncertainty of the weather at this season of the year frequently delays the sowing of Peas and other seeds. Marrow Peas seldom grow satisfactorily when sown very early in the year, the cause being that moisture and low temperature suspend germination so long that decay ensues, and this is especially the case when the seed is old. If, however, the soil be in good condition, a sowing should be made of Telephone or Marvel, which will form a succession to the first-sown round Peas, and be ready for use early in July. From now onwards, sow the seed in well-prepared trenches, plenty of manure being put at the bottom of these. Peas sown in pots must be kept near to the glass in cold frames, airing the plants freely on fine days. Peas showing above-ground should be slightly protected with Spruce boughs, or have a few crumbs of earth drawn over them; and if slugs are troublesome, dust the rows frequently with lime, soot, and dry wood-ash. Put black threads over the rows, if birds are pecking the plants.

Beans.—A sowing of these should be made without delay, which may consist of Mazagan, Longpod, and Green Windsor. Bunyard's Prizetaker should be afforded a trial, it being a fine pod, and likely to become a favourite with gardeners. Sow the Windsor Beans in drills 2 feet apart, placing each Bean at 6 inches apart in the rows. If double rows are sown, these may be 3 feet apart. For this crop a somewhat strong soil in good heart is the best, *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	FEB. 17	Lilium auratum, and Greenhouse Plants, at Protheroe & Morris' Rooms.
TUESDAY,	FEB. 18	Roses, Greenhouse Plants, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	FEB. 19	Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms. Lilies, Greenhouse Plants, Seeds, &c., at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 20	Imported and Established Orchids, Liliums, &c., at Stevens' Rooms. Nursery Stock from Sample, at Protheroe & Morris' Rooms.
FRIDAY,	FEB. 21	Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—39°.3.

The Royal Horticultural Society.

THE annual meeting of this Society took place on Tuesday last, when the proceedings passed over harmoniously and pleasantly. The meeting was well attended, and no objections were raised to the balloting lists, so that Sir TREVOR LAWRENCE, D. MORRIS, and Rev. W. WILKS, remain as President, Treasurer, and Secretary respectively; while Messrs. E. A. HAMBRO, MARTIN SMITH, and N. N. SHERWOOD become new Fellows of Council in place of Messrs. BOURNE, COLEMAN, and SMEE. Two of the new Councillors are not known to horticulturists, but let us hope will speedily become so. Mr. SHERWOOD is a real acquisition as a business man, familiar also with one very important branch of horticulture. Mr. COLEMAN'S resignation is a loss, but it is not surprising that the distance at which Mr. COLEMAN resides should render it difficult for him to attend. Mr. BOURNE, who hails from no further off than Covent Garden has, we believe, been replaced on the ground of infrequent attendance.

It will be seen that the balloting list emanated from the Council only, and that the Fellows did not exercise their right to nominate anyone on their own behalf. This circumstance suggests the propriety of the Council taking steps, every year, to remind the Fellows of their duties. As it is, the matter is forgotten till it is found that the proper time has passed. Due notice should be given, for it is not possible for the Fellows to remember the precise date at which it is necessary for them to exercise their privilege.

In his Presidential Address, Sir TREVOR pointed out the necessity of increased public support, alluded to the good work done at Chiswick, and at the several Conferences. As an instance of the value of the Chiswick trials, he instanced the reduction of the number of varieties and synonyms in the case of Tomatos from 109 to 39. Experience was not favourable to Chiswick as a place for holding meetings, as the public did not attend. The meetings at the Drill Hall were of a very interesting character, and would be continued in that by no means ideal building until more suitable premises could be found. The thanks of the Society were tendered to the several lecturers at the 3 o'clock meetings, and to the members of the several committees. The Scientific Committee, it was pointed out, comprised no fewer than seventeen Fellows of the Royal Society.

A well deserved tribute was bestowed on the Secretary and Treasurer for their labours on behalf of the Society, and allusion made to the losses sustained by the Society in the deaths of Rev. M. J. BERKELEY, Professor REICHENBACH, Mr. WILDSMITH, and others.

The Treasurer pointed out the privileges which each class of subscribers received in return for the subscription paid, alluded to the condition of the library, and to the improvements effected at Chiswick.

Baron SCHRODER, in a speech of some length, that was most attentively listened to by the company present, told them what in his idea the Royal Horticultural Society ought to be, and ridiculed the idea of it staying much longer at the Drill Hall. Two meetings, he said, had already been called to elicit opinion as to the manner in which money could be raised to build a hall for the Society; and his proposal, which seemed greatly favoured by those present, was, that the Fellows and the outside public should be invited to subscribe £30,000 to £40,000, the Press, the Fellows, and the trade, taking a leading part. The money so raised to be invested, as regards one half, in first-class securities, so as to bring in 3½ per cent.

The interest from the funded money would pay the ground rent; and two years after the completion of the building, repayment by means of bonds would commence. The Society would, in fact, become the tenants of the bondholders, paying for the accommodation afforded £400 a-year.

The scheme was highly approved of, and about £2c00 was subscribed in the room, the Baron heading the list with £1000. It was proposed that gardeners' charitable organisations and other horticultural societies should meet in the new hall, and secure offices there; also that the hall should, as far as was consistent, be put to various uses so as to secure an annual income.

The Baron was in earnest, and his speech not only interested his auditory, but stirred them to something very like enthusiasm. It must, however, before all things, be made clear that the Society, as such, is to be free from any entanglement such as worked such havoc at South Kensington, and this made sure by all means let us have our Horticultural Institute, and infuse a little cohesion among the horticultural units. As to site, the Baron stated that he knew of one, very central, where every city man would see it; but nothing further was divulged on that head. The advantages of the Hall to the City man who cared for Orchids and other plants—and many of them did care,—as a place where he could go and see flowers for such a small sum as the Society demanded was enlarged upon, and it was exceedingly pleasant to hear Baron SCHRODER say how willing he would be to give his services on the committee, act as Trustee of the fund, and do his best to get money from his friends.

Dr. HOGG spoke in favour of the scheme, and was delighted that such a scheme had been unfolded. Other speakers followed in the same vein, and the prospects of securing a fitting home for the Society are decidedly bright.

ROYAL HORTICULTURAL SOCIETY. — Baron Schroder's proposal as to the erection of a suitable Hall for the Horticultural Society met with a warm reception, and in the course of a few minutes, after the meeting was over, and many gentlemen had left the Council room, spontaneous offerings amounting to £2600 were made towards its erection. The following gentlemen promised contributions to the fund:—Baron Schroder £1000, Messrs. F. Sander & Co. £200, Messrs. S. Courtauld, N. N. Sherwood, and H. J. Veitch, each £150; Messrs. P. Crowley, T. B. Haywood, Dr. Hogg, C. Mordaunt Matthews, and H. M. Pollett, each £100; Messrs. G. Deal, John Laing & Sons, G. Paul, H. J. Pearson, T. F. Rivers, and Rev. W. Wilks, £50 each; Messrs. J. Douglas, H. Cannell & Sons, Mr. John Treble, and Messrs. Sullivan, £25 each; Mr. George Bunyard and Mr. Charles Toope 10 guineas, and Mr. Cecil H. Hooper £5.

THE UNITED HORTICULTURAL PROVIDENT AND BENEFIT SOCIETY.—The annual general meeting of the members of this Society took place on the 10th instant, at the Caledonian Hotel, Mr. J. WRIGHT presiding, and there was a good attendance of members. The annual report of the committee stated that the progress of the society during the past year had been most satisfactory, that at the close of the year there were 301 subscribing members, and that this number had been increased to 312 by subsequent elections. The amount of sick pay disbursed during the year was £37 15*s.* 4*d.*, a little more than in the previous year, and this amount had been divided between twenty members; the payments being covered by deductions from members' subscriptions according to the rules. At the present time there are four sick members on the fund, and one death had occurred during the year. The balance in favour of the Benefit Fund is £3478 18*s.* 11*d.*, an increase of £400 during the year. The balance in favour of the Benevolent Fund is £1416 14*s.* 10*d.*, and no call whatever has been made upon that fund during the year just closed. The Management Fund was also in a very satisfactory position, the total receipts from contributions of members and the annual subscriptions of honorary members for the year amounts to £127 15*s.* 10*d.*; the total expenditure under this fund is £106 2*s.* 8*d.*, including payment to the secretary for the year, leaving a favourable balance of £21 13*s.* 1*d.* The treasurer's balance sheet, which is a compendium of the three funds, showed that the receipts from all sources, including a balance in hand of £141 13*s.* 7*d.* amounted to £923 19*s.* 1*d.*, from this had to be deducted the payments to sick members as above; Management Fund £86 2*s.* 8*d.*; sum voted to secretary £20; purchase of £650 stock at a cost of £635 18*s.* 9*d.*, brought the disbursements up to £789 3*s.* 2*d.*, leaving a balance of £134 15*s.* 11*d.* to be carried forward to the ensuing year. The society has now invested in Nottingham Borough Corporation 3 per cent. stock the sum of £4000, and in 2¾ Government stock the sum of £1250, making £5250 in all. It may be stated that the amount received as interest during the past year was £89 9*s.* 6*d.*, and members' subscriptions amounted to £459 2*s.* In an admirable address—not the less to the purpose, or less effective, because it was written—the Chairman moved the adoption of the report and balance-sheet. The basis upon which the Society is founded, and the advantages it offers to members, were set forth in a very lucid and exhaustive manner. The Chairman stated that he had prepared it, not so much for the benefit of that particular meeting, as that it should go abroad to arrest the attention of the gardeners



ODONTOGLOSSUM PESCATOREI WITH 130 FLOWERS.

throughout the country. It is an excellent manifesto from the Society to the gardening community, and the committee would do wisely to print and circulate it in pamphlet form. The motion for the adoption of the report was seconded by Mr. Richard Dean, and carried. Messrs. N. Cole, E. Berry, W. Dickens, and G. Kelf were elected upon the committee for the ensuing year. Mr. W. Collins was re-elected Secretary for the ensuing year, and the sum of £20 was voted to him from the Management Fund for his past services. Mr. J. Hudson was re-elected Treasurer; Messrs. J. George and J. and G. Wheeler as Trustees; and votes of thanks were passed to them, and also to the auditors, Messrs. Green and Dixon. Some conversation ensued as to an offer made by Mr. N. Sherwood, the Chairman of the last annual dinner, to subscribe £25 towards a Convalescent Fund. A resolution was passed referring the matter to the committee to prepare a scheme, and the proceedings closed with a hearty vote of thanks to the Chairman.

National Dahlia Society.—The annual general meeting of the National Dahlia Society was held at the Hotel Windsor on the 11th inst. Mr. E. Mawley, presiding. Among those present were Messrs. H. Turner, T. J. Saltmarsh, W. H. Williams, J. Walker, J. T. West, W. Holmes, A. Rawlings, J. Cheal, J. Tranter, and T. W. Girdlestone, Hon. Secretary. The minutes of the last meeting having been read, the Secretary read the annual report, which spoke of the newly formed Society having passed through a very successful season; the exhibition held at the Crystal Palace in September last having been a remarkably good one; the special Centenary class securing a thorough representative collection of every form and type of the Dahlia. The Centenary Conference was also well supported, and some excellent papers were read. The receipts from all sources amounted to the sum of £160 5*s.* 6*d.*, including £50 given by the Crystal Palace Company. The expenditure was £135 5*s.* 6*d.*, including £125 3*s.* paid as prizes, leaving a balance of £25, carried forward to the present year. The Hon. Secretary reported that he had arranged with Mr. Head that the annual exhibition should take place at the Crystal Palace on September 5 and 6, on the same conditions as in 1889, the company making a contribution to the funds as usual. This arrangement was approved by the meeting. It may be stated that only members of the Society can compete for the prizes offered in the schedule. It was resolved, after some discussion, that the papers read at the Centenary Dahlia Conference in September should be printed and circulated with the report and balance sheet. The name of Mr. John Lee was added to the list of patrons. The Rev. Charles Fellowes was re-elected President. Dr. Hogg, Dr. Masters, W. H. Cullingford, H. Glasscock, J. Shirley Hibberd, and W. Keith, Vice-Presidents; T. W. Girdlestone as Hon. Secretary and Treasurer; and the following were appointed the Committee for the ensuing year—Messrs. W. H. Apthorpe, J. Burrell, H. Cannel, J. Cheal, J. Douglas, G. Gilbert, J. Henshaw, W. Holmes, G. Paul, A. Rawlings, T. J. Saltmarsh, J. Tranter, H. Turner, J. Walker, T. S. Ware, J. T. West, and W. H. Williams. A hearty vote of thanks was passed to Mr. Girdlestone for his services during the past year; who in responding stated that one of the Vice-Presidents, the Secretary, and a member of the Committee had been invited to read papers at the Dahlia Conference, to take place at Chiswick in September next. The schedule of prizes which had been to some extent re-arranged by Mr. Girdlestone, was then considered and passed with a few alterations. It is somewhat extended as compared with previous years, and it now appears to be of a thoroughly representative character. A vote of thanks to the chairman concluded the meeting.

The Late Professor McNab.—An influential committee has been formed in order to raise a memorial fund for the benefit of the widow and five children of the late Professor McNab of Dublin. There are many who will sympathise with this movement, and feel that the family of a distinguished scientific man should not be allowed to suffer from circumstances arising out of a life-long and disinterested devotion to pure science. The Hon. Secretary is Greenwood Pim, Esq., Easton Lodge, Monkstown, co. Dublin, to whom all communications should be addressed.

Royal Botanical Society of Belgium.—Professor von Tieghem of Paris, and Dr. Masters of London have been elected associate members of this society, in the room of Professor Reichenbach and M. Lesquereux respectively.

Linnean Society.—An evening meeting of the above society will be held on the 20th February, 1890, at 8 P.M., when the following paper will be read:—"On the Fruit and Seed of Juglandeæ; on the Shape of the Oak Leaf; and on the Leaves of Viburnum," by Sir John Lubbock, Bart., P.C., M.P., F.R.S., F.L.S., &c.

Antwerp.—The International Exhibition of Geographical, Commercial and Industrial Botany, with which is to be held a general exhibition of all subjects relating to the microscope, announced for the present year, is to be postponed till 1891. M. de Bosschere is President, and Dr. van Heurck Vice-President, and M. Charles van Jeeff the Secretary.

London Purple.—If we suggest that dealers should advertise their wares, we shall at once be considered to have interested motives—well, we have—the following narrative will show why. Our American friends make large use of various preparations of arsenic and other substances for spraying purposes, either for the attacks of insects or of fungi on various crops. We have repeatedly mentioned the fact, and urged our orchardists to adopt the methods employed with so much success in the States. Among other things, we have detailed the use of "London Purple." Some of our correspondents, attracted by our frequent reference to the subject, at length wrote to inquire what was "London Purple," and where it could be had? We knew or surmised it to be an arsenical preparation, and made sure that we should find reference to it in the authorised dictionaries of chemistry and pharmacy. But no! not one word could we find about the substance though it was evidently used on a very large scale. Finding books useless, we appealed to our chemical friends, to scientific chemists of high repute, to manufacturing chemists, to pharmacists, but all to no avail, till at length Mr. Holmes, of the Pharmaceutical Society, was good enough to put us on the right track. But in the meanwhile, finding that in London we could get no information as to "London Purple," we bethought ourselves that there was a London in Canada: and still later we bethought ourselves of our excellent correspondent Prof. Riley, the Director of the United States Entomological Department, and he, with his customary kindness, gave us the information we wanted, adding that Hemingway & Co., of London, aniline dye manufacturers, have given the name in contradistinction to Paris Green, and have established a branch house in New York, the sale of this valuable insecticide being, it is believed, one of their most important transactions. Two reflections occur to us on this story, one is that manufacturers should advertise (in the *Gardeners' Chronicle*, of course—anywhere else they like), the other is, that this is one more illustration of the abominable time-wasting, trouble-giving, truth-concealing nature of "popular names"!

This powder is obtained in the following manner in the manufacture of aniline dyes: Crude coal-oil is distilled to produce benzole. This is mixed with nitric acid, and forms nitro-benzole. Iron filings are then used to produce nascent hydrogen with the excess of nitric acid in the benzole. When distilled, aniline results; to this are added arsenic acid, to give an atom of oxygen which produces rose aniline, and quicklime to absorb the arsenic. The residuum, which is obtained by filtration or settling, is what has been denominated "London purple," the sediment being dried, powdered, and finely bolted. The powder is, therefore, composed of lime and arsenious acid, with about 25 per cent. of carbonaceous matter which surrounds every atom. Experiments which we made with it in 1878, says Professor Riley, impressed us favourably with this powder as an insecticide, and its use on the Colorado Potato-beetle by Professors Budd and Bessey, of the Iowa Agricultural College, proved highly satisfactory. We were, therefore, quite anxious to test its effect on the Cotton-worm in the field on a large scale, and in the winter of 1878—79 induced the manufacturers to send a large quantity for this purpose to the Department of Agriculture. The analysis made of it by Professor Collier, the chemist of the Department, showed it to contain:

	Per cent.
Rose aniline	12.45
Arsenic acid	43.65
Lime	21.84
Insoluble residue	14.57
Iron oxide	1.16
Water	2.27
Loss	4.07
	100.00

Through the liberality of the manufacturers, Messrs. Hemingway & Co., a number of barrels of this powder were placed at our disposal during the season of 1879, and distributed to various observers and agents in Georgia, Alabama, and Texas. Early in the spring of the following year, Mr. A. R. Whitney, of Franklin Grove, Ill., found it to be a perfect antidote to the canker-worms, which had not been prevented from ascending his Apple trees."

Stock-taking: January.—With fearful weather at sea and the present high price of money, we may come to the conclusion that not only are arrivals backward, but that accumulating stocks are being worked up. We are the more inclined to this view from the fact that the exports of foreign and colonial produce show a decrease of £834,607; whilst those of our own produce and manufacture show the splendid increase over the corresponding period last year of £1,059,715. The following is an excerpt from the summary of the imports of foreign and colonial produce for January, 1890:—

	1889.	1890.	Difference.
	£.	£.	£.
Total value of imports	38,058,318	38,143,850	+85,532
§II. (A.) Articles of food and drink—duty free	11,203,681	10,335,301	-868,380
(B.)—do., dutiable	2,182,327	2,257,001	+74,674
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)	11,110,512	11,923,168	+812,656
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,760,078	2,651,310	—108,768
§IX. Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,771,660	1,535,881	-235,779

An evening contemporary inquired a short time since why it was that, towards the close of last year, we had to record a falling off in the supply of Potatos? For instance, there were 22,000,000 visits paid to the Paris Great Exhibition; thus, for months, the consumption of "the noble tuber" in the gay capital must have been enormously in excess of the usual record, and the City netted a good round sum in the matter of *octroi*. The home stocks must have been worked up; also, "vegetables, raw, unenu-

merated," may have been affected by this cause. Then there were disturbances in the labour market here; for instance, at the docks; also a good crop here, and short ones elsewhere. The following extracts from the general returns have their usual interest: —

	1889.	1890.	Difference
§ III. Fruit:—			
Apples, raw ... ... bush.	243,265	201,880	—41,385
Unenumerated, raw ... ,,	11,804	14,410	+2,606
Onions ... ... ,,	340,762	279,255	—61,507
Potatos ... ... cwt.	51,415	15,722	—35,693
Vegetables, raw, unenumerated ... ... Value	£36,834	£34,601	—£2,033

It has been stated by the contemporary before alluded to, that the consumption of Apples is on the decline, it being recorded at the same time that the acreage in fruit trees in this country has risen from 90,000 in 1839 to 214,000 in 1889. The statements do not prove the sufficiency at one time and insufficiency of supply at another. Possibly, as with Potatos, so with Apples, and that next season foreign crops have already to some extent been looked after by speculative financiers. In future, as our trees are better grown and the fruit better marketed, we may not be so dependent on the States and Canada for our supplies. More labour might possibly be profitably bestowed on the soil were the conditions of holding land different, and the labour market not so much disarranged as it is. Perhaps the German Emperor and his advisers will be able to excogitate a remedy for labour disquietude less open to question than that of supporting one industry at the expense of all the others.

The Mildness of the Season in the Far North.—The weather has been hitherto unseasonably genial, bringing into flower many plants which really belong to the spring months. The following twenty different plants have flowered, says Mr. J. Webster, in the open air at Gordon Castle, Banffshire, since January 28th: Scarlet Rhododendron, in flower; Rose Safrano, from a south wall has given flowers for cutting throughout the winter; some H. P. have done the same; Berberis Darwinii, Mahonia Aquifolia, Clianthus from a south wall is showing flower trusses; Campanula cardinalis, Scarlet Trumpet Honeysuckles has flower trusses; Summer Franc Real Pear is in bud; Schizostilis coccinea, Pyrus japonica, Escallonia rosea on a south wall; Geum coccinum, Arabis albida is in bloom on the rock-work; Anemone palustris, Anemone double Pink, and Heath in a border; Filbert, with both catkins and flowers open; common Alder, the catkins, just opening; Apricots are in blossom on an open wall with a south aspect; various Primulas are in bloom. The Apricot was one day later than it was in 1874, February 7, and that was the earliest in Mr. Webster's record of these facts, which he has kept for thirty years.

New Zealand.—We have received an interesting pamphlet, containing two addresses by the President of the Chamber of Commerce in Canterbury, New Zealand, given in the years 1886 and 1889, which by comparing the condition of the colony in these years, satisfactorily shows that New Zealand in the intervening period made material progress in everything that conduces to the prosperity of a British colony.

Agave rigida.—The abnormal prosperity which Yucatan is enjoying is entirely due to the successful culture of the "Henequen," or, as it is generally termed, the "Sissal" plant of commerce, which yields one of the finest varieties of hemp extant. The population of the whole Republic of Yucatan does not exceed 3,000,000 souls, but the value of the "Sissal" crop annually exported exceeds 10,000,000 dollars. There is an unlimited demand for the article in Europe, as well as in the United States, where it fetches from £50 to £55 sterling a ton. The plant, we are told, is indigenous to the country and grows wild. It is easily propagated, and will thrive in the worst soil. In fact, it does best in rocky and impoverished ground, where nothing else can be grown, and in such situations it yields the best fibre. It cares nothing for drought; cattle have an objection to it, and avoid the spots where it grows. It suffices to dibble in the young plants in any barren and exposed plot of ground. Three years after planting, the leaves are large enough to furnish a supply of fibre, and then the plant yields abundantly for fifteen or twenty years. The produce of an acre of land is estimated at 1000 lb. to 1200 lb. of clean fibre, and the money value of this produce is estimated by a Jamaica planter, who has spent several years in growing Sissal in Yucatan, at 80 dollars or £16 sterling. But if all this information is correct, why should not an attempt be made to cultivate the Sissal in India? Everybody cannot emigrate to Yucatan to try his fortune there; so it would be preferable to begin by trying if Sissal cannot be acclimatised in India. The climate is not dissimilar, and there is a fine area in the Sonthal Parganas where an experiment might be made on the rocky, barren, and exposed soil which the Sissal is said to love in Yucatan. According to Mr. Baker, the three plants yielding the Sissal Hemp of commerce are varieties of Agave rigida. Full information respecting this hemp has been published in recent numbers of the Kew *Bulletin*, a note embodying all known on the subject appeared in one of the earliest numbers, No. 3, for March, 1887, and additional notes as recently as March and again in October of the past year. It may be as well here to quote the Kew *Bulletin* for March last as to the prices for Sissal:— "The market value of this class of fibre, and the permanency of demand for it, has been fully investigated at Kew, and in a note on p. 3 of the Kew *Bulletin* for April, 1887, there is a summary furnished by Messrs. Ide and Christie which gives the average price per ton for Sissal Hemp in London for the years 1879-86 inclusive. The highest price paid was £32 10s. in December, 1879, to February, 1880; the lowest price was £17 15s. in January and February, 1886. *Proc. Agri-Horticultural Society of India.*

Dinner-table Decorations.—At a dinner recently given in Washington, a space in the centre of the table nearly 40 feet long and 8 feet wide was sunk, so that the 600 Ferns in pots with which it was filled rose but a short distance above the table-cloth. Numerous small electric lamps were scattered under the Fern fronds—no other lights being used in the room—and the effect is described as charming.

Apples and Climate.—Mr. Joseph Cheal, of Crawley, Sussex, in replying to some strictures on the English climate in the *Times* of January 20, said, as to the suitability of our climate, with all its failings, for Apple culture, the following figures may interest some of your readers as to the crop taken from one Apple tree during a period of ten years. The facts I know to be correct, as they were furnished me by a friend of mine, an Essex farmer, who planted the tree himself in November, 1871. The variety of Apple was the "Warner's King," and the form of tree pyramidal. Crop the first year, three large Apples.

1873 crop	1½ peck	1879 crop	6 peck
1874 ,, ...	2 pecks	1880 ,, ...	5 ,,
1875 ,, ...	4 ,,	1881 ,, ...	1 ,,
1876 ,, ...	6 ,,	1882 ,, ...	5 ,,
1877 ,, ...	7 ,,		
1878 ,, 2 or 3 Apples		In 10 years ...	40½ ,,

These were sold in Chelmsford at an average price of 1s. 6d. per peck. The tree occupies a space not exceeding 4 square yards, or at the rate of 1210 trees per acre. This is a result which, I think, will compare favourably with any foreign country. Another writer in the same issue, Mr. E. Bartram, said on the subject of bees and orchards:—"My own idea is that we ought to produce early Apples grown on 'feathered bushes,' as they are sometimes called in Kent. These bushes should be on the broad-leaved Paradise stock, to dwarf the trees and bring them into early bearing. Amid these bushes, at no great intervals, hives of bees should be placed so that the blossoms should be properly fertilised. No fact is more clearly established than the fact that the annual crop of Apples depends in a very great degree upon the bees. If the weather be wet, and the bees are not close at hand to fertilise the blossom, there will be no crop. Mr. Dance, of Gosfield Hall Gardens, Essex, one of the best gardeners in Essex, keeps hives of bees dispersed through every part of his gardens. His returns from sales in London are astonishing. I, too, have found my fruit sell so well that I am planting largely; but I cannot do without the bees. They fertilise my blossoms and produce me honey. Honey, too, is becoming more and more valuable. No food is equal to it. It is so scarce now that it can scarcely be purchased. A clerical friend of mine has received more than £100 for his honey this year."

Hybrid Caricas.—The hybrid Caricas raised by Mr. Van Volxem have now fruited in various places. It was anticipated that one of them might prove hardy in South-west Ireland, but we learn from Mr. Gumbleton, to whom we sent seeds for trial, that this has not proved to be the case.

Epping Forest.—Epping Forest is popularly supposed to have now become absolutely the property of the public; but Sir Thomas Fowell Buxton tells us that there are 749 commoners who have a right to feed cattle there, besides 211 persons on its borders who turn out their cattle without any right at all. Somebody or other, moreover, with or without right, is exercising the privilege of digging gravel within the Forest boundaries, and, what is worse, exercising it so recklessly that masses of rough clay are left on the grass, and trees are so undermined that they fall to the ground. It seems strange (observes a daily contemporary), that the verderers cannot put a stop to these practices. As to the cattle, we are told that only eighty-six out of the 749 commoners practically use their right. On the other hand, the interlopers number no fewer than 211. Sir Thomas Fowell Buxton mildly expresses, on the part of the verderers, a desire that those who have no right to make use of the Forest in this way will "not use too freely that which does not belong to them." It would be more satisfactory to learn that some equitable mode has been found of extinguishing rights which do not appear to be much valued, and of bringing those who have no rights at all to understand that the Forest is not theirs.

Forced Narcissus.—At a meeting of the Birmingham Gardeners' Association on the 4th inst., Messrs. Hewitt & Co. contributed some pots of Narcissus maximus, General Gordon, and Henry Irving, and showed plainly what beautiful objects they are at this early period of the year especially, and are so easily got into bloom. Maximus is a very fine variety for this purpose, and Horsfieldii and others are also available.

Salsolaceæ. — The unwearied Baron von Mueller has commenced the publication of a series of illustrations of the Australian Salsolaceæ. They are not remarkable for beauty, but are of much importance as furnishing food for herds and flocks in the dry "salt bush" country.

Rose Hedges. — About ten years ago, says *Garden and Forest*, the Austro-Hungarian government planted the sides of a very exposed stretch of railroad, nearly a mile and a half in length, with hedges of the Provence Rose. The hedges have since reached a height of about six and a half feet, and a breath of half as much, for it is a peculiarity of the Provence Rose to interlock its branches and twigs. A living wall has thus been formed which effectively

protects the tract from snow-drifts, while a neighbouring stretch, where the Rose could not be planted, is so deeply buried at every snow fall that it costs much labour to clear it. The first cost was very small, and it is believed the hedges will live for thirty or forty years.

CHRYSANTHEMUM EXHIBITION AT GHENT.—We have received the programme of the exhibition to be held in Ghent, under the auspices of the Société Royale d'Agriculture et de Botanique, from November 16—19 next ensuing. Foreigners are invited to compete. The schedule contains fifty-two classes, besides several for miscellaneous exhibits of a decorative character. M. A. L. ROSSEEL, Ghent, is the Secretary.

EXCHANGE IN GARDENERS.—It will be admitted that much of the good influence of the natives of these islands in all parts of the globe has been due to traits and characteristics which have been secured to them in great measure by their isolation from the rest of Europe by geographical position; but there are as usual corresponding disadvantages, which would by means of fuller intercourse with our near neighbours on the Continent in a measure disappear, and to few would this desirable consummation be so acceptable as the private and commercial gardeners of this country. The following letter from the Société Française d'Horticulture de Londres, whose office is at 27, Gerrard Street, Shaftesbury Avenue, points the way in which this mutual benefit may be conferred on those who desire it. "A society of French gardeners in England was some time ago formed, with the object of establishing cordial relations between the gardeners in France and their English confrères. The results obtained up to the present are highly satisfactory, for young men have already been placed in both countries. Believing that many English gardeners are desirous of sending their sons to the Continent to learn the different modes of culture, &c., practised there, while we know that many French nurserymen and gardeners are equally anxious to send their sons to England, we decided in our last meeting to proceed by way of exchange. The society would thus undertake to place in France an English young man provided that some one would take in exchange a young Frenchman."

SCOTTISH HORTICULTURAL ASSOCIATION.—This Society held its ordinary monthly meeting on the 4th inst., in 5, St. Andrew Square, Edinburgh, Mr. D. P. LAIRD, Vice-President in the chair. The business before the meeting was chiefly the consideration of the schedule for the Chrysanthemum Show to be held on Thursday, Friday, and Saturday, the 20th, 21st, and 22nd November next, in the Waverley Market, Edinburgh. "Proof" copies of the schedule which had been prepared by the show committee were on the table, and Mr. MCKENZIE, Treasurer, pointed out the leading features of the projected competition to the meeting. The total amount in prizes offered is about £300, but this it is expected will be increased by extra prizes which will be embodied in the final schedule, which will be issued a few weeks hence. Meantime, intending competitors may have the "proof" copy forwarded to them on applying to the Secretary, Mr. ROBERTSON MUNRO, 6, South St. Andrew Street, Edinburgh. The schedule is got up on most liberal lines, as may be judged of by the following:—For "The Edinburgh Prize," forty-eight blooms Japanese, £40 in five prizes is offered, the first being £20, the fifth £2. The winner of the "Scottish Challenge Cup" will this year receive £5 in cash along with the honour, and less fortunate competitors in this class will also be substantially rewarded, as there are three good prizes besides the first prize. Twenty pounds in four prizes are offered for the best eight bunches of Grapes, and £10 are offered for the best collection of vegetables, consisting of thirteen varieties. These are several of the leading prizes, but throughout the schedule is marked by the same liberality in every class. The only exhibit on the table was a bunch of blooms of seedling Helleborus niger which were tabled by Mr. YOUNG, teacher, Fettes Row, Edinburgh, who has for some years been endeavouring to improve the Christmas Rose by intercrossing the more marked varieties. The flowers exhibited were said to be from the progeny of a cross between H. n. major and H. n. augustifolius. They were very fine, but hardly distinguishable from perfect blooms of either of the alleged parents.

INTERNATIONAL HORTICULTURAL EXHIBITION AT BERLIN, APRIL 25 TO MAY 5, 1890.—We have received from Professor Dr. WITTMACK, general secretary of the Horticultural Society of Berlin, the following announcement, that the opening day of this exhibition is rapidly approaching, and the preparations for it are progressing satisfactorily. His Imperial Majesty the EMPEROR, on the recommendation of His Excellency HERRN FREIHERRN, Dr. LUCIUS VON BALLHAUSEN, Minister for Agriculture, Forests, &c., and Honorary President of the Exhibition, will give the Large Golden State Medal for horticultural productions to the contribution which shall be considered the most excellent. The Minister, in view of the great extent of the exhibition, has moreover sanctioned the awarding of eighty State Medals. All the State as well as several of the private railways of Germany, promise to afford free transit to all goods not sold at the exhibition. The Farmers' Club of Berlin, besides other associations previously announced, will give a Prize of Honour of the value of 100 marks. Architects and gardeners are alike striving to make the exhibition as magnificent as possible, and one decorative group, which will occupy 300 square metres, is already announced. Programmes may be obtained on application to the General Secretariat, Invaliden Strasse 42, Berlin. The latest date on which announcements to exhibit can be received is March 1. In conjunction with the exhibition there will be a Congress held of German lovers of lawns, and announcements to compete in this section must be sent to HERRN SPRASSHEIM, in Sachsenhausen, Frankfort-on-Maine. In connection with this exhibition, already referred to, illustrations of the geography of plants under the superintendence of Professor ASCHERSON, will be displayed, and other branches will be represented as follows: Physiology, Dr. FRANK; Seeds, Assistant Professor HENNINGS; Morphology and Development, Dr. KNY; Fungi, Dr. MAGNUS; Soils, Dr. ORTH; History and Literature of Gardening and Botany, Dr. SCHUMANN; Official and Technical subjects, Dr. ISCHBURG. Dr. WITTMACK informs us of the intention of the eminent firm of MM. VILMORIN-ANDRIEUX, & Co., Paris, to take part in the exhibition; also Mr. BLAIR, gardener to the Duke of SUTHERLAND, Trentham; and F. SANDER & Co. St. Albans. The examination of all packages liable to surveillance under the Phylloxera laws in force at Berlin, will take place within the show buildings—a concession due to the efforts of Prince BISMARCK.

L'ORCHIDÉENE.—The last meeting was held on February 9, and was remarkable for the fine display of Cattleya Trianæ, Cypripedium, and Odontoglossum. The following awards were made:—

First Class Diploma of Honour to Cypripedium Warocqueanum, from M. G. Warocqué; Dendrochilum glumaceum var. validum, from M. E. Wallaert; Lælia anceps var. Lindeni, from M. J. Hye-Leysen.

Certificates of Merit, First Class, to Odontoglossum Pescatorei var. Lindeni, from M. G. Warocqué; O. Rossi var. maximum, from M. Linden; O. Wilckeanum var. albens, from M. J. Hye-Leysen; Dendrobium Wardianum var. giganteum, from M. Linden; Cattleya Trianæ var. Hyeana, from M. Linden; Cypripedium Godseffianum, from M. Vervaet; C. villosum var. albo-marginatum, from M. E. Wallaert; Odontoglossum crispum var. guttatum, from M. J. Hye-Leysen; Cattleya Trianæ var. Baillonville, from M. G. Miteau; C. Trianæ var., from L. E. Wallaert; C. Trianæ var., from M. J. Hye-Leysen; C. Trianæ var. from M. Vervaet.

Certificate of Merit, Second Class, to Odontoglossum sulphureum, from M. G. Warocqué; O. mulus, from M. J. Hye-Leysen; O. crispum var., from M. Linden-Cypripedium Barteti, from M. Vervaet; C. barbato; Veitchii, from M. G. Miteau; C. lævigatum var. platytænium, from M. Hye-Leysen; Cattleya Trianæ var. pallida, from M. Linden; C. Trianæ var., from M. Vervaet; Cœlogyne Lemoineana, from M. G. Warocqué.

Cultural Certificate, First Class, to Lælia anceps, from M. G. Warocqué.

Cultural Certificate, Second Class, to Cypripedium Boxalli, from M. G. Miteau; Maxillaria luteo-alba, from M. Linden.

BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.—By JAMES BRITTEN, F.L.S., and G. S. BOULGER, F.L.S., extracted from the *Journal of Botany*:—

"MARTYN, Rev. THOMAS (1736?—1825): b. Chelsea, 1736?; d. Pertenhall, Cambridge, 3rd June, 1825. Son of preceding. B.A., Camb., 1756. M.A., 1759. B.D., 1766. F.R.S., 1786. F.L.S., 1788. Prof. Bot., Cambridge, 1762. 'Plantæ Cantab.' 1763. 'Catal. Hort. Cantab.' 1771. 'Flora Rustica,' 1792—94. Edited Miller's Dictionary, 1803—1807. Pritz. 207; Jacks. 378; R.S.C. iv. 270; Gorham; Nich. Anecd. iii. 156; Nich. Illust. v. 752; Gent. Mag. xcv. ii. 85; Journ. Hort. xxi. 1876, 76, with portr. Painting by Russel, engr. by Vendramini, 1799, in Thornton's Botany, also engraved by Holl, 1799. Copy at Kew.

"MASSON, FRANCIS (1741—1805 or 1806): b. Aberdeen, Aug. 1741; d. Montreal, Dec. 1805, or Jan. 1806. F.L.S., 1796. Gardener. First collector sent out from Kew. To the Cape, 1772—1773; the Canaries and Azores, 1778; the Cape and interior, with Thunberg, 1786—1795; New York and Montreal, 1798. 'Stapeliæ novæ,' 1796. Rees; Pritz. 208; Jacks. 144; [R. S. C. iv. 279, but by error]; Journ. Bot. 1884, 114, 141; 1885, 227; 1886, 335; Smith Lett. ii. 117, 183; Linn. Letters, ii. 559; Gard. Chron. 1881, ii. 333; Cott. Gard. viii. 286; Phil. Trans. lxvi.; Loudon, 'Arboretum,' 83. Plants and drawings in Bot. Dept., Brit. Mus. Oil portrait at Linn. Soc. *Massonia* L.

"MASTERS, J. W. (fl. 1838—1848). Head Gardener, H.E.I.C. Garden, Calcutta, to 1838. 'Calcutta Flora,' Agric. Soc. India Trans. vii. (1840); 'Flora of Naga Hills,' Journ. Asiat. Soc. Bengal, xiii. 1844); 'Plants of Upper Assam,' Agric. Soc. India Journ. vi. (1848). Plants at Kew. R. S. C. iv. 280.

"MASTERS, WILLIAM (1796—1874): b. Canterbury, 7th July, 1796; d. St. Peter's, Canterbury, 26th Sept., 1874. Nurseryman. Founded Canterbury Museum, 1823. Hon. Curator, 1823—1846. 'Hortus Duroverni,' ed. 3, 1831. Hybridised Passion-flowers, Aloes, Cacti, &c. Had garden arranged on Natural System. Gard. Chron., 1874, ii., 437. Bust by Weekes in Canterbury Museum.

PRIMULA SINENSIS.—Some very pretty flowers of the above plant in various colours have reached us from Messrs. J. H. Veitch & Sons, Chelsea, the flowers of good form, and colours mostly very decided, and of considerablerange. A few were what might be called semi-double varieties, the colours being rose-pink and red.

MR. GEORGE W. YOUNG.—This name will be recognised as that of a recently elected pensioner on the Gardeners' Royal Benevolent Institution—a pension he has not lived to receive. He was a most earnest, competent, and industrious gardener, as expert in growing specimen Heaths and hard-wooded plants as in producing high-class Grapes and vegetables. Mr. YOUNG was for several years gardener to the late Viscount BARRINGTON at Beckett House, Berks, and subsequently became gardener to the late Duke of Buckingham at Stowe. While at Beckett he perhaps grew the fickle but beautiful Lisianthus Russellianus better than it has been seen elsewhere, some of his specimens bearing from 500 to 700 handsome blooms. After leaving Stowe he went into business, but lost rather than gained by the change, and eventually returned to work in nurseries and gardens. *Journal of Horticulture.*

PENTSTEMON MENZIESII VAR. SCOULERI. (Fig. 33.)

The above charming North American plant comes from the Cascade Mountain range of the North-west, above Lytton, and is a woody, evergreen perennial, with large purple-violet flowers, which appear in the manner common to most of the Pentstemons. The plant, coming from an altitude of 5000 feet, is well calculated to withstand the utmost cold experienced in this country. Although in like manner to many other alpines, which at home are covered with snow during the winter season, and suffer during our much milder winters if uncovered, this plant will be much safer if it be afforded a mulch of leaf-mould, fine coal-ashes, &c., at the approach of winter. We are indebted to the kindness of Dr. Dieck, of Zoeschen, Germany, for being enabled to figure the plant—the plant being amongst the novelties on sale at that nursery.

FLORISTS' FLOWERS.

CINERARIAS.

The improvements effected in Cinerarias is little short of marvellous, the flowers having increased in diameter to 3 inches, whereas it was usual to have them only half that size, and the habit of the plants is much better than it used to be. The heads of bloom, although large, are not coarse, and the petals broad and well-defined, and of great substance, and of beautiful marking, and the selfs are of rich and varied colours. Not only had this advance been made in the single-flowered varieties, but the double-flowered varieties have improved. These are doubtful gains to the gardener, although they may be useful for bouquets, and to make variety, and last much longer in the cut state. To perpetuate these, and any single-flowered variety which shows merit, take care of the plants after they have flowered, and encourage them to make side-shoots, which may be done by turning them out of their pots, and planting them pretty close together in leaf-soil, and sufficiently deep to just cover the ball. This will cause them to make fresh root and growth, and as the suckers throw up, they strike into the leaf-mould, and may then be taken off ready rooted and potted. To slip them off from the crowns without injury is better done with a knife, giving a downward cut, and raising the lower end. After a sufficient number of suckers have been taken, the whole root may be taken up, and the side-shoots pulled off, and repotted at once in small pots, and stood in a pit or frame kept close for a week, and where they can have a little warmth, and plenty of atmospheric moisture. Where it is wished to save plants for seed, the stock should be gone over as soon as they come into bloom, and the best selected, and placed apart from the others while the flowers are setting; and as the pollen is carried from one to the other by the air, and insects or bees, it is as well to net the plants over. Most of the nurserymen have fine strains of Cinerarias, some of them being specially noted for their superior breeds, and seed can be obtained from them at a reasonable rate.

The time for sowing depends entirely on the season the plants are wanted in bloom, but as they are generally liked early, the first sowing may be made this month, a second towards the end of March, and the third, and final, a month later, which will keep up a succession till late in the spring. In filling a seed-pan, let it be well drained, and finely sifted leaf-mould and loam, in equal proportions, adding a sprinkling of sand to it, and press it down firmly and evenly. Then water the soil with a fine-rosed pot, and after the pan has stood a short time, the seed may be scattered thinly, and a slight portion of silver sand sifted over it. If the pan is then covered with a sheet of glass, and stood in a warm house or frame, the seed will soon germinate, when the glass should be tilted for a day or two, and then removed, the best situations for the plants afterwards being a light shelf in an intermediate stove. When they have been pricked off into pans or boxes, put them into a frame which has gentle heat from fermenting material, or failing that, any pit or light house where there is artificial warmth and moisture. An ordinary garden frame stood in a partially shaded situation on a coal-ash bottom, with its back to the sun, will be the best place for growing them in the summer months. The plants should be frequently sprinkled and afforded full ventilation. The night dews are very beneficial, and when the weather is favourable, the lights may be taken off the frame at night and at others be tilted, remembering that a close atmosphere in the frame will cause mildew. To prevent any check during the plant's growth, it is necessary to repot the plants before they get potbound; 7 or 8-inch pots are quite large enough for the strongest, and 6-inch for the rest. The soil most suitable for Cinerarias is fibry loam, leaf-mould, and a little mild, very rotten manure, in which mixture they should be potted firmly, and immediately well watered to settle the whole. As the plants are very subject to green-fly, it is necessary to keep a close watch on them, and to fumigate now and then, even if no insects are seen; but it must be done with care, as they will not stand much smoke, and a safe way is to give them a whiff at night and again in the morning. Cinerarias are also sensitive to frost, and though a low temperature suits them best, they quickly show the effects of the glass running below 32°; but anywhere a few degrees higher than that and 45° is safe for the winter. *J. S.*



Fig. 33.—PENTSTEMON MENZIESII VAR. SCOULERI: COLOUR OF THE FLOWERS PURPLE-VIOLET.

THE HARDY FRUIT GARDEN.

Borders for Wall Fruit Trees.—It cannot be too strongly impressed on the minds of those who crop their fruit borders heavily with vegetables, that the fruit trees sustain great loss. It is not uncommon to see permanent plants growing almost at the foot of the fruit walls, and the heavy dressings of manure afforded the soil to grow good vegetables causes the trees to throw out strong wood, and at the expense of their fertility.

The Mulberry, although grown in most gardens, is not as a rule pruned and cared for, but is left to grow as it will, but these trees should have their chief branches thinned out, and other smaller ones spurred in. Under this mode of treatment it is surprising what a large quantity of fruit a standard tree will produce, and the size of the fruit at the same time is improved, so that it becomes a useful dessert fruit, and one whose flavour many persons enjoy. The Mulberry is an ornamental tree of some value in the pleasure grounds, when it is grown in the kitchen garden or orchard; turf should be laid beneath it, and kept closely mown about the time the fruit is ripe.

Quinces and Medlars should be pruned and mulched; these often neglected trees will repay any extra attention. Strawberries should be heavily mulched between the rows, and lightly over the plants; and on no account dug between the rows, but weeds cleared off with a hoe and rake, and very lightly point the ground, giving a good sprinkling of soot, then follow with the mulching. Where the planting of new Strawberry beds could not be done in the autumn, the ground should be got in readiness now, by trenching it as deeply as it is advisable to do so, supplying at the same time plenty of manure, most

of which should lay about 1 foot from the surface; if the surface consists of old garden soil, with some good yellow loam below, it will be desirable to turn some of the latter nearer to the surface, which will tend to prevent the plants from growing too much to leaf, instead of forming flower-stems. *A. Evans, Lythe Hill, Haslemere.*

The Orchid Houses.

East Indian House.—The need for shading this house was demonstrated early in the month by the sun shining brilliantly out, and country growers who were caught napping would be caused some inconvenience thereby, as Phalænopsis dislikes strong sun shining directly upon them at any season of the year. With the increase of warmth and light, moisture in the house may be slightly increased, but this must be done with caution, as cloudy weather is almost certain to return shortly. Saccolabium bellinum, now coming into flower, is a curious and pretty Orchid, which does very well in this house, should be hung up as close as can be done with safety to the top ventilators, and never made too wet, or the tips of the leaves will certainly "spot."

Calanthe Masuca and C. veratrifolia are now growing strongly, and where the plants have filled the pots with roots, weak liquid manure may be afforded them with advantage, and if made of guano it may be applied with safety at the rate of 1 oz. to 1 gal. of water; soot may be applied to the surface of the soil before watering. I do not advise this to be given at every watering, but alternately with clear water. A little tobacco smoke may now be applied to the plants in the different departments. Tobacco-smoke is certainly very injurious to some plants, while others do not seem to be the least affected by it. For, say, a house 30 feet long, it should have just sufficient smoke given that the end opposite to that at which the operator stands is not quite obscured. Under this condition I have never known any plant to be injured by it, if the foliage was comparatively dry when the fumigation was done. Fumigation is most inimical to thrips and yellow aphis. Saturday being usually the day when watering is done, the plants are the driest on Friday night, and that is when we do our fumigation. Temperature of this house the same as advised for last week.

Cattleya House.—With the advent of February, we are reminded to push on with Cattleyas and Lælias which require to be repotted, and the advancing season will bring daily accession in airing, shading, &c., and less time will, therefore, be found for doing that later on, which should have been done now. I should like to say that I believe it to be bad policy to let any plant stop in the same pot for more than two years, so it will readily appear how important it is that the work of repotting should not be delayed. To the list of plants given in last week's calendar I may add Cattleya Gaskelliana and C. Mendelii, if late flowering; also Lælia autumnalis, L. albida, L. Gouldiana, &c. Temperature the same as given in our last.

Intermediate-house.—This house is now gay with Cœlogyne; every amateur who has an Orchid-house or warm greenhouse has not got the right plants if Cœlogynes are not included, and they are within the reach of everyone. The pure white variety, which is still rare, and is later flowering than the type, must not have too much water now, or the spikes will damp off. Cymbidium Lowianum now throwing up spikes will be assisted if guano-water be afforded in the same manner as advised for the evergreen Calanthes. Pleiones which are now growing fast, will be assisted by overhead syringing every fine morning, and which will keep the plants free from red-spider—a pest to which they are rather addicted when kept dry. Oncidium sarcodes now coming to flower must not be allowed to become dry at the root, this being a plant that suffers more or less from flowering, according to the size of spike. I do not like the plan of tying the spikes around three sticks, the flowers do not then show themselves to the greatest advantage. I like to have them hung close to the roof, the flowers then all hang down, and present a much better appearance.

Dendrochilum glumaceum, now pushing up growths and spikes, must be well supplied with water. This species does much better when grown in this house, as do also it congeners, D. filiforme and longifolia. Cattleyas Dayana, marginata, and Lælia præstans, should be kept moist, and be also afforded not much potting material about their roots; and the plants may be examined to see that nothing is decaying, either baskets, blocks, or rafts, and the little peat and sphagnum should be fresh, or they will soon lose their roots. These are perhaps the most useful plants we have for autumn flowering. Temperature, 55° at night, 60° by day.

Cool-house.—Disas will now be growing fast, and may with advantage be syringed overhead on fine mornings. These plants like light and air, and I grow them on the top of the stage of a lean-too house, facing north, and close to the ventilators, a place that seems to suit them admirably, as they grow like Leeks, and the leaves keep of a deep dark green colour. Peat and sphagnum moss are the materials required to grow them well, and I have tried them in loam, peat, leaf-soil, &c., but find that the best results came from the use of peat and sphagnum. Temperature, 45° to 50°. *A. G. Catt, Parkfield, Worcester.*

Fruit Register.

APPLE MANNINGTON'S PEARMAIN.

This splendid Apple (fig. 34) is a chance seedling, which originated in a blacksmith's garden in Kent about one hundred years ago. We grow over a hundred varieties of Apples here, but I consider this the best

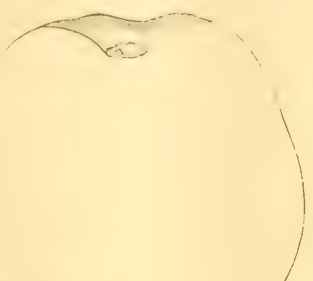


Fig. 34.—Mannington's Pearmain.

of them all, for let any one visit the fruit-room in October or November, and the shelves will be found in a good season to be loaded from end to end with scores of kinds; but it is after Christmas that the test comes, and one then sees the best keepers and most valuable varieties. The variety in question is a compact grower and bearer, and of delicious flavour, and should never be used until after the new year. Nearly all our late keeping Apples are gathered too soon—Sturner Pippin, Cockle Pippin, Golden Harvey, Golden Knob, and this variety should be left on the trees till quite late, and their keeping qualities and flavour will be improved thereby. I am out of all patience with the constant praising up of foreign Apples, and rating down our own. Why, one of our cottagers here paid half his rent last year with the crop of two trees of the Wadhurst Pippin; and one old Apple tree on one of the farms hereabout bore in one season the incredible quantity of sixty bushels. I took a turn round Covent Garden in December, and by request bought for a gentleman a barrel for £1 3s. of "Greenings," a Canadian kind, but when opened found that nearly half were unuseable. I have seen the same thing over and over again with barrels of New Town Pippins; and when I say that there is plenty of land in this county at £1 per acre, which will make good orchards, there is great short-sightedness somewhere—paying good English money away for what we can grow at home. A few healthy articles have appeared in the *Times* lately, and in addition to what most writers say, I would strongly recommend dwarf trees, abundant shelter, and plenty of bees to fertilise the blossoms.

Last year was a bad year for Apples, yet we had full crops of Wadhurst Pippin, Northern Greening, Hawthornden, Duchess of Oldenberg, Stirling Castle, Col. Vaughan, Codlin, White Paradise, King of the Pippins, Orange Pippin, Bess Pool, Old Nonsuch, New Hawthorden, Evagil, Winter Nonsuch, Betty Geeson, Tower of Glamis, Hoary Morning, Easter Pippin, Ringmer, Golden Knob, Rosemary Russet, Sturmer Pippin, and Mannington's Pearmain—two dozen in all. *Joseph Rust, Eridge Castle, Sussex.* [In Kent or Sussex this may be possible, but we are reminded that all England has not a Kentish soil and Sussex climate. Ed.]

Apple Golden Knob.

The above Apple is a very useful one for the dessert, in use at the present time. The fruit are not large, but are uncommonly crisp in texture of flesh, and sweet. The tree generally crops heavily, and is a strong grower. I may say the colour of the fruit is almost entirely covered with russet, and being easily distinguished from most other varieties. *H. Markham.*

Home Correspondence.

Daffodils "neck and neck" to bloom at Ard-Cairn, Cork.—I send cut specimens of the following early-flowering Daffodils now in flower out-of-doors at Ard-Cairn, Cork, viz., Ard-Righ, or Yellow King, North Star (very early), Pallidus Præcox, and Bicolor Præcox; the latter comes from the Pyrenees. *W. B. Hartland.* [Excellent blooms of all the above enumerated varieties came with this note, bearing out our correspondent's statement. Ed.]

First-blast, or fire-blight, in fruit trees.—In our country we have a very destructive disease of the Pear known as "Fire-blight." Huge branches—often the whole tree—will die, apparently in a few hours. The leaves do not turn brown, but usually black, and emit an odour of putrescence. Usually an inch or so of the bark at the base of the injured part is brown, and the line of demarcation between this brown and black bark can be distinctly seen. In the blackened part our mycologists find a new species of Bacterium, which they have styled B. amylivovorus, and many regard it as the cause, by their rapid development of the tree's death. Something similar occurs in the Apple, but usually affects small twigs, rarely main branches, as in the Pears. I have never been able to trace this disease to Europe, though I have read of something similar, though rare, in the Pear trees of France. Happening to turn to Loudon's *Gardeners' Magazine*, vol. iii. (1827), p. 280, Mr. Robert Sutherland, gardener at Goddesden Park, Herts, writing of the diseases of fruit trees, mentions "'Fire-blast,' which sometimes destroys the whole tree in a few hours." He does not say in what kind of fruit tree. It sounds so much like our "Fire-blight," that it is probably the same, or similar. I never heard before of this disease in England. It will be interesting to know whether it still exists, and what is known about it. Those who are studying "Fire-blight" in this country would be much assisted by a knowledge of its geographical range. *Thomas Meehan, Germantown, Philadelphia.*

Vandas.—My experience in the cultivation of Vandas in respect to shading here in West Middlesex coincides with that of Mr. Douglas (p. 132, Feb. 1), one instance I will give is a case in point. The plant was a fine variety of V. tricolor, which I had grown from quite a small plant; the plant from which it had been taken used to flower freely, but I could not induce the younger one to do so until it had been in my possession for some time. This was not because it was not large enough to flower, nor through ill-health either. I grew the plant for a few years in a house that was shaded heavily for Ferns and other tender subjects, and was rewarded with one, or at the most two, spikes each season. This not being satisfactory, I removed it to another stove of about the same temperature; and here,

with a lighter shading (Brittain's Netting, No. 3) and more exposure to the light when not shaded artificially, the plant flowered at nearly every joint. It produced, season after season, nine and ten spikes in constant succession. Getting too tall at last, it had to be lowered, which caused a check, but it now bids fair to continue its free-flowering this season, it being in the best of health, and having twenty pairs of leaves upon the single stem, which clothe it to the soil. Here I would like to confirm what Mr. Thomson mentions (p. 174, Feb. 8) respecting the overhauling of Vandas about September. I cut mine down during that month in last year with the best results, not even losing one leaf either at the time or since. On a previous occasion I cut it down in the spring, but in spite of every precaution I lost several. My plant was potted nearly in the way Mr. Thomson advises; peat, charcoal, sphagnum moss and crocks being mixed together, and put two-thirds of the way down the pot. I firmly believe it is far better to endeavour to induce all of the roots to enter the soil, rather than allow them to ramble outside of the pot with greater risk of injury to their points. In the pot they will throw out large bunches of rootlets from each main root, and which must be a great assistance to the plants, especially when sustaining several spikes in operation. *J. H.*

PRIMULA AMŒNA.—It is very much to be hoped that this plant is not lost to cultivation. I somehow do not think that it is. Some amateurs in this locality possess many very choice hardy plants, and if I am not mistaken, I think P. amœna may yet be found. There is one I know of which is very like the description given by Mr. Wolley Dod, but I will not venture to say that it is the plant in question; but when the flowers appear, I will forward you a few. [Please do so. ED.] While writing on Primulas I would like to call attention to the usefulness of Primula verticillata, or, as it is more commonly called, the Abyssinian Cowslip. It flowers in the fashion of the common Cowslip, but the foliage is quite white with a covering of what might be taken for millers' dust. It flowers in April, and has a pretty shade of yellow. The best way to grow it is to plant it out in a sheltered place in the summer, and lift; repot it in the autumn, and keeping it in a cold frame till about the month of March, when it may be put into a warm greenhouse, where it will flower well. P. floribunda, too, is a pretty little yellow Primula, and looks best when grown in a pan, with the middle plant raised a little, and the outside plants allowed to touch the outside of the pan. Well filled pans have a very pretty effect in the conservatory, and the plants are very easily raised from seed. *G. Merritt, The Nursery, Harpenden.*

HEAVY CLAY LAND.—The criticism of my note by W. L., on the treatment of heavy clay soil has not altered my opinion that autumn-trenched ground when left alone makes a better seed bed in spring than it does when again dug over. I have sometimes given the second digging to land more as a trial of the plan, but have always had reason to regret having done so. All heavy soils however are not alike in texture, but they vary considerably, and I write in accordance with the experience I have gained here with a soil the consistency of which may be gathered when I say a piece of ornamental water in the pleasure ground covers the site from which clay was taken for the making of bricks when the mansion was in course of building, and the soil in the kitchen garden is of a similar nature. It would answer no purpose to repeat our mode of cultivation, which without exception affords a very satisfactory seed bed. But I would point out the dilemma we should undoubtedly be in were we to adopt your correspondent's practice. Deep stirring of the soil about the middle of February is recommended. What does that mean? During February, our soil and other heavy soils are in a more or less wet state, and to stir and tread them then would puddle and cake them, so that mischief would be done, which no after treatment could rectify. Satisfactory crops of early Peas, Parnips, Onions, &c., would consequently be out of the question, and upon this point my argument in favour of autumn and against spring trenching of heavy soils, rests. I hold that autumn-trenched clay ground, provided it is left alone, becomes in a fit condition for cropping earlier in the season than that which is trenched in the spring, or dug over after the trenching in late winter, all the benefits of exposure of the soil to frost being thereby lost. The same argument applies to Onions succeeding Celery. It is impossible to have ordinary clay soil which has been trodden and moved through the winter in all weathers, as the Celery ground must be in good tilth for the Onion crop. W. L.'s clay is evidently of a very favourable quality. I may mention that rain or snow fell here on 18 days in February last year, amounting to 3·53 in., and at no time during that month did we have more than two consecutive dry days, and this may be taken as a fair average of our weather in that month. The remark respecting the destruction of woodlice and weed seeds, by stirring the soil in February, needs no comment. Whoever before heard of woodlice infesting clay land at that season, or seeds of weeds being killed wholesale by bringing them near the surface of the soil at a time when warmth increases? *Thos. Coomber.*

SEQUOIA GIGANTEA.—In the pretty grounds attached to Whitchurch Rectory, Edgware, are several handsome specimens of this tree, with trunks at 2 feet from the ground, of 4 feet in circumference, and which are from 40 to 50 feet high, and perfectly straight, and furnished with luxuriant foliage from base to summit. There are several other choice and well-grown Conifers in these interesting grounds, but the Sequoias are the most noticeable. The soil is a stiff yellow loam. The Rose beds and shrubbery borders are edged with thick rows of established Pæonies and Auriculas, which must have a telling effect when in bloom. The Rev. John B. Norman, rector of Whitchurch, is an enthusiastic horticulturist, and has several houses devoted to Orchid culture; three of them being, till quite recently, filled chiefly with Odontoglossum Alexandræ. Some years ago the reverend gentleman was better known in the Orchid world than he is at the present time, but so long as Cattleya gigas Normani is retained in our collections, his name is not likely to be forgotten by the cultivators of Orchids. *H. W. W.*

GALANTHUS REDOUTEI, AND G. LATIFOLIUS.—Amongst a good deal of confusion which is being caused by an unauthorised multiplication of the names of Snowdrops, one mistake seems to be general with regard to the names G. Redoutei and G. latifolius. G. Redoutei of Regel (*Gartenflora*, 1874, p. 202) differs from G. nivalis in the breadth of the leaves, and in being larger, and has also been called G. nivalis var. latifolius. It is a Trans-Caucasian plant, and has been referred to G. plicatus, from which it differs only in having no folds in the leaves (see Boissier, *Fl. Or.*, vol. v., p. 145). I have the same variety from some source, named G. plicatus var. caucasicus, but to refer the variety to plicatus, when it has no folds, seems a misnomer. Perhaps this is now to be called G. caucasicus, Baker, which is described in Ware's Bulb Catalogue of 1889 as "new," but it has been in cultivation in England at least ten years, and only the name is new. G. latifolius, Ruprecht, described in Boissier's *Fl. Orient.*, vol. v., p. 146, is generally sold by the name of G. Redoutei, to which it has no claim. Its broad, shining leaves make it entirely distinct from all other Snowdrops, and more resemble those of a small Colchicum. Messrs. Damman, of Naples, when I asked for G. Redoutei, rightly sent me G. nivalis var. Redoutei, of Regel; but perhaps the name Redoutei ought now to disappear from catalogues, being replaced by caucasicus. *C. Wolley Dod, Edge Hall, Malpas.*

SUTTON'S PRIMULA SINENSIS DOUBLE SCARLET.—Not only do the semi-double strain of Primulas which Messrs. Sutton & Son made such a display with at the Royal Horticultural Society meeting some time since, come true from seeds, but in many cases the seedlings show marked improvement on former strains. Among double scarlets of their strain grown by Mr. Russell, gardener to Edward Moon, Esq., at Cassiobridge, are some vividly coloured scarlets of a dark hue, which should be perpetuated. In the same gardens the old double white is well grown, and is still considered to be the best white Primula to grow for cut flowers. For the same purpose, however, Sutton's semi-doubles are much liked, as they do not drop the flowers as do the singles. *J. O'B.*

STRAWBERRIES MOWN OVER.—We all believe, or persuade ourselves that we believe, that "an ounce of practice is worth a ton of theory;" and this *àpropos* of mowing off in the early winter the leaves of Strawberry plants. I will premise that my father was a gardener, and a very good one he used to be thought by his brethren of the craft, and he had charge of a big place where much was required in fruit and vegetables at nearly all times of the year; and certainly it would never have done for the supply of Strawberries for the still room or the dessert to run short. Well, in spite of knowing this, and the dire effects to himself should such an untoward event arise, he invariably gave orders to mow over "them Grove End Scarlets, Hoboys, (Hautbois) and Black Princes;" and mowed over they were, year by year, and as an enrichment of the land and a covering to their naked crowns, a coating of leaf-mould well-decayed, and mixed with the remains of exhausted Mushrooms, was afforded them. As to the quantities of fruit picked in proper season, let the remembrance of honest backaches acquired in the long pickings attest. Varieties there were which were not so much cut into the quick, and these are such as have heavy foliage, which keeps green for a longer time than the earlier ripening varieties above alluded to. To this class belong Elton, Keen's Seedling, British Queen, Frogmore Late Pine, and Trollope's Victoria—varieties not thought much of now, but which are bad to be beaten when well done. Gardeners stuck to their own practices as much then as now, and good crops were got by quite opposite methods, but only by those men who did not dig deeply close up to and between the plants. *A. Y. E.*

OUTDOOR STRAWBERRIES.—It is the practice with many, in the management of outdoor Strawberries, to take the whole or greater part of the foliage off during winter, and not only that, but to dig amongst the plants, which, in my opinion, are the two greatest mistakes that can be perpetrated with regard to them, as removing the leaves exposes the crowns and hearts of the plants to all the vicissitudes and changes of weather, and the digging destroys the young surface-roots, and makes the ground loose, which conditions are adverse to the welfare of all Strawberries, as what they require is a firm bed and shelter for the fresh foliage that pushes up in the spring. Instead, therefore, of trimming them, it is far better to leave them for the present pretty much as they are, and in lieu of digging they should only have the ground cleaned by hoeing, or in some other way to free it from weeds; and when this is done, it will benefit the plants considerably to spread amongst them a good dressing of short manure, which will protect them against hard frost, and feed and nourish the roots, as the rains will carry the pieces down and enrich the soil as far as they go. Not only is a top-dressing of manure of great value towards securing good fruit, but in the case of old plants, soil mixed with it is of great use to mould up round them, as Strawberries get so far above the ground through the stems of the crowns elongating, and when these find fresh material around them, they quickly emit young roots into it, and thus add to their strength. *J. S.*

SAMBUCUS RACEMOSUS.—My experience of this plant is, that it fruits much more freely when the seeds are sown where it is to grow, than it ever does after being transplanted. Just now I can only remember one case of a transplanted tree fruiting even fairly well. It is by no means plain why this should be, for one would think that the contrary would be the case. When freely fruited, it is a handsome subject. Can any of yours readers bear testimony to the value, or otherwise, of the yellow-fruited form, S. r. fructo flavo? *T. Smith, Newry.*

IRIS BORNMUELLERI.—Mr. Dewar will find the description of this new Iris in the *Flora*, 1889, p. 140. *K. G.*

THE LATE W. WILDSMITH.—It was stated in the Obituary notice of the lamented W. Wildsmith in our last issue, that he was born at Bradford, but as a matter of fact he was a native of Luddenden, a village near Halifax, and he kept up his connection with the place to the last. *John Wormald, Luddenden.*

CHINESE SACRED LILY.—We send you for your inspection two plants of the Chinese Sacred Lily that we have grown, and think you will be interested in seeing them. We have noticed the following peculiarities. Bulbs grown in gravel and water flower some four days earlier than the bulbs grown in mould, in all other respects treated alike. Another peculiarity of this variety is that the offshoots are the first in all cases to flower before the main stem. Although this variety of Narcissus is indisputably

connected with forms already in existence, it appears to possess a distinctiveness, by reason of its floriferous habit, as well as by the delicacy of the odour of the flower, and the public, who have grown them, so far as the reports sent us are concerned, appear to be very pleased with the plants, as being specially adapted for drawing or living-room cultivation. *James Carter & Co.* [Well grown and flowered. ED.]

THE GOOD-LUCK LILY.—I have now in full and beautiful bloom seven bulbs of the Sacred Lily of the Chinese (Narcissus tazetta Grand Emperor) in four Japanese bowls, and bearing no fewer than forty-five spikes of bloom; the perfume exhaled by them is somewhat overpowering. The first flower opened just six weeks after the bulbs were put into water, and nearly all the offsets or side bulbs have produced a spike of bloom. I wish some one would state in the *Gardeners' Chronicle* the treatment best suited for these bulbs after flowering. Should they be kept still supplied with water, or be gradually dried off, and will they be any good for next year's bloom? *W. E. G.*

BIRDS AND FLOWERS. — Birds dislike bitter tastes, and the best preventive I have found to protect Crocus flowers against sparrows and pheasants is to spray them with an infusion of Quassia chips. These make so strong a bitter that a quarter of a pound in several gallons of water is sufficient. The chips are very cheap, and they should be boiled to extract all their virtues. Those who think that the effect will soon be washed off by rain should try, as I have done—sprinkling a Gooseberry bush with the infusion soon after the fruit is set. The Gooseberries retain the bitter taste till they are nearly ripe. I think this treatment would prevent bullfinches eating buds. *C. Walley Dod, Edge Hall, Malpas.*

EARLINESS OF VEGETATION IN THE SCILLY ISLANDS.—During the whole of the history of floriculture in these islands there was never the like seen so early in the spring, as at the present time. The mildness of the winter here caused the Narcissus crop to bloom quite a month earlier than usual, and consignments of flowers were sent off before Christmas, and in very large quantities since January came in, as much as from 10 to 15 tons twice a week having been despatched; and during last week one grower (Mr. F. Watts) sent off about 10,000 bunches or 120,000 blooms of Narcissi of different varieties. At the time I am writing, acres of Soleil d'Or and Scilly White Narcissus are in bloom, not in small patches of a few roods, but an acre in extent, the quality as well as the quantity of the Narcissus crop generally was never excelled. There are now in bloom in the open air, Narcissi Soleil d'Or, N. Scilly White, N. Soleil d'Brilliant, N. Etoile d'Or, N. Paper White, N. glorieux, N. Grand Monarque, N. Bazelman minor, N. Reine of Normandy, N. Telamonius plenus, N. Double Incomparabile, N. Golden Phœnix, N. Orange Phœnix, Single Incomparabilis, Trumpet Daffodils, N. obvallaris, N. pulchus præcox, N. Golden Spur, N. princeps, N. Achilles, Ard Righ, N. Countess of Annesley, and N. odorus. Campernelli and Anemone fulgens are in great abundance; Wallflowers and Richardias are also being sent off to market. *H. Tonsea, St. Marys, Isles of Scilly.*

RICHARDIA ÆTHIOPICA.—I saw recently a fine display of these plants in a low span house at Blankney Hall, Lincoln. The plants were growing mostly in 12-inch pots, and had been flowering since the middle of December. With a view to flowering the plants at an early date they were grown in pots in a rich loamy soil, and well supplied with water whilst growing, with an occasional watering with liquid manure after the roots had filled the new soil, and still more frequently after the appearance of the spathes. This plant makes good returns for the generous treatment, spathes realizing about ten shillings per dozen in some of the large northern towns at the present time. *H. W. Ward.*

A REMEDY FOR THE BULB MITE.—Previous to about fifteen months since I had been very successful in the cultivation of Amaryllis reticulata, but suddenly the bulbs ceased to do well—no sooner did a leaf rise above the soil than it turned yellow and rotted away. I was much puzzled as to what could be the cause, and I tried several things, but all to no purpose. A friend of mine who had been much troubled with the Eucharis (bulb) mite informed me that the mite had also attacked his Amaryllis, and that he had tried Clibran's mite killer with excellent effect. I then examined my bulbs of Amaryllis under a good lens and found them to be literally covered with insects identical in appearance with the mites that I had previously seen taken from Eucharis bulbs. I procured a tin of the mite killer from Messrs. Clibran, and used it according to the directions, except that I allowed the bulbs to remain in the mixture for about twelve hours. I then washed them clean, and allowed them to dry. I then potted them in equal parts of loam, peat, and Oak-leaf mould. They are now in excellent condition, throwing up splendid leaves, and I have every confidence that in due time they will again flower well as of old, thanks to the mite killer. *H. Ellis, Bowdon.*

GALANTHUS UMBRICUS.—Mr. Ware offered, last autumn, Snowdrops under this name, for which I cannot find any authority. I planted a few in September, and this winter, when all spring bulbs were so dangerously forward, one or two of this lot came into flower about New Year's Day, a little before G. Imperati, which is generally the earliest here. Now that the two are in full flower side by side, I have compared them, leaf and flower, and cannot see the least difference. Both are larger in all dimensions, and have the petals longer in proportion than the typical G. nivalis; I find the variety G. Imperati, which I have had from Italy, as well as from English dealers, far more constant in form than G. Elwesii is. *C. Walley Dod, Edge Hall, Malpas.*

EARLINESS OF THE SNOWDROP.—I was interested on reading your correspondent's note on "The First Snowdrop," and thought it would be of interest to your readers to know that Snowdrops were gathered here this season on December 22; this date being the earliest on which has been recorded for the last thirty-seven years at this place. Last year, blooms were gathered on January 6. I may state that the Snowdrops alluded to grow on a bank on which Planes and Limes are growing, and receive no attention whatever. *D. S. M., Greenock, N.B.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEB. 11.—At the meeting held last Tuesday in the Drill Hall, Westminster, there were but few exhibits before the Fruit and Floral Committees; but on the other hand, Orchids, chiefly hybrid Cypripediums, were fairly numerous, notwithstanding the cold weather. A conspicuous exhibit was Messrs. Chas. Lee & Sons' interesting collection of evergreen shrubs, &c. The annual general meeting of the Society was held in the Offices, 117, Victoria Street, in the afternoon. It was presided over by Sir Trevor Lawrence, Bart., M.P., and there was a good attendance of Fellows. The chief feature of this meeting was the propounding by Baron Schroder of a scheme for the erection of a Horticultural Hall as a permanent home for the Society. Other observations of this subject will be found on p. 200.

Floral Committee.

Present: W. Marshall, Esq., in the chair, and Messrs. R. Dean, T. Baines, C. T. Druery, H. B. May, P. Blair, W. C. Leach, R. B. Lowe, B. Wynne, H. Turner, G. Paul, G. Nicholson, F. Ross, W. Holmes, E. Mawley, T. W. Girdlestone, and W. H. Williams.

From Messrs. Chas. Lee & Son, Royal Vineyard Nursery, Hammersmith, W., there came a large collection of evergreen shrubs, arranged in ornamental groups in a regular and artistic plan. The plants employed comprised standard Ivies and Laurustinus, Holly bushes in variety, heavily-berried Aucubas, Dracænas, Osmanthus ilicifolius argenteus, the variegated-leaved Eleagnus, Pernettya mucronata in berry, Euonymus japonicus elegans, and various other plants of the same character. The style of exhibition was novel and showy.

A collection of hardy plants in pots was shown by Messrs. Paul & Son, Old Nurseries, Cheshunt, N. The chief objects were various Hellebores, including H. colchicus var. coccineus, with rich red brown flowers; also a pan of Eranthis hyemalis, Saxifrages, &c.

Cut flowers of Helleborus colchicus and guttatus, in variety; early Narcissus, including cyclamineus minimus, and the yellow Corbularia, with Poeticus ornatus and Anemone fulgens and stellata, were shown in a pretty little group by Messrs. Barr & Son, 12, King Street, Covent Garden, W.C.

Other exhibits included a large single-flowered delicate pink Primula from Messrs. H. Cannell & Sons, Swanley, Kent; and a large white-flowered plant, Woodside Giant, from Mr. James, Farnham Royal.

Mr. F. Ross, Pendell Court Gardens, Bletchingley, sent a flower-head of Dombeya Wallichi, and also flowering branches of Akebia quinata, a useful greenhouse climber.

From Messrs. J. Veitch & Sons, Chelsea, came more novelties in the Javanico-multicolor section of Rhododendrons, Eclatante, with medium-sized flowers in a good truss, deep red is an attractive addition, and so is Admirable, with broad spreading petals of rich salmon-red.

Mr. James Douglas, Great Gearies Gardens, Ilford, sent many seedling Hellebores, raised by him from a dark-flowered form of H. guttatus. They were mostly dark coppery-brown, with spots at the base of the segments, but one was white with spots, coloured as in the rest.

A group of Cyclamen in pots was sent by the St. George's Nursery Company, Hanwell, but call for no special mention.

Messrs. Bracher & Co., West Hill, Wincanton, exhibited "perforated metal flower-pots." These are made of perforated zinc, painted over. We do not see that any advantage will be found by their use.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. F. G. Tautz, F. Sander, T. Moore, L. Castle, J. Douglas, H. Williams, E. Hill, C. Pilcher, W. B. Latham, J. Dominy, H. Ballantine, H. M. Pollett, S. Courtauld, De B. Crawshay, James O'Brien, and A. H. Smee.

From the collection of H. M. Pollett, Esq., Fernside, Bickley (gr., Mr. Parks), there were sent a form of Cattleya Trianæ, which had a bluish colouring on the median lobe of the lip; Odontoglossum crispum Bickleyanum, yellow with brown spots; Cypripedium Elliottianum, which appears to be identical with C. Rothschildianum, as figured in the current number of the *Botanical Magazine*, t. 7102. The dorsal sepal is oblong-acute, yellowish, with brown purple lines; the petals are linear, 5 inches long, similarly coloured, with spots at the basal part, and stout hairs along the margin; the lip, which is shaped as in C. Stonei, is brownish-red. A conspicuous feature is the peculiar-shaped staminode, which is compared to the head and neck of a crane. Also a plant of Cypripedium Germinyanum, a hybrid of villosum and hirsutissimum. The petals are 3 inches long, yellow-brown, with the upper end rosy, and yellowish towards the lower edge; dorsal sepal green, with brownish shade, and spots darker towards the base; the lip is that of villosum; the flower is hairy, as in the other parent.

Three Cypripediums were sent by F. G. Tautz, Esq., Shepherd's Bush (gr., Mr. J. C. Cowley). The most striking being C. porphyrochlamys, a hybrid from C. barbatum. It is rich brown crimson all over the flower, the dorsal sepal has a white edge and dark lines, and the petals which become paler at the base are spotted with a dark colour and bear hairs along the margin; also C. Mrs. Canham, a large flowered hybrid, and C. Lathamianum, which plant was also shown by Mr. Bond, gr. to C. L. Ingram, Esq., Elstead House, Godalming; Mr. Ballantine, gr. to Baron Schroder, the Dell, Egham, and Messrs. J. Veitch & Sons, Chelsea, S.W. The parents are C. Spicerianum and C. villosum. The lip and petals are bright yellowish brown, and shiny. There is a central dark line down the petals sharply dividing the coroling, which is greenish on the lower half. The dorsal sepallis large, white with a central nerve, greenish at the base with brown spots. The flower is very handsome and distinct.

From Messrs. Veitch, who had a very fine form of the above, there also came C. Germinyanum, and a spike of the pretty hybrid Phalænopsis, T. L. Ames, Dendrobium Wardianum japonicum bearing small white flowers with a red brown blotch in the throat; also Cypripedium Calypso, which is practically the result of the reversed parentage of C. Lathamianum: it is paler in colour throughout, and the dorsal sepa, has more conspicuous and longer lines and dots of colour.

A very elegantly coloured form of Lycaste Skinneri

named Regina, was sent by Mr. J. Simon, gr. to E. A. Roberts, Esq., Woodland House, Greenhithe, Kent; it has pleasing rose-coloured sepals, shaded towards the base, the petals and lip being very dark; a pretty form of Cymbidium eburneum was also sent by this exhibitor.

From A. H. Smee, Esq., Wallington (gr. Mr. Cummins) there was a well-flowered plant of Odontoglossum ramosissimum var., with a number of flowers, white, spotted with purple-violet, the undulate margins of the sepals and petals giving a very pretty effect; Cattleya Trianæ var. Dayana, light rose, with the median lobe of the lip brilliant intense carmine; also Masdevallia leontoglossa, with one flower with a singular shaped lip. In colour the flower has little to attract notice, being pale yellow-green with purple-black markings.

Cypripedium cardinale, Vanner's variety, was sent by Mr. W. Vanner, Camden Wood, Chislehurst. The lip was rich rose, and the sepals and petals delicately flushed with the same colour; also Cattleya Trianæ vars., including including C. T. alba, and one with a pale fringe to the lip, and dark tips to the other segments of the flower; also a plant of Lycaste Skinnerii alba, with a number of pure white flowers.

Other exhibits included a few nicely-grown examples from Mr. D. Cullimore, gr. to S. Cook, Esq., a piece of Cattleya amethystoglossa being the chief object; there was also an example of Odontoglossum Humeanum.

From Mr. J. Quarterman, gr. to A. S. Smith, Esq., Silvermere, Cobham, Surrey, came a well-grown example of Cypripedium insigne, with eighty-seven flowers on it.

Cœlogyne cristata was sent by Mr. Waltham, Streatham Hill, Mr. O. Thomas, Chatsworth (the Chatsworth variety), and Mr. Miller, gr. to Lord Foley, Ruxley Lodge, Esher.

Fruit Committee.

Present: Sir C. W. Strickland, in the chair; and Messrs. J. Lee, P. Crowley, H. Weir, R. D. Blackmore, J. Cheal, P. Barr, W. Bates, W. Denning, S. Ford, J. Wright, G. Bunyard, G. W. Cummins, J. Hudson, W. Warren, F. Q. Lane, T. J. Saltmarsh, A. W. Sutton, T. F. Rivers, and Dr. R. Hogg.

Messrs. J. Cheal & Sons, Crawley, sent a collection of about 50 dishes of Apples, all well kept specimens of popular varieties; and from Mr. Leach, Albury Park Gardens, Guildford, was a basket of fruits of Ham Green Favourite Tomato, and some fine Coldstream Leek.

At the conclusion of the sitting a vote of condolence with Mrs. Wildsmith, on the death of her husband (who had been for so many years an active member of the committee), was proposed by Mr. A. W. Sutton, and unanimously adopted.

Awards were made as follows:—

By the Floral Committee.

Award of Merit.

Helleborus colchicus coccineus, from Messrs. Paul & Son (14 votes to 1).

Medals.

Silver Banksian, to Messrs. Chas. Lee & Son, for group of hardy trees and shrubs.

Bronze Banksian, to the St. George's Nursery Co., for a group of Cyclamen.

By the Orchid Committee.

First-class Certificates.

Cypripedium Lathamianum, from Messrs. Bond, Veitch, Tautz, and Baron Schroder (unanimous).

Cypripedium cardinale, Vanner's variety, from W. Vanner (6 votes to 5).

Cypripedium porphyrochlamys, from F. G. Tautz, Esq. (unanimous).

Cypripedium Elliottianum, from H. M. Pollett, Esq. (unanimous).

Odontoglossum ramosissimum, from A. H. Smee, Esq. (unanimous).

Award of Merit.

Lycaste Skinneri Regina, from Mr. E. A. Roberts (10 votes to 2).

Botanical Certificate.

Masdevallia leontoglossa, from A. H. Smee, Esq.

By the Fruit Committee.

Medal.

Silver Banksian, to Messrs. J. Cheal & Sons, for a collection of Apples.

Roses.

COMPARISONS AMONG TEA ROSES.

These are almost necessarily more or less invidious, if not worse, and as almost every Tea has its special patron who prefers it to most or all others and of course all depreciatory comparisons bring hosts of admirers to the defence. This is just as it should be, perhaps, as it may prevent any good Roses from slipping into oblivion, because, forsooth, there are others as good or better in show boxes, Rose beds, or borders. Notwithstanding the wonderful widening of the field, and enriching of the character of Tea Roses within the last thirty years, yet the exhibitors in classes of twelve, do not find any superabundance of good blooms for their Rose battles; and hence it is well to be conservative of flowers of capacity or of promise, though they may frequently fail in reaching their highest and best. Whereas for bed or border, the more the brighter, and the greater the distinctness, if not actually the better.

All this is but preliminary to my defence of those Roses somewhat invidiously compared by "Wild Rose." With much of what he so truly says on pages 131–132, most rosarians will heartily agree; but when he ventures to relegate Marie Van Houtte to an inferior place to Anna Olivier, then there will be a rush for him among many growers and showers of Teas. Not that I will follow his example by attempting to depreciate Anna Olivier; it is exquisitely perfect, superbly beautiful—but so is Marie Van Houtte. And then just let any one take the latter as a study of colour. How wide is the range—how exquisitely soft and delicate the finish! No, I will not place Marie Van Houtte second even in such good company. Possibly Anna Olivier is the more useful Rose to the "hack exhibitor," who is on the road night and day throughout the show season. But for perfection and beauty, abreast with them, please; or if there is to be a preference, Marie to the front—but no, I started with deprecating invidious comparisons, and will not make them. And now I venture on weaker ground—that is, Roses—in standing up for Gloire de Dijon and Homere as show blooms. Tea Roses have a wide range, extending nearly all the way from worthlessness to something nearly akin to perfection, of which these two varieties are examples.

Exhibitors, not of the widest experience, have cut and shown cupped blooms of the Glory, that have remained cupped throughout long and trying show days, and have hardly lowered the beauty of such distinguished associates as Souvenir d'Elise, Innocente Pirola, or others equally perfect—not that the Glory should be pitted against these or other Roses—as it is strong enough to stand alone through all the Rose garden fair, and may occasionally do so in the show-box, when a judicious selection of blooms is made. And then as to Homer, the only fault "Wild Rose" has against it when perfect is its small size. Against its lack of barrel bulk I respectfully pit its perfect form (when perfect) and its unique cupful of mottled mixed blush, salmon, and rose. We have nothing approaching it in character and colour in the rich field of Teas, and I have seen perfect bushes of Homer excite more enthusiasm than those of Maréchal Niel and Belle Lyonnaise on either side of them. "So much the more for the enthusiasts!" "Wild Rose" will exclaim. Will no one join me in retorting, "So much the better!" *Rosa.*

The Weather.

THE PAST WEEK.

The following summary record of the weather for the week ending February 8th, is furnished from the Meteorological Official:—

"The *weather* during this period has been finer and more settled than for many weeks past. Over the greater part of the Kingdom the conditions have been dry and the sky frequently cloudless, but at some of our south-eastern stations—and notably in London—a good deal of cloud has prevailed, accompanied, at times, by slight drizzling rain. Fog or mist has been experienced occasionally in all districts.

"The *temperature* has continued a little above the mean in the extreme north and north-east of Great Britain, and has just equalled it in 'Scotland, W.,' but in all other districts it has been rather below. The highest of the maxima, which were recorded in most cases either on the 2nd or 3rd, ranged from 50° to 54° over Scotland, and from 48° to 52° over Ireland and England. The lowest of the minima were registered on very irregular dates, and ranged from 23° in Ireland to between 23° and 25° in Scotland, and from 23° to 27° over England. In the 'Channel Islands' the lowest reading was 33°.

"The *rainfall* has been much less than the mean in districts. Many parts of the kingdom have been almost rainless.

"*Bright sunshine* shows a very general and decided increase, and, taking the country as a whole, has not been so prevalent in any week since that which ended October 4th, 1889. The percentage of the possible amount of duration ranged from 28 in the 'Midland Counties' to 43 in the 'Channel Islands,' 47 in 'Scotland, E.,' 48 in 'Ireland, S.,' and 50 in 'England, S.W.' In London only 8 hours were recorded, which was less than at any other station in the kingdom."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending February 8.	Temperature. Accumulated. Above 42° for the Week.	Temperature. Accumulated. Below 42° for the Week.	Temperature. Accumulated. Above 42°, difference from Mean since Jan. 1, 1890.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 +	11	30	+ 44	— 55	7 —	33	8.4	31	12
2	3 +	10	38	+ 48	— 77	7 —	25	4.8	47	23
3	1 +	5	26	+ 48	— 80	4	22	2.0	34	21
4	1 —	5	35	+ 50	— 62	4 —	26	2.5	35	25
5	2 —	5	38	+ 50	— 61	6 —	24	3.2	28	22
6	3 —	4	34	+ 73	— 83	6 —	24	3.2	32	21
7	0 av.	7	28	+ 49	— 85	9 —	32	8.7	33	18
8	1 —	5	26	+ 51	— 88	7 —	31	4.9	38	19
9	4 —	6	31	+ 57	— 29	10 —	29	5.8	50	24
10	1 —	9	31	+ 33	— 46	7 —	32	5.2	36	24
11	3 —	11	34	+ 36	— 25	8 —	31	7.0	48	27
12	2 —	11	9	+ 83	— 32	7	32	4.6	43	24

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

Markets.

COVENT GARDEN, February 13.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

No remarks this week, with exception of Grapes, which are getting confined to few samples, and are steadily rising. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, ½ sieve ...	1	6– 7 0	Lemons, per case ...	12	0–20 0
— Nova Scotia, brl.	12	0–25 0	Pine-apples, Eng., lb.	1	0– 1 6
Cobs, per 100 lb. ...	140	0– ...	— St. Michael, each	2	0– 6 0
Grapes, per lb. ...	2	0– 5 0			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100	8 0–10 0	Mustard and Cress, punnet	0 4– ...
Beans, French, lb.	0 9– ...	Onions, per bunch	0 5– ...
Beet, red, per dozen	1 0– 2 0	Parsley, per bunch	0 6– ...
Carrots, per bunch	0 6– ...	Rhubarb, per bundle	0 6– ...
Cauliflowers, each	0 3– ...	Seakale, punnet	2 0– ...
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 6– ...
Cucumbers, each	1 0– 1 6	Spinach, per bushel	4 0– ...
Eudive, per dozen	2 0– ...	Sprue, per bundle	1 6– ...
Herbs, per bunch	0 4– ...	Brussel Sprouts, pr lb.	0 3– ...
Leeks, per bunch	0 3– ...	Tomatos, per lb.	1 0– ...
Lettuces per dozen	1 6– ...	Turnips, per bunch, new	0 4– ...
Mushrooms, punnet	1 6– ...		

POTATOS:—Market quiet, inferior samples 2s. 6d. to 5s. per ton lower. Scotch supplies heavier. No Canary arrivals this week.

J. B. Thomas.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Ericas, various, doz.	8 0–24 0
Aspidistra, doz.	18 0–42 0	Ferns, in var., per dozen	4 0–18 0
— specimen plants, each	7 6–10 6	Ficus elastica, each	1 6– 7 0
Azaleas, various, each	2 0– 3 0	Foliage plants, various, each	2 0–10 0
Begonias, dozen	4 0–12 0	Hyacinths, p. doz	9 0–12 0
Christmas trees, doz.	4 0–24 0	Lily of the Valley, p. doz. pots	18 0–24 0
Cyclamen, dozen	9 0–24 0	Marguerites, doz.	6 0–12 0
Cyperus, per dozen	4 0–12 0	Palms in var., each	2 6–21 0
Daffodils, doz. pots	8 0–12 0	Pelargoniums, scarlet, per dozen	6 0– 8 0
Dracæna terminalis, per dozen	30 0–60 0	Roman Hyacinths, per dozen pots	9 0–12 0
— viridis, per doz.	12 0–24 0	Solanums, per dozen	6 0–12 0
Epiphyllum, per doz.	12 0–18 0	Tulips, doz. pots	8 0–10 0
Euonymus, in var., per dozen	6 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun.	2 0– 4 0	Narcissi, paper-white,	
Acacia (French) bun.	4 0– 6 0	French, doz. bun.	2 0– 4 0
Azaleas, doz. sprays	0 9– 1 0	Roman Hyacinths	
Bouvardias, per bun.	0 8– 1 0	— Eng., doz. sprays	0 9– 1 0
Callæthiopica, 12 bl.	3 0– 6 0	Pelargoniums, scarlet, 12 spr.	0 9– 1 6
Camellias, white, doz.	2 0– 4 0	— dozen sprays	1 0– 2 0
— various, per doz.	1 0– 2 0	Primulas, double, 12 sprays	1 0– 1 6
Carnations, 12 blms.	1 0– 2 0	Roman Hyacinths, Eng., doz. sprays	0 6– 1 0
Chrysanth., 12 bun.	4 0–12 0	— (French)	1 0– 2 0
Cyclamens, 12 blms.	0 4– 0 9	Roses, Tea, per doz.	1 0– 3 0
Daffodils, doz. blooms	0 6– 1 0	— coloured, dozen	2 0– 4 0
Eucharis, per dozen	3 0– 5 0	— French, dozen	1 0– 2 0
Gardenias, 12 blooms	12 0–21 0	— red, per dozen	9 0–12 0
Heliotropes, 12 spr.	0 6– 1 0	— Safrano, dozen	1 8– 2 6
Lilac, white, Fr., bun.	4 0– 6 0	Spirea, doz. sprays	1 0– 1 6
Lilium, var., 12 bl.	2 0– 6 0	Stephanotis, 12 spr.	9 0–12 0
Lily of the Valley, doz. sprays	0 6– 1 0	Tuberoses, 12 blms.	1 6– 2 0
Maiden Hair Fern, 12 bun.	4 0– 9 0	Tulips, doz. blooms	0 8– 1 0
Mignonette, 12 bun.	2 0– 4 0	Violets, 12 bun	1 0– 2 0
— French, per bun.	1 6– 2 0	— French, bunch	1 6– 2 0
Marguerites, 12 bun.	3 0– 6 0	— Parma, bunch	3 6– 5 6

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *Feb.* 12.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that to-day's market was thinly attended, with a quiet inquiry for farm seeds. Trefoil continues still a favoured article, and commands higher prices. Alsike is scarce and firm. In white there is not much doing. As regards Red Clover seed the supply exceeds the demand. Rye grasses are cheap and neglected. As Koenigsberg Spring Tares are this season both dear and bad, English Winter Vetches are taking their place. Some fine new Scarlet Runner Beans are now offering on moderate terms. Low prices still prevail for Birdseeds. Blue Peas and Haricot Beans are in meagre demand.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure (quarter), for the week ending February 8:—Wheat 29s. 9d.; Barley, 31s. 10d.; Oats, 18s. 7d. For the corresponding period in 1889:—Wheat, 29s. 7d.; Barley, 26s. 4d.; Oats, 16s. 7d.

FRUITS AND VEGETABLES.

SPITALFIELDS: *Feb.* 12.—The supplies more than exceed the demand, trade being very heavy. Large quantities of Potatos at market and prices low, except for very best samples. Prices:—Turnip-tops, 1s. to 1s. 6d. per sack; Sprouting Broccoli, 1s. to 1s. 6d. do.; do. 6d. to 9d. per sieve; Spinach, 9d. to 1s. 6d. per bushel; Savoys, 2s. to 3s. per tally; Cabbages, 1s. to 2s. do.; Cauliflowers, 3s. to 5s. do.; Curley Kale, 9d. to 9d. per bushel; Seakale, 1s. to 1s. 6d. per punnet; Beetroots, 3d. to 6d. per dozen; Parsnips, 4d. to 6d. per score; Greens, 9d. to 1s. 3d. per dozen bunches; Turnips, 1s. 6d. to 2s. 6d. do.; Carrots, 1s. 6d. to 2s. do.; Parsley, 2s. to 3s. do.; Horseradish, 1s. to 1s. 4d. per bundle; Celery, 4s. to 9s. per dozen bundles; forced Rhubarb, 1s. 6d. to 2s. do.; Spanish Onions, 8s. to 10s. per case; Bordeaux do., 6s. 6d. to 7s. do.; English do., 8s. to 9s. per cwt.; Belgian and Dutch do., 6s. to 7s. 6d. per bag of 110 lb.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Cabbage Lettuce, 1s. 6d. to 2s. 6d. per dozen; Endive, 1s. 6d. to 2s. do; Carrots, 17s. to 26s. per ton; English Apples, 5s. to 7s. per bushel; American do., 17s. 6d. to 24s. per barrel.

STRATFORD: *Feb.* 11.—Supply has been good during the past week, and a fair trade was done at the following prices:—Savoys, 3s. to 6s. per tally; Cauliflowers (Guernsey), 2s. to 3s. per barrel; do., (Cornish), 5s. to 8s. per crate; Turnips, 25s. to 35s. per ton; Carrots (household), 30s. to 40s. do.; do. (cattle feeding), 20s. to 25s. do.; Mangels, 14s. to 18s. do.; Swedes, 14s. to 18s. do; Onions, English, 120s. to 130s. do.; do., Dutch, 6s. to 7s. per bag; do., German, 8s. 6d. to 9s. do.; Apples, American, 16s. to 24s. per barrel; Watercress, 6d. per dozen; Celery, 7s. to 12s. per dozen bundles; Rhubarb, 1s. 9d. to 2s. do.; do., English, 3s. 6d. to 4s. do.; Cress (hot and cold), 7d. per dozen baskets; Mushrooms, 10s. do.; Kale, 15s. to 18s. do.; Sprouts, 1s. to 1s. 6d. per half-sieve; Radishes, 9d. to 1s. per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: *Feb.* 11.—Quotations:—Regents, 40s. to 85s.; Hebrons, 40s. to 90s.; Magnums, black land, 40s. to 50s.; Bedfords, 40s. to 55s.; Lincolns, 45s. to 65s.; Yorks, 50s. to 70s.; Scotch, 50s. to 95s.; Imperators, 40s. to 70s. per ton.

SPITALFIELDS: *Feb.* 12.—Quotations:—Early Rose 40s. to 50s.; Regents, 50s. to 65s.; Hebrons, 40s. to 60s.; Imperators, 50s. to 70s.; Champions, 50s. to 55s.; Magnums, 40s. to 60s. per ton.

STRATFORD: *Feb.* 11.—Quotations:—Scotch Magnums, 50s. to 80s; do. Regents, 55s. to 70s.; light English Magnums, 50s. to 65s.; dark, do., 40s. to 45s. per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week: Clover, special (1887), 120s.; prime, 78s. to 98s.; do., inferior, 46s. to 75s. Best hay, 60s. to 90s.; do., special (1887), 100s.; do., inferior, 26s. to 50s. Straw, 28s. to 40s. per load.

Obituary.

MR. J. M. M'INTOSH.—There passed away on February 4, at Victoria Terrace, Dumfries, after a lingering illness, Mr. M'Intosh, who had attained the great age of ninety years. Mr. M'Intosh belonged to a family distinguished in horticulture, and for a period of twenty-nine years he filled with great ability the position of head gardener at Drumlanrig Castle. Twenty-two years ago he was obliged by failing health to retire; and the long evening of his days has been passed in peaceful retirement in the neighbourhood of Dumfries. His father was gardener to Mr. Murray of Abercairney, near Crieff. While the deceased was in the service of the Duke of Buccleuch in Dumfries, his brother Charles (who was the author of *The Book of the Garden*, published in 1853 and 1855, and other horticultural works) occupied a similar position in his Grace's employment at Dalkeith Palace; and it is a curious coincidence that on their retirement they were succeeded by two brothers—Mr. William Thomson, now of Clovenfords, going to Dalkeith, and Mr. David Thomson to Drumlanrig. The late Mr. M'Intosh led a very retired life, but enjoyed the warm attachment of a circle of personal friends.

MR. MICKLEWRIGHT.—We regret having to record the death, after a very short illness, of Mr. Micklewright, who for the past three years had been gardener to Andrew Pears, Esq., of Spring Grove House, Isleworth, once the residence of Sir Joseph Banks. Mr. Micklewright was seized with an attack of influenza on the 2nd inst., and expired on the morning of the 6th, at the comparatively early age of 44 years. He leaves a widow and three boys, the youngest of whom is seven years of age. Of Scotch extraction, Mr. Micklewright served in some gardens south, notably Stoke Park, Slough, and Shrubland Park, under Blair; he then was head gardener at Greystoke Castle, Cumberland for eleven years. Coming south again, he was with Mr. W. Brown of St. Mary's nursery, Richmond, for a time; being also a member of the Horticultural Society's committee. From thence he came to Spring Grove, to undertake the charge of a place which Mr. Pears with exceeding liberality purposed reconstructing, and at the time of his death, much of the work, especially so as relates to the houses, kitchen and fruit gardens, had been accomplished, though much remains to be done. The deceased was also a member of the committee of the Hounslow Horticultural Society. He was a very estimable man, widely respected, and enjoying the entire confidence of his employer. A large number of gardeners and others attended his burial, which took place in the Heston churchyard on Monday last.

ENQUIRIES.

"*He that questioneth much shall learn much.*"—BACON.

FUCHSIAS.—Count Solms v. Laubach, Professor of Botany in the University of Strasburg, is desirous of obtaining cuttings of Fuchsia Standishii, F. Torreyana, F. exoniensis, F. Géant de Versailles, F. Attraction, F. Colossus, F. President, F. Dominyana, F. Prince Jerome, F. pendulina, F. excorticata, F. corallina, F. macropetala, F. apetala, F. Quindinensis, F. cinnabarina, F. radicans, F. Venus victrix, F. discolor, F. cylindracea. Amateurs are requested to communicate with the Count as above.

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

CALLITRIS. *B. M.* Many thanks, the plant is really Australian, but has been conveyed to the Himalayas.

CURRANT BUD DISEASE. *T. D. Smith.* Due to the attacks of a mite, see *Gardeners' Chronicle*, February 4th, 1888. Burn the affected shoots.

DISEASED SILVER FIR. *G. H.* The disease is the consequence of the attack of a fungus called Æcidium elatinum. As the growth of the fungus is internal, we fear there is no remedy beyond destroying by fire all the affected branches, and this would hardly be practicable.

GRAPE VINES AND VEGETABLES FOR FLORIDA: *X.* There is no book that we know of which gives just the information you require. Get *Select Plants for Extra Tropical Countries*, by Baron Ferd. von Mueller, published at Calcutta, Office of the Superintendent of Government Printing.

HÆMANTHUS KALBREYERI: *J. E.* When at rest a cool dry house, or a shelf on the wall of a vinery from which frost is kept out, will suit this or any other Hæmanthus; no water is then required. When started to grow in April, or earlier, the warmth of an intermediate-house, and later that of a stove, will be best. Grow it in well-drained sandy loam, made very firm. Deep pans are better than pots. Keep half the bulb above the surface, and repot every third year.

NAMES OF PLANTS: *T. Price, Stonehouse, Gloucester.* 1, Viola lutea; 2, Antennaria dioica; 3, Cerastium arvense; 4, Sedum acre, var.: 5, Veronica repens.—*Jane Eyre.* Helleborus colchicus coccineus.—*Constant Reader.* 1, Correa hybrida; 2, C. bicolor; 3, Abutilon Sellowiana marmoratum.—*L. L.* Lonicera Standishii.—*V. W.* 1, Mentha species, send in flower a better specimen; 2, Eugenia species, send in flower or fruit; 3, Nerium Oleander; 4, Jasmine, probably, send in bloom; 5, Euonymus japonica aurea variegata;

6, Aralia Sieboldi.—*N. M. St, Brelades.* We have done our best to name your specimens, but with very little success, as the leaves of many species are very similar and vary greatly, flowers and fruits are required for their correct identification; 1, Eucalyptus; Stuartiana? 2, E. Globulus; 3 & 4, E. amygdalina? 5, Juniperus taxifolia (commonly called oblonga pendula); 6, Juniperus rigida; 7, Cupressus torulosa. — *W. Hopkins.* 1, Sequoia sempervirens; 2, Thuya orientalis var. Sieboldi; 3, Cupressus; 4, Juniperus taxifolia, commonly called oblonga pendula; 5, Cupressus, perhaps torulosa; 6, Thuya Wareana; 7, Juniperus; the wretched scraps you send only enable us to guess at the names.—*J. W.* 1. Retinospora pisifera aurea; 2, The Atlas Cedar so far as we can tell; 3, A variety of the Douglas Fir; 6, Picea orientalis.—*J. S.* 1, Picea nigra (probably); 2, Pinus Strobus; 3, A variety of the Douglas Fir, probably the form known as Stairii; 4, Cedrus, probably atlantica; 5, The Golden Scotch Fir — we never saw it so finely coloured; 6, A variety of the Douglas Fir. *W. L.* Eriostemon myorporoides.—*Camjee.* Spiranthes colorans (=Stenorhynchus speciosus).—*Hortus.* The Heath-like plant is Diosma ericoides alba; the other, Sparmannia africana.—*W. J. B., St. Aubyns.* 1, Acacia longifolia; 2, A. dealbata; 3, A. cyanophylla; 4, A. affinis; 5, A. juniperoides; 6, Thuyopsis dolabrata; 7, Retinospora plumosa.—*Foreman.* 1, Dalechampia Roezliana, var. rosea; 2, Eriostemon pulchellus; 3, Goldfussia isophylla; 4, Acacia cyanophylla; 5, A. affinis; 6, A. dealbata.

NAMES OF FRUIT: *T. D. S.* Cats-head, probably.

OCHRA: *Subscriber.* A plant like an Hibiscus, but annual. The pods are used in the tropics as a pickle, and for the sake of their mucilage. Sow in heat, and treat as as a stove annual

ORCHID PEAT: WOOD & SONS.—The peat sent, seemed to be everything which an Orchid cultivator could wish for—light, scentless, full of vegetable remains. And with scarcely any soil.

PLANTS OF PALESTINE, *H. J. C.* The plants of Palestine are all included in Boissier's Flora Orientalis, five volumes. A list is also given in Canon Tristram's work on Palestine. Veitch's manual of Conifers; plants next week.

TOMATOS OR OTHER PLANTS, AND SYRINGING: *H. G. W.* Heat and excess of moisture in the air tend to a large development of foliage, and if accompanied with want of ventilation, blanching of the same will occur, and other undesirable features, as leaf warts and air roots. Tomatos grow and fruit better when kept on the side of dryness at the roots and of the air.

COMMUNICATIONS RECEIVED.—R. A. R.—W. H. B.—W. B. H.—N. E. B.—A. B.—J. V.—J. S.—Somerset.—H. D.—G. H.—G. D.—La Grippe, write to someone at the place.—R. C.—J. W.—W. H. S.—F. R., next week.—W. K. J. D.—W. E.—W. C.—P. N.—Count S., Strasburgh.—J. A.—W. E. G.—E. B.—F. M.—W. B. H.—J. W.—Prof. Goebel, Marburg.—H. C., Geneva, one article will appear, the other is missing.—Prof. Riley, Washington, many thanks.—T. H. S., Oodeypore.—F. G., Baroda.—D. T. F.—J. D.—G. P.—D. D.—T. W. G.

CATALOGUES RECEIVED.

ARTHUR ROBINSON, 8, Leadenhall Street, London, E.C.—Garden and Farm Seeds.

JAMES YATES, 29, Little Underbank, Stockport—Vegetable and Flower Seeds.

J. BARNES, Great Eastern Seed Stores, Exchange Street, Norwich.

WILLIAM SHAND, New Street, Lancaster—Garden Seeds, &c.

G. STEVENS, St. John's Nursery, Upper Richmond Road, Putney, S.W.—Chrysanthemums.

THOMAS SIBBOLD, Market Place, Bishop Auckland—Vegetable and Flower Seeds.

EDMONDSON BROTHERS, 10, Dame Street, Dublin, Ireland—Vegetable and Flower Seeds.

T. T. GREEN, Duke Street, Settle, Yorkshire.—Vegetable and Flower Seeds, &c.

TRADE NOTICE.

AT Antwerp a new General Horticultural Agency has recently been established by Messrs. D. Herdt & Stricker, with M. Jean Degreave, a gentleman of great experience, as manager.

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August 12.

"I have had the honour of winning the SILVER CUP offered at our Show for the best collection of Potatos. I staged 123 varieties, 68 of which I had direct from you. I grew 147 varieties, and the best cropper by far was THE DANIELS."

Quantity Planted, 14 lb. Quantity Raised, 728 lb.
From the "KETTERING GUARDIAN."
September 14.

"REMARKABLE POTATO YIELDS.—Mr. G. Johnson, o Wadcroft, has a crop of Potatos remarkable both for size and quantity. He purchased 14 lb. of THE DANIEL seed from Messrs. Daniels Bros., Seed Growers, Norwich; and the 14 lb. of seed realised no less than 728 lb."

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GENUINE ORCHID PEAT, 8*s.* 6*d.* per sack; 5 sacks, 40*s.*; BEST BROWN FIBROUS PEAT, 5*s.* per sack; 5 for 22*s.* 6*d.* BLACK FIBROUS PEAT, 4*s.* 6*d.* per sack; 5 for 20*s.* COARSE SILVER SAND, 1*s.* 6*d.* per bushel; 14*s.* half ton; 24*s.* per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1*s.* per bushel. Tobacco Cloth or Paper, 1*s.* per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.

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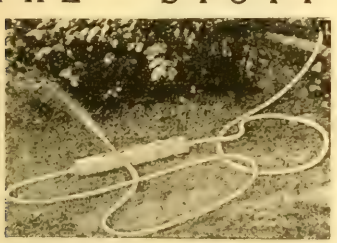
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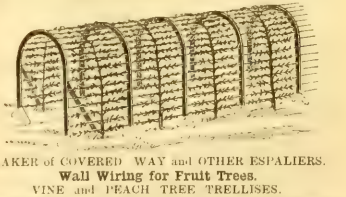
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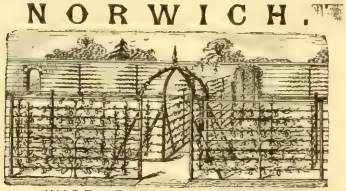
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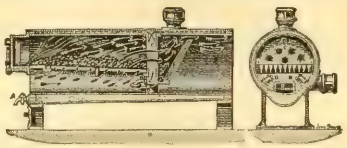
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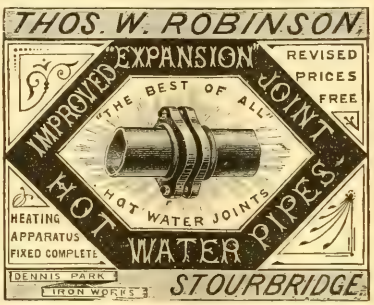


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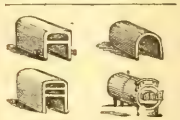
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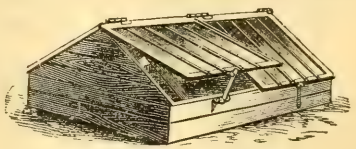
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Mr. M. HARTWELL has been appointed as Gardener to Colonel SILVESTER, North Hall, Wigan.

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JOURNEYMAN, in the Houses; age 19.— Mr. NORRISH wishes to recommend F. Willey as above. Two years in present place. Bothy preferred.—The Quarries Gardens, Exeter.

JOURNEYMAN in the Houses.—Age 22 good experience. Has been in the gardens of Sir Charles Pigott, Bart., for two years.—G. FORD, Wexham Park, Slough, Bucks.

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MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden W.C., on THURSDAY, March 13, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this SALE will SEND LIST for CATALOGUE AS SOON AS POSSIBLE.

Mount View, Sheffield.

SALE of the SECOND PORTION of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS, formed by the late David Ward, Esq., J.P. The Collection is in the best possible condition, is one of the finest in the district, and includes specimens from several well-known collections. This Sale will include a fine lot of Dendrobium Wardianum and Dendrobium nobile, magnificent specimen Cymbidium Lowianum, with sixteen flower-spikes; four large Cœlogyne cristata, Odontoglossum Andersonianum, &c. Also STOVE and GREENHOUSE PLANTS, Rhododendrons in pots, including five specimens of Lady Alice Fitzwilliam; six fine Lapageria alba, Camellias, Fruit Trees in pots, &c.

MESSRS. WILLIAM BUSH AND SON respectfully give notice that they are instructed by the Executors to SELL by AUCTION, at the residence, as above, on WEDNESDAY and THURSDAY, March 5 and 6, at 11 o'Clock each day, the Second Portion of the above VALUABLE COLLECTION, comprising upwards of 500 lots in Bloom and Bud.

Catalogues and orders to view may be had of Mr. J. KEELING, the Head Gardener, on the Premises; or, of the Auctioneers, at their Offices, 2 and 3, East Parade, Sheffield.

Monday Next.

2,000 LILIUM AURATUM, including several lots of immense Bulbs; also LILIUM KRAMERI, SPECIOSUM, and others, from Japan; a large assortment of English-grown LILIES and Hardy BULBS, TUBEROSES, GLADIOLUS, TIGRIDIAS, BEGONIAS, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, February 24, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, February 25, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Tuesday Next.

ORCHIDS in FLOWER.—SPECIAL SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 25, at half-past 12 o'Clock precisely, a large quantity of ESTABLISHED ORCHIDS, from various collections, consisting almost entirely of Plants in Flower and Bud.

On view morning of Sale, and Catalogues had.

Wednesday Next.

5,000 LILIUM AURATUM, splendid Bulbs, in excellent condition.

2,000 LILIUM SPECIOSUM RUBRUM and ALBUM KRŒTZERI.

100 LILIUM MACRANTHUM, and other Japanese LILIES.

60,000 Seeds KENTIA BALMOREANA and FORSTERIANA.

500 Standard ROSES.

300 GLADIOLUS and DAHLIAS; 1000 BEGONIAS, from 1st March; 500 AZALEA MOLLIS, RHODODENDRONS, and Ghent AZALEAS, from the Continent; 8000 American Pearl TUBEROSES; 3000 LILY OF THE VALLEY; 15,000 FREESIA REFRACTA ALBA, a very fine assortment of English-grown LILIES, Greenhouse and Stove FERNS, PALMS, and other Decorative Plants, from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, February 26, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Friday Next.—Orchids.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, February 28, at half-past 12 o'Clock, a large quantity of various ESTABLISHED and IMPORTED ORCHIDS.

On view morning of Sale, and Catalogues had.

Camden Road, N.

HIGHLY IMPORTANT to FLORISTS, FRUITERERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at The Mart, Tokenhouse Yard, London, E.C., on WEDNESDAY, March 5, at 1 for 2 o'Clock precisely, in 9 Lots, the Valuable LEASEHOLD PROPERTY, known as Brecknock Nurseries, Camden Road, N., occupying the most valuable site in the North of London, immediately opposite the "Brecknock Arms," possessing a commanding frontage to Camden and Brecknock Roads of 96 feet, with the magnificent Conservatory; also the Leasehold 9-Roomed Residence, being 229, Camden Road, and adjoining the former property, having a frontage of 29 feet, by a depth of 158 feet, with Stabling in rear; also Late Leasehold Nursery and Trade Grounds, situate at Hilldrop Crescent, Camden Road, N., and close to the foregoing Property; together with the Goodwill of the Old-established Business, so successfully carried on for years by the present Proprietor and Vendor.

Particulars had at The Mart, E.C.; of Messrs. TRUEFITT AND GANE, Solicitors, 54½, Bishopsgate Street Within, E.C.; and of the Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Harlesden, N.W.—Almost without Reserve.

To Nurserymen, Florists, and others interested in the Horticultural Trade.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, London, E.C., on Wednesday, March 5, at 2 o'Clock precisely, the BENEFICIAL INTEREST in the LEASE and GOODWILL of the Old-Established Nursery and Florists' Business, known as and being the HARLESDEN PARK NURSERY, St. Mary's Road, Harlesden, N.W., eight minutes' walk from Willesden Junction Station. The property comprises 1¼ acres of ground, 13 capital Greenhouses, and 3 Pits, heated by 3-inch and 4-inch hot-water piping, the movable Galvanized Iron erections of Cart and Van Sheds, and 2-stall Stable and Potting Shed. There is a Six-roomed Dwelling-house and Conservatory.

Particulars and conditions of Sale may be obtained on the Premises and at the various local Inns; of the Mart, E.C., of GEO. LOCKYER, Esq., Solicitor, 487, New Cross Road, S.E., and 1, Gresham Buildings, Basinghall Street, E.C., and of the Auctioneers and Estate Agents, 67 & 68 Cheapside, London, E.C., and Leytonstone, E.

Thursday, March 6.

NURSERY STOCK from SAMPLE.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE, as above, will take place on THURSDAY, March 6, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Catalogues forwarded on application.

WANTED, on Lease, Small First-class MARKET NURSERY, either a going concern or Premises suitable for same. Houses and Heating appliances must be modern, efficient, and in thorough repair.—X., 9, Exchange, Balham, S.W.

FOR SALE.

ABOUT 3 ACRES of FREEHOLD LAND,

SUITABLE FOR A NURSERY,

With about 16,000 super. feet of Glasshouses recently erected thereon. Also two Blocks containing four Cottages.

Situated 20 Miles south of London.

For particulars apply to PROTHEROE AND MORRIS, Cheapside, London, E.C.

ALTON NURSERIES, Headingley.—For SALE, by Private Treaty, as a going concern, the above well-established NURSERY BUSINESS, with valuable Freehold Land, convenient Residence, well-stocked Greenhouses, and the growing Nursery Stock. Purchaser could have possession at once.—Apply, Mr. CHARLES BEEVERS, Chartered Accountant, 92, Albion Street, Leeds.

East Retford, Notts.

TO BE SOLD, by Private Treaty, a first-class NURSERY (glass only), consisting of 6000 square feet, in full working order. A splendid opportunity for a good man. Retford is within a short distance of Newark, Sheffield, Doncaster, Leeds, Bradford, and Lincoln Markets. For full particulars apply, F. W. HODSON, Groveleigh Nurseries, Retford.

Nurserymen, Florists, &c.

GENUINE BUSINESS, consisting of Greenhouses, 200 feet by 12 feet. Well stocked and ready for market; small front Shop for Sale of Flowers, Fruit, &c. Capital chance for good man. Price for Goodwill, Stock, &c., £65—lowest.—T. RANSON, Mason's Hill, Bromley, Kent.

To Nurserymen, Florists, &c.—Hampton, Middlesex.

TO BE LET or SOLD, a 6-roomed COTTAGE, with Acre of Land. Stock on Ground at Trade valuation or reasonable offer; also well adapted for Glass.

Apply to Mr. JOHN EMBLETON, Suffolk House, New Hampton.

TO BE LET, or SOLD, the Celebrated CHAD VALLEY NURSERIES, Edgbaston, with most excellent modern Villa Residence of ample accommodation, and nine useful Greenhouses. Rent, £105 per annum. Or, the Residence with two Greenhouses and good Garden Ground, at £65 per annum, and the seven Greenhouses, standing on about half an acre, at £45 per annum.

Apply, 62, Stafford Street, Birmingham.

To Amateurs of Horticulture.

TO LET, on Lease (nearly thirty years unexpired), DETACHED RESIDENCE (drainage perfect), containing, on Ground-floor, three Reception rooms of excellent dimensions; on First-floor, five Bed-rooms and Bath-room, with two Attics above; good Domestic Offices, and excellent Wine cellar; Coach-house, Stabling, &c. Situated within a mile from Herne Hill Station, on high ground, with Garden (1 acre extent), slightly sloping west, surrounded by parkland and gardens. Garden entirely transformed during last twenty-five years by present Tenant, leaving London. Conservatory, Stoves, Greenhouses, and Brick Pits, comprising together 116 square yards Glass, furnished with choicest varieties, hundreds each of Ferns, Azaleas, including all Van Houtte's and others' newest, best, Camellias, and others. Similar quantities and highest class outdoor Roses, flowering Trees and Shrubs, Perennials, Alpines, with over ten dozen sorts Conifers (two large Cedrus Libani on Lawn, 50 yards long). Most extensive collection of choicest trained most productive Fruit Trees, including long row on south wall. Constant Water-supply through whole garden, which is most productive in Vegetables, separated from lawn by Rhododendron ridge of choice sorts. Additional ground obtainable, possibly several acres. Rent, £140.—Address, by letter, A. C. F. No. 17, to Bacon's Library, 10, Tulse Hill, S.W.

TO LET, a SMALL NURSERY, in main road; no other near.

Address, S. BEACH, 89, Stockwell Road, S.W.

TO BE LET on LEASE, an 8-Roomed Cottage, with about 4 acres of Land, mostly planted with Fruit Trees, suitable for a Nursery. Rent, £50 per annum.

Apply to FREEHOLDER, Mr. Fairlawn, Chase Road, Southgate.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease, for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

Fruit Plantation and Market Gardens.

TO BE LET, about 11 acres of LAND, with Residence; Forcing, Cyclamen, Geranium, and Rose Houses, Conservatory, Pits, and numerous Outbuildings.

Apply, personally only, to MALCOLM SEARLE, Esq., 9, Martin's Lane, Cannon Street, City.

KENT.—TO BE LET, a well-established NURSERY, about 4 Acres; capital Dwelling House, 4 Greenhouses, heated; Seed and Florist Shop, with Shed and Store-room, the whole standing in a good position in a rising neighbourhood. Nineteen miles from Covent Garden. Rent, £50. Stock at valuation, which is young, clean, and healthy.

D. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

HIMALAYAN PRIMROSES, for Spring Bedding, in quantity, cheap. PRIMULA ROSEA, the hardy Himalayan Cowslip, brilliant pink, good plants. Amateur's Stock. Address for price per 100,

F. E., Messrs. Street, 30, Cornhill, E.C.

THE "STANLEY" KIDNEY POTATO is the best of the Early Ashleaf section, an enormous cropper, grand quality, both when young and matured. Grown on red soil. Price 3s. 6d. per stone, cash with order.

H. HAVELOCK, Hexham.

Special selection, 1 stone Stanley, 1 stone Bruce, 1 stone Imperator, the best Potatos grown, true to name, 7s., bags free, cash with order.

H. HAVELOCK, Hexham.

LILIUM AURATUM, specially fine consignment to hand from Japan, 9 inches round, 6s. per dozen, 40s. per 100; 10 inches round, 7s. 6d. per dozen, 50s. per 100; 11 inches round, splendid bulbs, 10s. per dozen.

LILIUM LANCIFOLIUM RUBRUM, extra fine, 6s. and 9s. doz.

GLADIOLUS BRENCHLEYENSIS, Scarlet, 3s. 6d. per 100.

Cash with order. Package free. Orders over 20s. carriage paid.

J. & R. THYNE, 83, St. Vincent Street, Glasgow.

COLLECTION of ORCHIDS for SALE.—All the plants (about 1300) are in perfect condition. This collection has been got together so as to have plenty of bloom all the year round. There are some very fine varieties; one plant is unique. To be Sold, as the Lease of the Mansion expires soon.

Apply to HEAD GARDENER, Woodlands, Greenhithe.

SEED POTATOS.

Early Puritan Potatos, 10s. per cwt., 180s. per ton.

Sutton's Abundance Potatos, 5s. per cwt., 80s. per ton.

Sutton's Satisfaction Potatos, 6s. per cwt., 100s. per ton.

ASPARAGUS ROOTS.—Clean and good 2-yr.-old Asparagus Roots, for Planting, 8s. per 100.

Cash with order.

ALFRED COCKERILL, Seedsman, 18 and 20, The Drapery, Northampton.

FOR SALE, Cheap, 800 OAKS, 9 to 12 feet, 30s. per 100. 200 CHESTNUTS, Horse, 10 to 18 feet, 35s. per 100.

Apply to THOS. HEDLEY, The Gardens, Putteridge Park, Luton, Beds.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris, 1878.

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The finest variety grown, either for Private or Market Gardening.

Price 3s. per Sealed Quart Packet.

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THE MOST WONDERFUL CROPPING POTATO IN THE WORLD.

Price 2s. 6d. per peck, 8s. per bush., 21s. per sack.
Much cheaper by the ton.

EVIDENCE OF SUPERIOR QUALITY AND PRODUCTIVENESS.

From Hundreds of Unsolicited Testimonials received we select the following:—

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"I have had the honour of winning the SILVER CUP offered at our Show for the best collection of Potatos. I staged 123 varieties, 68 of which I had direct from you. I grew 147 varieties, and the best cropper by far was THE DANIELS."

Quantity Planted, 14 lb. Quantity Raised, 728 lb.
From the "KETTERING GUARDIAN."
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SCARLET-FLESH MELON.



CARTERS'
BLENHEIM ORANGE
WINS FIRST PRIZES

IN ALL IMPORTANT CONTESTS.

NOTICE.—We have purchased the entire stock from the Raiser of this valuable Melon each year since its introduction.

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400 Acres.

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FRUIT. Nothing so profitable and easy to grow. 71 Acres in stock.
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ROSES IN POTS from 15s. per dozen.

ORNAMENTAL TREES, 91 Acres.

4 Acres of Glass.

CLEMATIS (80,000), 12s., 18s., and 24s. per doz.

SEEDS & BULBS. VEGETABLE, FLOWER, and FARM.

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"PEA—WEBBS' ROYAL STANDARD.—This is a distinct and excellent New Pea. It grows from 5 to 6 feet in height, has an extremely hardy constitution, is enormously prolific, with thick, wide, blunt pointed pods of the Ne Plus Ultra type, but much larger. It merits a high place amongst main crop and late sorts, and its flavour at all times is second to none. I have tried scores, and might safely say hundreds of new Peas during the last ten years, and this is one of the few that have given me complete satisfaction.—*From* Mr. J. MUIR, *Gardener to* C. R. M. Talbot, Esq., M.P., *Margam Park.*

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100 plants in 10 Choice Varieties ... 5s. 6d.
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A Large and Select Stock is now offered for Sale.
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Six for 10s. 6d.; Twelve for 20s.

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LILY OF THE VALLEY CLUMPS, 1st size, 7s. per dozen, 40s. per 100.
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Must still go on as many acres remain to be cleared.

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Hardy Evergreens, Fruit Trees, Rhododendrons, &c.
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NEW AND CHOICE TOMATOS.

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NEW PEACH, per pkt.,	1/6	CRIMSON QUEEN, per pkt.,	1/-
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The Collection, One Packet each, 7 6, post-free.

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"UNIVERSAL" COLLECTIONS

FOR ONE YEAR'S SUPPLY.

VEGETABLES.—2s. 6d., 5s., 10s. 6d., 15s., 21s., 31s. 6d., 42s., and 63s.
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We offer £5 5s. PRIZES
FOR SIX ONIONS.

Full particulars in our Large Seed Manual gratis and post free.

JARMAN & CO., CHARD, SOMERSETSHIRE.

PURCHASERS OF TREES
should send for our special offer.
DICKSONS Nurseries, CHESTER.

GEO. JACKMAN & SON

beg to offer a large and well-grown stock of the following:—

FRUIT TREES—Of the leading varieties suitable for Market and Private Gardens.
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RHODODENDRONS—Of the best named sorts, well set with buds; also Hybrid, Seedling, and Ponticum, for shrubbery and covert planting.
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CLIMBERS—In large variety for Walls, Trellises, Rockwork, &c., including their celebrated Clematis.

G. J. & SON have also to offer a
NEW CLEMATIS "MRS. BARON VEILLARD" — a handsome variety of the Jackmanii type. It is a vigorous grower, bearing a profusion of distinct light lilac rose flowers, of medium size, from July to October. It can be highly recommended for its good qualities, and should be added to every collection. Price on application.
LANDSCAPE GARDENING—A leading feature. Plans made and Estimates given for Laying-out Estates, Public Parks, Cemeteries, Private Gardens, and Pleasure Grounds.

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SPECIAL QUOTATIONS

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LILIUM AURATUM.—Hard as bricks, as fresh as when taken out of the ground in Japan. Grand selected Bulbs, measuring 9 to 10 inches round, 12, 6s.; 50, 21s.; 100, 35s; specially recommended. Larger Bulbs, the very best, 12, 10s.; 50 for 35s. All carriage paid. Impossible to obtain better anywhere.
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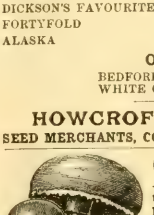
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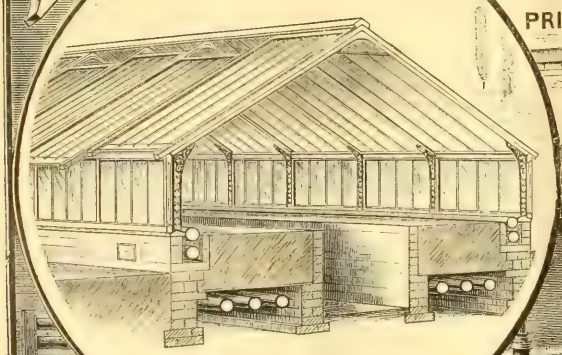
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"JAMES BACKHOUSE and SONS,
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*** **The plant has also been sent to Kew and Chiswick Gardens for trial, and PRONOUNCED QUITE DISTINCT.**

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For further particulars, see Illustrated SEED CATALOGUE *for* 1890,

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As a Supplement
TO THE
GARDENERS' CHRONICLE
FOR
Next Week, March 1,
WILL BE
Published an Ink Photograph
OF
CYPRIPEDIUM SPICERIANUM
AND
CYPRIPEDIUM MORGANÆ ×.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 22, 1890.

FRAGRANCE IN FERNS.

At a recent meeting of the Royal Botanic Society, Regent's Park, the Secretary, Mr. Sowerby, drew attention to the fragrant odour emitted by dried leaves of Polypodium (Drynaria) Wildenovii, an odour resembling that of fresh hay, and which the leaves retained for many months after being dried. Mr. Sowerby thought the plant might be grown as a source of perfume by amateurs.

A plant of this Polypodium was obtained for Kew from Mr. Sowerby. It is not, however, P. Wildenovii, a species not in cultivation so far as I know, but the well-known P. Phymatodes, of which we have many large examples at Kew, and the fragrance of which has long been known. The fronds are used by the South Sea Islanders for perfuming Cocoa-nut oil. About five years ago, a living plant and some dried fronds of this species were presented to Kew by Mr. Collins, of the Strand, who stated that the fronds were employed in his house for placing amongst clothing, &c., to which they imparted an agreeable and lasting perfume. I have the dried leaves still, and they are as fragrant now as when I received them. The odour is exactly like that of the Tonquin Bean, Dipterix odorata, used for scenting snuff and other forms of Tobacco. Specimens of P. Phymatodes, which have been in the Kew Herbarium nearly thirty years, are very perceptibly fragrant now, notwithstanding the strong dressing of corrosive sublimate which they have received. An allied species, viz., P. nigrescens, proves quite as fragrant when dried; and a third one, also closely allied to P. Phymatodes, viz., P. pustulatum, a native of New Zealand, is even more fragrant than these. The natives of New Zealand employ the fronds of this species to scent their oil and food.

In the *Daily News* for last Saturday there is a letter from a correspondent who has resided in the North West Provinces of India, where, he states, the fronds of P. normale are gathered and placed in rooms for the sake of their delicious hay-like scent. He also states that "it is, of course, the naked seeds at the back of the strap-shaped

leaves, which, being ripe at that season, give out the sweet smell which floats on the air in the golden pollen-like particles."

For one who begins by sneering at the Royal Botanic Society for its want of knowledge on the subject of sweet-scented Ferns, the belief that the fragrance is caused by the pollen-like particles is amusing. Certainly the spores have nothing to do with it, barren and young fronds being quite as fragrant as the fertile ones. There is no fragrance from these Phymatodes Polypodiums unless the leaves are dried or drying. The odour appears to be due to the presence of numerous oil glands in the fronds.

Evidently the leader writers for the London daily papers are unacquainted with the several native species of Fern, the fragrance of which is well known. The scent of hay is so marked in Nephrodium (Lastrea) œmulum, that it is commonly known as the Hay-scented Buckler Fern, and one of its synonyms, viz., N. fœnisecii, Lowe, means "hay-cutter." N. montanum emits, when bruised, a lemon-like odour, which is due to the presence of numerous minute glands on the under-surface of the fronds. N. fragrans, a native of the North Temperate zone, but not British, has a strong primrose-like odour, both when green and when dried, herbarium specimens retaining the fragrance for many years. It is stated that, in Siberia, a decoction of the leaves of this species is a pleasant substitute for tea. N. odoratum, a widely distributed plant, has a pungent mustard-like odour and taste. A common plant in gardens, and represented by large tufts in the Temperate-house at Kew, is N. patens, a species similar to N. molle, and almost as widely distributed, and which emits when bruised a strong odour suggestive of very ripe Apples. Dicksonia punctiloba, a North American plant, is known in Kentucky as the Sweet-smelling Fern, on account of the fragrance of its fronds. Probably there are many other species possessed of fragrance; those here mentioned are, however, all that are known at Kew.

The economic properties of Ferns are few and unimportant. A few are of medicinal value; the Sago-like pith of Cyathea medullaris affords an article of food to the natives of New Zealand; the tubers of Neprolepis tuberosa are eaten in Nepaul as we eat Potatos. The Bracken of our commons and woods is perhaps the most useful of all; its fronds are burnt for the sake of the alkali of their ash, which is used in soap and glass-making; the rhizomes are used as food, and the young fronds when boiled are said to be as delectable as Asparagus. Helminthostachys zeylanica in Ceylon, and Botrychium virginicum in New Zealand and Northern India are eaten in the same way.

The prevalent belief with regard to the name "Maidenhair" for Adiantum is, that the fronds are hair-like in their drooping elegance and lightness. According to J. Smith, however, this name "is derived from the circumstance of a syrup being prepared from A. Capillus-veneris, and which is known in commerce as Capillaire; it is slightly odoriferous, or made so by the addition of orange-flower water, and is used by women for dressing their hair, and for promoting its growth." A. pedatum is similarly employed in North America. A plant in gardens under the name of A. fragrantissimum is reputedly fragrant, but we ca not detect any odour in the example of it at Kew.

I find that the fronds of the hay-scented Polypodiums, when cut and placed in a room, give off a most agreeable fragrance, and on this account alone they deserve to take rank with Rosemary, the petals of Roses, and Lavender, so well known as ingredients in *Pot-Pourri*. *W. Watson.*

ROSES.

THE PRUNING OF HARDY ROSES.

AMONG the various special prunings of semi-tender and show Roses, there is considerable danger that the art of pruning hardy ones will be scamped or unlearned. Various causes work in this direction —such as the few hardy Roses grown, doubts as to the wisdom or need of pruning them, and uncertainty as to the time and extent of such pruning.

Most true rosarians deeply regret the decline of hardy Roses. True, most of these bloomed but once a year; but then they did flower well once, and that is more than can be said of a good many of their successors, though it may also be said of them that few modern Roses have ever exceeded the older hardy ones in colour and fragrance. The Rose Conference at Chiswick will not have been held in vain if it brings about a *renaissance* of the older and hardier Roses. It has already done so, and probably never within the last half century have so many of these Roses been sold as during the planting season now drawing to a close. Hence, in the near future cultivators are likely to have more hardy Roses to prune, and it becomes, therefore, of more practical importance to know how to do it.

Like the pruning of almost all Roses, the matter resolves itself into the two opposite extremes of hard or short, or long prunings to cut back to one or three buds, or to leave from six to a dozen, and both may be best, according to circumstances and sorts. For example, the common Moss, white, and other Provence, bloom most perfectly cut back hard and close. This not only limits the sizes of the plants to the convenient size of squat bushes for bed or border, but results in blooms of great perfection, and probably abnormal colour and fragrance. Hence while mere perfection of bloom and limitation of area are the chief objects, hard pruning is best.

But hardy Roses have an important place in the landscape, as well as in the flower-bed or border, and used for several purposes, probably the less they are pruned the better.

The less pruned, the more picturesque hardy Roses as rough ramblers, bushes, masses, or trees become. There are those that contend that Roses must be pruned; that if not pruned by art, Nature takes the process into her own hands, by starving down the tops to artificial dimensions. The process proceeds somewhat as follows:—The less the tops are pruned, the less vigorously they grow; simultaneously with this reduced vigour of crown, there are mostly developed suckers from the roots or root-stocks, or near the base of the stronger shoots or stems. These cut off the supplies from all portions of the Rose tree or bush at a higher altitude, and the Rose is pruned by the compound process of depletion and exhaustion.

This brings us to our last point—the extent and time of pruning our hardy Roses. The extent may vary from the hard and fast pruning of dwarf hardy Roses to a few buds, to pruning of different lengths, ending in the prune not at all of the landscape artist. And it must be confessed that the latter results in filling in the landscape with some of its richest furniture. Who that has seen the common Sweet Briar, or Dog Rose, or Garden Rambler, or fast-growing Ayrshire Noisette, or other vigorous growing Rose planted in rich soil, with room for development, left wholly unpruned, will ever forget the prodigal harvest of grace and beauty that have resulted from simply giving Nature her head. Many of the more vigorous hybrid perpetuals, hybrid climbers, Bourbons, and more vigorous Teas and Noisettes are equally admirable, when left almost as wild and free. Had standard Roses been given their heads more freely, they might still have been counted by thousands in gardens, where hundreds or tens barely rear their heads to-day. Close pruning converted their possibilities of picturesque beauty into formal masses, while the hard pruning indulged in reconciled them to their scarecrow deformity as well as deprived them of the power of outgrowing it—and yet the tall stems endowed standard Roses with coigns of vantage from which the more effectively to display their picturesque beauty. Nearly all that was needed to reap such charming results in quantity, sufficient to transform thousands of gardens, was to let the Roses have their heads and leave them severely alone. But from the day that standard Roses were hard pruned for show blooms, their days were numbered as objects of art, for stiffness and ugliness could hardly be pushed further among Roses than the setting of these shoots—two buds long each on the top of stems from 3 to 5 feet high in the sight of heaven and earth.

As to the time of pruning hardy Roses, the earlier after the fall of the leaf the better. If the leaf does not fall so soon after the fall of the leaves of Gooseberries and Currants, the better. In our first prunings of hardy Roses, the pruning followed hard in the wake of these, and we have never seen finer Moss, Provence, Damask, Cabbage, Maiden's Blush, nor other hardy Roses than those that were always pruned before the close of the year. *D. T. F.*

TONGUES IN TREES.

(Concluded from p. 40).

THERE'S WIT IN EVERY FLOWER, IF THOU CANST GATHER IT.

WE can do no more than hint at the rich store of literary allusion to our wild flowers which abounds in all English poets, and the beautiful thoughts suggested to many of them by some particular plant. It would be pleasant to quote Chaucer's lines upon the Daisy, Herrick's on the Daffodil, Burns' on the Dog-rose, Shelley's on the Sensitive Plant, Southey's on the Holly, Wordsworth's on the Lesser Celandine, Longfellow's on the Compass Plant, Crabbe's on the "grave flora" of the Suffolk Fens; to cite volume upon volume of Elizabethan and of later days; to enumerate and discuss the flowers with which Ben Jonson bids "strew, strew the smiling ground;" the "pretty paunce and cherisaunce" of Spenser; the quaint enamelled eyes that decked the laureat hearse of Lycidas; the "silver globes of Gueldres Rose" which won the heart of Cowper; the slight Harebell which raised its head uncrushed by the airy tread of Ellen Douglas; poor love-lorn Wilfrid's exquisite song of the Cypress wreath in Rokeby Hall; Tennyson's "Laburnums, dropping wells of fire;" or the slender Galingale, which bordered the meadows of the lotus-eaters. We should like to recall the lessons of natural theology which Paley drew from the "little spiral body of the Dodder seed;" of the "star-shaped shadow" of the Daisy which Archer Butler showed to Wordsworth; of the ecstacy with which Linnæus, when he first saw the wild Broom in flower, "knelt before it on the sod, for its beauty thanking God." Above all should we delight to turn the floral page of Shakspeare: to read of the grey discrowned head of Lear wreathed with "rank fumiters and furrow-weeds;" of Perdita at the shearing-feast disparaging the streaked Gillyflowers as "Nature's bastards;" of poor distraught Ophelia distributing her Rosemary and herb of grace; of Oberon telling Puck how Love-in-Idleness was purpled with Love's wound; of Titania gaily entwining the female Ivy and sweet Honeysuckle round the sleek smooth ass's head of Bottom; of Helena and Hermia, "a double Cherry seeming parted, two lovely Cherries moulded on one stem." We should lay on those who read a spell mightier than we can forge ourselves; we should invoke allies before whom all bow as the source of intellectual happiness and growth; proclaiming that the most creative minds have drawn nutriment from these tenants of our hedgerows and hillsides, and that the knowledge of their lore helps us in its turn to interpret the sweet thoughts and apt illustrations of the poets they delighted and inspired.

THE ROLLING YEAR IS FULL OF THEE.

Yet let us not forget, in our enjoyment, poetical

or scientific, the simple pleasures, yielded at once to the accomplished botanist and to the less educated but not less observant wanderer through hedgerow, field, and garden, by the mere annual reappearance of their favourites with each returning month.

The daughters of the year,
One after one, through that still garden passed;
Each garlanded with her peculiar flower,
Danced into light, and died into the shade.

As January draws to a close, and the days begin to lengthen, the sharp green spikes of the wild Arum push through last year's leaves; and, in the warmer garden beds, or, if our lot be cast in south-western England, in the deep overgrown ravine-like ditches, the Snowdrop peeps out of the softened ground. In February come the Primrose, the wild Strawberry, the Violet, the Chickweed, and the crimson stigmas of the Hazel. In late March the meadows are filled with Daffodils and Cowslips, the fallows yellow with Coltsfoot; the Willows get out their long soft catkins for Palm Sunday decoration; while the Lesser Celandine and blue Germander, with the slender stalks and star-like blossoms of the Stichwort, light up the hedgebanks, and the Golden Saxifrage chokes the brooks. In April comes the burst of Blackthorn with its keen east winds (the Blackthorn winter, they call it in the Midlands), the pastures brightening with the Marsh Marigold and Cuckoo-flower; Ferns uncrumpling in the sheltered lanes, amid Ground Ivy, Wood Anemone, Wood Spurge, Bluebell, Bugle, Deadnettle, Weaselsnout, Jack-by-the-hedge, Herb Robert, Lords and Ladies. In May we have the early Orchis, Moondaisy, Goatsbeard, Ragged Robin; the hedges bright with Elderbloom and Hawthorn; tall Hemlock shooting up side by side with Cowparsnip, Campion, Foolsparsley. Opening June dismisses from our garden the last remaining loveliness of Laburnum, Lilac, and Horsechestnut; its close brings on the "high midsummer pomp" of Carnation and gold-dusted Snapdragon, and Stocks and Sweet William and Jessamine and Roses, fills the fields with St. Johnswort and Yarrow, and Milkwort and Selfheal, and Birdsfoot Trefoil and Agrimony, and Vetchling and Yellow Bedstraw and Black Knapweed; the fences with Gueldres Rose, Mealtree, Honeysuckle, Privet, Bryony. With July the year is on the turn; in early August pods and leaves begin to take the place of flowers; the small short clustering carpeting blooms give way to the coarse straggling Henbanes and Ragworts, and Hemp Agrimonies and Woodsages; the great blue trusses of the tufted Vetch, and the pure white trumpets of the Bindweed, take possession of the hedges; the yellowing sagittate leaves of the Blackbryony and the scarlet berries of the Mountain Ash warn us that Autumn is beginning. Late September marks the closing scene. The flowers are few and far between:

Our heart is sick and our whole soul grieves
At the moist rich smell of the rotting leaves;

but splendid colours bejewel and gild the forest trees:—

O'er the leaves, before they fall,
Such hues hath Nature thrown,
That the woods wear on sunless days,
A sunshine of their own;

but the Ivy bloom is crowded with bees, flies, moths; the Hazels put forth clusters ruddy-brown as those with which the satyr wooed the faithful shepherdess; the Arum thrusts its poisonous brilliant fruit between the mats of dying grass; and the meadows which slope upwards from the brooks are blue with the flowers of the Colchicum.

Quæ sparsa alii scripsere ego carmina necto.

Not because our subject is exhausted, but for fear our readers should become so, we bring our flower sermon to a close. May we hope that we have justified our text, have proved that there are "Tongues in Trees." Tongues vocal with historical no less than mythical antiquity, tongues prating of curious folk-lore, revealing scholarly secrets, commemorating forgotten customs, lighting up poetic pages; eloquent finally with truths of design and natural selection, adapted change and imperious organic force; extending the habit of intimacy into the sense of brotherhood; elevating into unconscious devotion each fresh discovery and each new experience; exalting fellowship with Nature's moods and reverence for her works, into abiding filial homage to that creative source of Nature, "who bringeth forth grass for the cattle and green herb for the service of men." *W. Tuckwell, Stockton Rectory, Rugby.*

New or Noteworthy Plants.

Phalænopsis × Cynthia.

There appear to be other plants in existence so near to the one described by me on p. 132, that they will have to come under the same name. Messrs. Hugh Low & Co., of Clapton, have sent two flowers which quite agree in shape, though they are a little smaller, paler in colour, and with only a few of the light red spots near the base of the front lobe of the lip. In fact, they agree well in colour with P. × leucorrhoda, at least with the paler forms of it, two of which were also sent for comparison. The essential difference of P. × Cynthia is this, that although an undoubted natural hybrid, it has the remarkable anchor-shaped tendrils of P. Schilleriana, while P. × leucorrhoda and P. × casta, both from the same parents, have the long and slender tails of P. Aphrodite (amabilis of gardens). Judging from what is known of the behaviour of reversed crosses between the same two parents, it seems possible that P. × Cynthia may have resulted from a reversed cross. A carefully conducted experiment on this point would be of great interest.

Trichopilia punctata, *Rolfe, n. sp.**

A graceful and very singular little Trichopilia has just been received from Messrs. F. Sander & Co., of St. Albans, which seems quite distinct from any described species, and for which the above name is therefore proposed. It is remarkable for having both sepals and petals studded with numerous reddish-purple spots—a character which I do not as yet find recorded for the genus. Mr. Sander writes that it was imported from Costa Rica. *R. A. Rolfe.*

A GARDENERS' PROBLEM.

As a practical gardener who has travelled a little, kindly allow me to add my mite to the discussion consequent on the issue of Mr. Dyer's papers. Mr. Dyer is modest enough to state that botany—an exponent of which I take him to be a shining light—affords but a very insecure guide to horticultural practice. To this I say no; for what better foundation can a practical gardener have to work upon than a general knowledge of botany, geographical, economic, and structural, and, with a fair understanding of these different branches, his success in his business should be comparatively easy, his practical skill, as a matter of course, being attained by the only way of serving a lengthened term in some good gardens under the tuition of men who are masters of their profession.

Nearly every one who has travelled is aware that Orchids, Ericaceous plants, Ferns, Composites, and many others flourish much better in this country under garden treatment than wild in their native habitat. But why? Given the same amount of care and attention, practical knowledge, regular attendance in the way of temperatures, application of moisture, fertilising elements, and, in most cases, the shelter of glass structures, there is no reason to suppose that they should not flourish equally as well in the land to which they are indigenous.

Take, for instance, the Crotons. During my travels I noticed a church near Popleam's Broadway, in Madras, in the grounds of which these plants luxuriated in endless variety treated as pot-plants, exceeding in colouring as they equalled in growth any that are to be seen at our horticultural exhibitions at home, and produced under the most skilful management; here the temperature which is, of course, the chief element of success, generally exceeds 90° in the shade for the larger part of the year, and is seldom below 70° at night.

Optically, Mr. Dyer says, plants do not differ from each other as regards the protoplasm constituting their life essence; this being the case, the more reason, I think, that we should know where they come from, and, if possible, under what conditions they existed when discovered, in order to form some idea how to treat them, latitude and altitude being, I consider, even of more importance than soil, although the latter is a point of knowledge not to be lost sight of.

The growth of Orchids on trees is not confined to the bare stems, as indicated by Mr. Watson; on the contrary, from my observations, very few comparatively speaking, occur in such a manner. They generally cling to the shady side of branches partially protected by moss or decaying vegetable matter, or loose bark. The majority of the best wild specimens growing in the forks of branches or natural cavities in the stem, where vegetable matter capable of absorbing or retaining moisture is generally present, and this remark applies to other epiphytes, such as Drynaria quercifolia, Lycopodium taxifolium, epiphytal Vacciniums, &c. In fact, in a tropical forest, with its dense, almost impenetrable shade, perpetually flowing streams, and often soaking moisture from heavy dews, occur just the elements for the existence of such plants, and which we reproduce more or less naturally by artificial heat, shade, sphagnum moss, peat, &c.

No plants are better adapted to the climate of the arid and sterile regions they affect than the Cacti, Agaves, Aloes, &c., yet these thrive with singular success under liberal treatment. The Agave americana and its variegated variety can be seen in India, forming an impenetrable hedge for hundreds of miles on either side of the railway lines, which run for the most part through highly fertile regions. Nothing to equal this, I am given to understand, can be seen in the Mexican regions, where it is a native. And again, the common Opuntia, or Prickly Pear, and the Lantana, originally introduced, like the Agave, for hedges, bid fair to over-run large tracts of country in the immediate future.

The introduction and acclimatisation of the various species of Eucalyptus and phyllodineous Acacias in the hill regions of India was attended with signal success, down to certain degrees of elevation, and strange as it may appear, I have seen Cryptomerias, Cupressus, and other Coniferous trees, perfectly hardy in this country, thrive luxuriantly at lower elevations, where the Australian plants mentioned merely struggled for existence, all climatic influence being similar. And connected with this, I may remark that Sir J. Hooker, one of our most observant travellers, noticed the greater luxuriance of our Lebanon Cedars in England, as compared to the few survivors he saw on the Lebanon mountains.

Many gardeners have remarked on the improved appearance of the huge tree Ferns at the Crystal Palace under the management of a gardener who has travelled, whilst those planted out in the temperate house at Kew were splendid examples of their

* The pseudobulb sent is elliptical, much compressed, with two sharp angles, 1½ inches long by 1 inch broad. Leaf narrowly elliptical-oblong, sub-acute, 3½ inches long by 1 inch broad. Raceme suberect, 4 inches long, with three flowers. Bracts sheathing below, linear-oblong, obtuse, ½ inch long. Pedicel with ovary, 1 inch long. Sepals and petals subconnivent, narrowly lanceolate, sub-acute, 1 inch long, very pale green, with numerous reddish-purple spots, those on the petals a little paler than the others. Lip oblong, nearly equalling the other segments, the side-lobes embracing the column; front lobe truncate, slightly undulate, greenish-white, keel solitary, prominent in centre of lip, and extending in a faint line to base. Column ½ inch long, green, fimbriate at back, wings fleshy, entire. It is allied to T. laxa, perhaps better known in gardens as Pilumna laxa, which it much resembles in habit. The name is given in allusion to the spotted perianth. There is already a T. maculata, Rchb. f., but the spots of this are in the leaves, not in the segments of the flower.

kind when I saw them last; but I have seen in the deep ravines and *scholas* of the Nilgiri hills that splendid tree Fern, Alsophila latebrosa, flourishing vigorously, and equalling in nature what we reproduce artificially, for example, Dicksonia antarctica.

Some travellers are prone to romance considerably—I do not say purposely—particularly those ignorant of botany, or any of the natural sciences, this being the reason why we often obtain inaccurate information about plants. An instance is fresh in my recollection of a military gentleman from India, who was inspecting a small collection of Epacris I had in bloom, whom I overheard assuring my employer that this purely Australian genus grew wild in any quantity round about Simla.

I regret to see that Mr. Watson discards geographical botany, and, needless to say, I do not agree with him. I quite sympathise with him over his difficulties in establishing the plant he received from Hong Kong, and judging by the way he eventually established it, I should say the consignor obtained it at a considerable altitude. I have had a little experience in connection with such importations; a year or two back, my employer brought me several large Beans, ostensibly a species of Horse Chestnut, they were similar in appearance, and he called them such. These had been received a day or two before from India, with an assurance that they were perfectly hardy. I immediately recognised them as seeds of the well-known leguminous plant known as the Sword Bean throughout the tropics, and instead of sowing them in a cool border as requested, I placed them singly in 32-pots in the Melon frame, with the result that they attained the height of 2 feet in about nine or ten weeks, and were thriving well when I left the neighbourhood. I may here add that plants of the natural order Leguminosæ invariably flourish best under liberal treatment—this is a well known physiological fact which accounts for Mr. Watson not being successful with his Camoensia in the first instance.

Possibly I may be wrong when I advance the opinion that the beautiful Nilgiri Lily, which is reputedly difficult to grow in this country, would under some sort of natural treatment be easily cultivated, for nothing could be more simple than the way it grows naturally, its abundance, and the vigour of its flower-spikes, making it a conspicuous object in the region it affects. And what is the meaning of the numerous Fern glades, rockeries, and alpine borders in the gardens of this country? unless something approaching nature is being imitated, it is certainly not all done with a view to landscape effect. How often do our Caladiums, Gloxinias, Achimenes, &c., succumb to a dry-rot during their dormant period, often in a most unaccountable manner, but more often through becoming dust-dry; yet in Nature there must be some sort of capillary attraction, obscured, certainly, to an ordinary observer, whereby the tubers are rendered plump and sound by receiving the necessary amount of moisture; yet, anomalous as it may seem, I have observed that where jungle and grass-land fires have occurred and parched the ground, in addition to the usual dry season, on the advent of rain, numerous flowering gesneraceous plants—Impatiens, Nilgiri Lily, the terrestrial Orchid, known commercially as "Salep Misere," and numerous others—spring up spontaneously with the growth of fresh grass and vegetation.

Mr. Dyer mentions the Plumbago and Rhyncospermum as flourishing under diverse circumstances, but he omits to mention a plant better known still, viz., the Camellia, and the vicissitudes it has undergone in the way of temperature since it was first grown in this country, and I can recollect the time when Jasminum revolutum was included in a collection of stove and greenhouse plants for exhibition.

Mr. Burbidge says that Nature carries matters far past the point where the gardener stays his hand; and, broadly speaking, it does; but when it suits the gardener's purpose, he, too, encourages Nature to an extreme point, viz., the fruiting stage. What are Messrs. Veitch and our leading Orchidists doing at the present moment but fertilising and cross-fertilising, with a view to obtaining new and improved forms; in fact, exceeding the point where Nature in its simplicity often stops short.

That knowledge is power no one will deny, whether it has been acquired through travel or by home study, and the gardeners' art may be more or less empirical, but, of course, much will depend on circumstances. Of one thing I am assured—that is although horticulture has progressed apace, a great deal more remains to be accomplished of things as yet undreamed of by our predecessors in the craft. Why should not such tropical luxuries as the Oranges, Mangoes, Durians, Mangosteens, Guavas, Caricas, &c., be cultivated here under glass as readily as our Grapes, Melons, Pine-apples, and Bananas. I have seen Monstera deliciosa flourish with signal success on the back wall of a flue-heated stove, and know that the Vanilla, Loquat, and Grenadilla, have been brought to perfection in this country; but with this I must conclude. *Head Gardener, Streatham.*

—— It is, unfortunately, only too true that horticulture is carried on largely in an empirical way; but that such is always the best or shortest method of attaining the desired end, I am loth to believe. Nor can I see how empiricism can successfully compete against practice with science, and in this case, chiefly botanical, and more particularly that which relates to physiology, morphology, and geographical botany—a knowledge of which must surely give a gardener a great advantage over the pure empiricist. Supposing that two such individuals were given the same task, under conditions entirely new to both, which of them would be likely to produce the best results in a given time? I think the odds would be a long way in favour of the scientifically trained man; as besides his knowing certain fundamental truths, which, within a measurable range of limitation, must be observed, he would also by virtue of such knowledge, be better able to manipulate and adapt the various forces at command to suit his requirements. On the other hand, a pure empiricist might make many experiments before succeeding, that is, if he succeeded at all. Of course, I do not contend that the scientific experimenter can always at first prescribe the correct treatment; but there is this advantage and broad distinction between the two—the one employs his forces in the direction which have every chance of leading to a successful solution of the problem, while the other, or empirical, employs his forces without being able to forecast the results likely to ensue; indeed, he may have done that which the other side could, almost with a certainty, have predicted, could but end in failure; and, therefore, I cannot see how empirical experiments can be classed as scientific research.

Touching the question as to whether the gardener is much the better for knowing the conditions under which plants flourish in their native habitats, I think such information is of the greatest importance, in enabling the gardener to shape his treatment of the new comer; but should they be such that it is practically impossible to reproduce them exactly, yet they will be valuable data to start from. Moreover, under scientific manipulation, that which may not be attainable may often, in a great measure be compensated for by modifying or otherwise altering the conditions, so that they shall nearly approach those of their natural state. Many epiphytal Orchids are cultivated in this way. But where practicable, I have always found that when the natural conditions under which they live can be reproduced in our houses, that is generally found to be a satisfactory basis upon which to work.

As an instance of this, I may mention Amomum magnificum, which flowered with us last December—a Madagascar plant, which has been introduced into the Mauritius; but Sir Henry Barkly told me that it only flourished on the banks of streams, sending its thick creeping rhizomes along the edges of the banks, with its roots descending to the water-level. We at once decided on imitating this by preparing a place for it in the aquatic-house; the result was, to use a common garden expression, it grew like a weed, and flowered.

Up to the time of planting there, we had grown it in a pot stood in the tank, but the result was not nearly so good as when planted out in a manner imitating its natural habitat. And this instance strikingly shows the importance of following natural conditions. One great difficulty is to get a correct report of those conditions. I have frequently been told that certain plants grew in nothing but pure sand, but, being rather sceptical about accepting these statements, I found out, by subsequent conversation, that some important particulars had not been taken account of, for my informant went on to say that periodical fires swept the plains, consuming all the vegetation for the time being; but that after a time copious rains followed, and that in a surprisingly short space of time afterwards the plains were again clad with luxuriant vegetation, and wound up by extolling the wonderful fertility of sand. Clearly enough, no account was taken of the ash of the previous vegetation left by the fire in a readily available form. It is needless to say what would have been the result had I tried the sand as advised in an English greenhouse. Mr. Fraser has very truly said, "What we want is careful observers to correctly record the conditions." *F. Ross, Pendell Court.*

HYBRID ROCHEAS.

WE owe to the kindness of Mr. Pynaert, of Ghent, the opportunity of figuring some hybrids (fig. 35), said to be the result of crossing Rochea coccinea and R. jasminea. They were raised by M. Foucard, of Orleans, and received a First-class Certificate from the National Horticultural Society of France. The colours show all stages between those of the parents, ranging from white, flushed with rose, to deep crimson. The easy culture of these plants, and the beauty of their flowers, render them "plants for the million." They are particularly well suited for window culture. They are of dwarf habit, and may be kept pinched-in to form a close bushy habit. They are easily propagated by cuttings, and, we are assured, flower the same year as they are struck. A well-drained, rich, loamy soil, with a little leaf-mould and sand intermixed, suits them.

CLIVEAS.

CLIVEA or Imantophyllum miniatum, an introduction from Natal, having produced seedlings which are finer than the type, has already become an acknowledged favourite for conservatory-house decoration; indeed, it is believed that it will in time outrival the free-blooming and beautiful Vallota purpurea. Various opinions have been expressed as to whether the name should be spelt as above, or with the letter *h* as a prefix. [According to the latest authorities, Clivea is the preferable name. ED.] As a demonstration of the appropriateness of the longer name, it is only necessary to attempt to break one of the leaves in twain with the hand, which are really, as denoted by the name, tough as "leathern thongs."

Unfortunately for their popularity, these plants have long been considered as stove plants, requiring warmth throughout the winter, though of late years Messrs. Bull, Laing, Williams, and other nurserymen, have rightly placed them amongst greenhouse plants. Messrs. Veitch & Sons, in their last catalogue, enumerate all the species in duplicate under both stove and greenhouse plants. Suffice to say, that seeds raised in this country germinate as freely in a cool greenhouse as those of the Lemon or the Orange; and one-year-old seedlings will withstand the ordinary greenhouse temperature, as will any other greenhouse plant known. Indeed, with the thermometer as low as 30° Fahrenheit, they take no harm whatever.

The large numbers of clivea which, in their season of bloom, are distributed in the beds in the Palace at Sydenham, even though but one and two-year-old seedlings, amply exhibit the diversity

of the flowers, and the great endurance of these and the plants. A more objectionable place than the Crystal Palace for maintaining plants in good health does not exist.

Again, its natural season of blooming is given as the month of February, which is no doubt correct, but so amenable to cultivation is the plant that it may be made to flower almost throughout the year. One of the best known plantsmen avers that being in possession of a dozen plants, the grower may have

Like all flowers of tubular shape, Cliveas prove useful for all purposes to which cut flowers may be put in the dwelling and for personal adornment, retaining as they do their form and colour for a long time. The large size of the roots prove that the plants are not difficult to treat in the matter of compost. The soil which suits them best is a rich sandy loam; by rich, I mean that decayed manure, may with advantage be incorporated with it. The roots grow always straight downwards, and it is,



Fig. 35.—A group of hybrid Rocheas. (see p. 228.)

1, Mad. Foucart, rose-coloured; 3, M. Buchner, white, with deep rose edges; 4, Mrs. Cannell, white, flushed with rose; 5, Mr. Pfitzer, cream-coloured, flushed with rose; 6, Mrs. Wynne, carmine.

it in bloom for twelvemonths. The flowers of Cliveas have been much improved during the last few years, but this improvement is in its infancy; much is due to Continental growers in regard to hybridising with a view to obtaining finer blooms, and those who have recently visited Continental exhibitions and nurseries will, of all others, the most fully appreciate this fact. And it is but giving honour where it is really due, when I say that to Continental growers are primarily due, the beautiful seedling varieties under name which we now possess, and to which I shall presently refer.

therefore, desirable to pot the roots firmly and certainly beneath the plant. By this means the roots will not penetrate the soil so rapidly as they would in light soil, but will collect nutriment from every part of the soil. It is difficult to imagine these plants as being anything but evergreen, nevertheless, here under artificial culture, as in their native country, the seasons are beneficially varied by giving abundant root watering during spring, summer, and autumn, and withholding it to a moderate extent during the winter months. It is essential to keep the leaves perfectly clean at all times. Where

plants are separated into batches for successionally blooming, their treatment will necessarily vary considerably.

The new varieties are:—Madame Douner, imperialis, Madame Van Houtte, Mdlle. Marie van Houtte, Mdlle. Marie Reimers, princeps, insignis, Mrs. John Laing, Lindeni, speciosa, Perfection, superba, and Distinction. The older varieties, which are obtainable at less cost than the above-named novelties, are, miniata grandiflora and robusta, and all are well deserving of the attention of those who possess a greenhouse. *William Earley.*

Notices of Books.

Index of British Plants.—This is a list of British plants prepared by Mr. R. Turnbull, and published by Messrs. Bell, based on the eighth edition of the *London Catalogue*, and containing all the names therein published, together with the synonyms as found in no fewer than ten of the leading British floras, with references to the figures in *English Botany* and Bentham's *Handbook*, illustrated edition, and the popular names. The accentuation of the Latin names is marked, and the geographical distribution indicated. As a complete list we can recommend it, as likely to be very serviceable from the care with which it has been compiled.

Names and Synonyms of British Plants. (Bell & Co.)

Mr. G. G. Warburton has collated the nomenclature of the *London Catalogue*, and of four of our principal British floras. The author adopts the plan of assuming as correct the name which finds acceptance by the whole or the majority of his authorities. We are afraid "critical" botanists will look upon this as a very evasive way of meeting difficulties, for it is quite possible that all five may prove to be wrong, or that the minority may be right. This can only be ascertained by critical study of old facts and investigation of "new lights" as they appear.

SEED TRADE.

Mustard.—One of the heads of departments in one of the largest wholesale seed houses in London, informed me recently that the annual sales of Mustard amount to 2000 sacks. This quantity consists almost entirely of what is known as the white or yellow Mustard, as but very little of the brown or black seeded Mustard constitutes a part of this huge bulk. What of white Mustard is English grown, is produced in the counties of Essex, Lincolnshire, and Cambridgeshire, but, considerable bulks are also obtained from California and Holland. The Californian Mustard is not employed for the preparation of the flour of Mustard, as owing to the climate, there is not sufficient pungency in the flavour to make the seeds acceptable for this purpose; but it can be employed for agricultural and garden purposes. The Holland Mustard is employed by the manufacturers.

It is said that the manufacture of Mustard was first understood and extensively practised in the county of Durham, and the finest Durham Mustard was for a long time a trade-mark. The black-seeded Mustard was used in Durham in preference to the white because of being more pungent and of a finer quality; but as it is found extremely difficult to remove the skins entirely, the flour made from the black seeded retains a certain darkness of colour. Much less labour is said to be required to manufacture from the white, and therefore it is now employed to a much greater extent, though sometimes the brown flour is mixed with it. In France and other parts of the Continent, where the art of removing the skins from the seed is not properly known, the black Mustard is still employed, but the flour made from it has a very dark or greyish colour.

In reply to a question as to what portion of the 2000 sacks was employed for sowing in gardens for salading purposes, I was informed about 200 sacks. Mustard has long been much valued as a pungent salad, and for mixing in the bowl, it may, as Messrs. Sutton & Sons say in their useful book on the culture of vegetables, "take the place of Watercress, when the latter is not in command." It is the custom of some to mix the seeds of Mustard and Cress together and sow them; but this is a plan that cannot be commended, for the two plants do not grow at the same pace, and there is nothing gained by mixing the seeds. Brown or white Mustard may be used for gardening purposes; the leaves of the former, as in the case of the flour made from it, is said to be more pungent. The seed of Rape is largely used as a substitute for Mustard for market purposes; but, as Messrs. Sutton & Sons say, "it should be shunned in the garden."

In agricultural districts, Mustard and Rape are both largely employed for cleaning foul ground, and for feeding purposes. It is the practice to sow the seeds in July and August on land that is of a weedy character, and when the crop has grown to a certain height to plough it in before the weeds can produce seeds, or feed it off with sheep. The general practice appeared to be to feed off Rape, but plough in Mustard; though this is not the invariable rule, for in the sheep-producing counties of Sussex Hampshire, and Kent, large quantities are sown for this purpose. Indeed, the sowing of Mustard for agricultural purposes is largely confined to the above-named three counties.

The production of Mustard in the county of Cambridge has been greatly circumscribed by the ravages of a little black beetle that devours the plants. The Lincolnshire crop of seed fell much below the average. The Essex crop was better, but by no means up to the average; but good supplies of seed of fine quality are coming in from California and the Continent, and it is expected prices will rule fairly moderate. *R. D.*

The Orchid Houses.

The East Indian House being now well stocked with flower, should have air admitted both by night and day, so as to keep the atmosphere comparatively dry; this will keep the flowers from getting spotted by the moisture. When the sun is strong, the shading should be run down, or the Phalænopsis flowers will be carried off. Plants of Aërides, Saccolabium and Vanda, which are grown in this house, should be closely examined after being repotted or surfaced, to see that they have no brown scale; should any be found, it should be at once destroyed by aid of soft-soap, applied by a stiff brush or a sponge. The house may now be thoroughly syringed morning and afternoon, more moisture being necessary as the ventilation is increased. Temperature, 65° at night, with a rise of 5° to 10° with sunheat.

Cattleya-house.—Many plants of Cattleya Trianæ will now be in flower. I group all the flowering plants together, and this not only displays the different varieties, but renders it easy to run a thin shade over them when the sun is bright. Plants of Cattleya Mossiæ, late-flowering Mendelii, C. Percivaliana, C. Gaskelliana, &c., may be repotted with safety. The Brassavolas do well in this house.

Intermediate House.—Plants of Cœlogyne, as they pass out of flower, will require very little water for a month, and even if their bulbs shrivel a trifle, it it will do them no harm. Sobralias should at once have attention, and any requiring to be turned out should be repotted in one half turfy loam and peat, with an addition of a little silver sand. Barkerias must not be allowed to drop their foliage from want of water; these plants are often kept too dry during the winter, and the leaves falling prematurely, the plant is weakened. Odontoglossum citrosmum must be kept very dry, or the chances are that it will not flower; no water should now be given unless the back bulbs are shrivelling. Zygopetalum Mackayii and Z. crinitum may be repotted, using peat and sphagnum in equal portions. These are very useful spring flowering plants; they may be grown cool, but do very much better in this house. Here also Epidendrum prismatocarpum does very much better than when grown in strong heat; very little water should be given now until the flower-spikes are seen to be making their way up the sheaths. Where plants of Miltonia vexillaria are throwing up spikes, it would be well to give the plants a dipping in soft-soap and tobacco-water. After doing this, it is a good plan to hang the plants, if possible, on the sides of the stage, head downwards, to drain. Maintain a temperature of 58° at night and 62° by day.

Cool house.—The work to be done here will chiefly consist of watering and damping the house. All the cool growing Odontoglossums may be syringed overhead first thing in the morning, but not until the thermometer registers 50°. All parts of the house should be kept damp, and insect pests should be diligently looked for. Temperature, 48° to 50° at night. *A. G. Catt, Parkfield, near Worcester.*

Plants and Their Culture.

Forcing House.—Batches of plants in succession should be put into this structure, and many species may be brought on in others which have been started for other purposes; and much time will be saved if this method is adopted, as hard forcing will in a great measure be avoided. Hyacinths, Tulips, and Narcissus will now force readily, and it is necessary to introduce only a few at a time, and these should be placed near the glass to prevent the drawing of the stems and leaves. Bulbs for late decorative work must be kept cool, and given an abundance of air when the weather is mild. Lilies of the Valley will force readily. I prefer single crowns to clumps for forcing, as blooms come with a good height of stem, and there is plenty of foliage if forcing is not too rapid. The crowns should be put into a brisk bottom-heat, and in cocoa-fibre, and be kept moist. By this means the flower-spikes come in advance of the foliage. Some plants in pots of Deutzia gracilis should be ready to again place in heat, and if these have been brought on somewhat in a fruit-house recently started, they will come into bloom readily with a little more warmth. They require abundance of moisture at the roots as they advance towards bloom. Lilac Charles X., and the Persian, may be grown in almost any warm place; even the Mushroom-house will answer for a time if blanched flowers are required; now is a good time to start. Viburnum and Staphylea colchica, Prunus sinensis flore pleno, early Rhododendrons, Kalmias, Hydrangea paniculata grandiflora, all require treatment similar to the Viburnum, &c. Azalea indica may be brought into the forcing-house a few at a time; A. mollis will now be found useful, and plants of it should be given a cooler place than the forcing-house as soon as the flowers begin to open. Spiræas will force well at this period, if the roots have been grown for forcing purposes. Another lot of Tea scented Roses should be brought on, and will require frequent dustings of sulphur to prevent mildew being troublesome. The watering must be done with care till the plants have made free growth, when weak liquid manure should be given them. Callas want abundance of water. Eupatoriums need similar treatment to the Callas, and should not be allowed to get dry at the roots. Tuberoses may be potted in succession, and placed in bottom-heat, and treated as previously advised, withholding water for a time until growth commences. A few pots of forced Solomon's Seal should not be omitted. The useful Dielytra spectabilis may also be brought on slowly in a light pit or house, and when they are in active growth moisture at the root should not fail.

Greenhouse and Cool Pits.—The greenhouse should now have more air, and the plants more liberal waterings as the sun gets stronger. When artificial heat is used to counteract the effects of the cold nights usually experienced in March, many of the New Holland plants, Ericas, and Epacris will be in bloom; these should never be allowed to get dry at the root. The early blooming Epacrises will soon be past their best, when they should be cut back, watering sparingly till new growth commences; they may be placed in an intermediate-house, or at the warmest corner of the greenhouse, free from cold draughts, and repotted as soon as they have made a good start, giving a shift only where necessary. The soft-wooded Heaths, like E. hyemalis and E. Wilmoreana, require similar treatment to the Epacrises, and when repotted, only good peat and clear silver-sand should be used for them, giving clean materials for drainage, and making the compost very firm. The later blooming Ericas, of which E. Cavendishiana is an example, must now be attended to closely, as any neglect in the watering will soon cause the plants injury. This work should always be attended to by one person, who will be able to judge of the requirements of the different plants. Plants of Epacris Eclipse and E. miniata should be fastened with a few ties before the flowers open, just to keep the shoots in trim order. Chorozemas need similar attention, as well as plenty of water, and to be occasionally turned round, so as to keep them in nice shape.

Pimeleas will now be growing freely, and should, when in good condition, be assisted with a mild fertiliser, and be damped over with the syringe on favourable occasions, so as to check inroads of red-spider. Polygalas, though not so much grown as once they were, are pretty plants, easily grown, and will now require sunny positions and attention as regards watering; Kennedyas also require water in abundance if well-rooted, and a few ties where necessary. Should insect pests, as is often the case, be troublesome, syringing with petroleum emulsion should be resorted to. We use Bentley's soluble petroleum for this purpose, for mealy bug and scale insects, and find it much safer than ordinary petroleum and water, which is difficult to keep properly mixed, whilst being made use of. Acacias will soon be in full bloom, and if scale be found on the plants, the latter should be syringed, before the blooms expand, with an insecticide. These plants will take more water after this date, and occasionally manure-water. Boronias should be put into a light place, so as to show their flowers to advantage, and carefully watered—but not in driblets.

Aphelexis, Leschenaultias, Acrophyllums, Darwinias, and Tetrathecas need similar attention, keeping them as near to the light as possible and unshaded at this season. Statices will have commenced to grow freely, and will give a better return if at once repotted if they are in a vigorous condition. These should get a large proportion of good yellow fibrous loam, with a few lumps of charcoal, and a small quantity of decayed manure and bone-dust, with half-inch bones placed over the drainage. After potting, place the plants for a time in a temperature warmer by a few degrees than the greenhouse. If mildew should attack them, dust with flower-of-sulphur. These are serviceable plants for autumn decoration of the conservatory, as they remain a long time in bloom; but to get strong flower-spikes the plants require to be well grown. Genistas will take abundance of water, with weak manure water now and then if they are pot-bound. Young stock of these plants and of Statice profusa and S. Holfordii should be propagated at this date from strong cuttings. *G. Wythes, Syon House.*

The Flower Garden.

Ordinary Bedding Plants. — Autumn-struck cuttings of Pelargoniums for bedding purposes should now be potted off, and placed in any of the houses or pits, where a little heat is at command. A slight syringing overhead is all the moisture they will require for a few days, if the soil was in a proper state of moisture at the time of potting.

Propagating.—Proceed with the propagation of carpet bedding and all other plants required for beds, having previously prepared a hot-bed or house with a brisk bottom-heat for their reception. Canna roots should be divided, potted, and placed in gentle heat; they will make nice plants by bedding-out time, and unless they are prepared in this way, would rarely attain perfection in the more northern parts. Eulalia japonica variegata and E. zebrina, two useful subjects in the sub-tropical garden, should now also be divided, and placed in the same temperature.

Seeds to be sown in addition to those previously mentioned are: — Ferdinanda, Eulalias, Musas, Melianthus major, Chamæpeuce Casabonæ and diacantha, Cineraria maritima, Solanum giganteum, S. robustum, S. marginatum, S. pyracanthemum, and S. Warscewiczi, Wigandias, Echeveria metallica and E. glauca, Eucalyptus, Lobelias, and Pyrethrums. Intermediate Stocks sown now, and potted off when ready, will be fit to turn out at the end of April, and give a nice succession of bloom to the Ten-week varieties.

Weeds and Moss on Lawns.—At this season, unless

on very clean lawns, Daisies, Plaintains, Docks, Dandelions, spring up and give the lawn an unsightly appearance, and the present is the best time to uproot them. Docks and Dandelions if cut off about an inch below the surface, and the remaining portion of the root covered with common salt, will invariably complete their destruction. Moss on lawns may be kept down in a great measure by frequent and close mowing by the lawn-mower throughout the year, and regular sweeping with a birch or heath-broom. Where moss does exist, the turf should receive a thorough rough raking with a small iron rake, to remove most of the moss, and then be well swept afterwards. A dressing of well-slaked lime or house-ashes then strewn over it, or what is preferable, a dressing of finely sifted rich loamy soil, will be found most beneficial to the growth of the grass. Both after the removal of moss and the weeds, the dressing of soil should be made with an addition of a thin sowing of grass seed raked in and then well rolled, will ensure a thorough renovation. *D. C. Powell, Powderham, Exeter.*

FRUITS UNDER GLASS.

LATER vineries ready for starting should have their outer borders covered up to protect from snow water, and the inside borders should have the inert and dry soil removed, to be replaced by a moderate top-dressing of sound loam and bone meal. Syringe the rods backwards and forwards twice daily. Muscats, Lady Downes, and other late kinds, should be started at the end of the month, in order to have them well ripe before the summer sun loses its power.

Any renovation of border omitted in September and October may yet be done just as the buds begin to swell, and if the roots be carefully forked out of the exhausted soil, and replaced in new suitable soil, made firm and solid, it is really astonishing how soon real beneficial results can be realised.

Peaches and Nectarines.—In the earliest house proceed with disbudding by degrees, removing foreright and underneath buds first. Do not overlook the fact that leaf growth increases activity in the roots; on the other hand carry the mind forward regarding an ultimate crowding of shoots, and endeavour to strike the balance, the fruits which are safely set will now be taking the lead, and others should be at once removed, to prevent waste of power. Bring the syringe into use twice daily, and further increase the daily temperature to 70° or 80° with sunshine. Ventilate as before advised, and keep a sharp look out for aphis. A few puffs of tobacco-powder will keep all safe if done soon enough, otherwise fumigating must be resorted to, but before doing this make certain that the foliage is quite dry. The second house, if in flower, must have the help of the camel's hair brush or rabbit's tail for artificially fertilising the flowers. Trees in the late houses are all forward, and should have the number of their buds reduced. The mild weather is responsible for this precocity.

Orchard houses, with trees in pots or otherwise, should be dealt with, and plants must be housed, having first undergone a dressing of Gishurst. Arrange the Plums and Cherries at the end of freest ventilation.

Figs will require some thinning; the deformed and misplaced fruit should be pulled off. The best fruit is found on extension branches. Stopping the shoots hastens the first crop at four leaves, but unless back shoots are required, the less stopping the better. Ply the syringe vigorously twice daily, but beware of steam arising from hot pipes. With the increased light increase the temperature to 60° at night, and 70° or more by day, using abundance of tepid liquid manure. Exercise extra vigilance for white scale, which establishes itself upon and spoils the young fruit.

Melons will, under favourable circumstances, be well up their sticks. Keep a bottom-heat of 80°, and a night top heat of 70°, rising to 85° by day, with abundance of moisture, but take precautions to give ample ventilation in order to build up leaves of stout substance, able to stand against the weather of March, otherwise the foliage will flag and burn, becoming an easy prey to red spider. If Melons be planted thinly and grown on the extension system, they will produce fruit more in succession, but on the whole I prefer one plant for three or four fruit, sowing a few seeds fortnightly.

Cucumbers.—Old plants have improved in appearance with the mild firing necessary of late, and are bearing freely, advantage being taken to gradually withdraw as much old wood as possible; they too love extension, and one plant will occupy a whole pit, and give good returns. Telegraph remains my favourite variety. Attend to and prepare young plants for succession.

Strawberry-house.—The early pots are on the point of colouring their fruit, and should be given a nice warm moderately airy shelf, to finish and improve the flavour; give warm diluted liquid manure at every watering till colour shows, using clear water afterwards. Successional batches are treated as stated previously, daily using the camel's-hair brush for setting purposes, thin the fruit, letting plants in 5-inch pots bear six fruits each; use the syringe vigorously to keep insects clear, and introduce fresh batches according to demand. *Wm. Crump, Madresfield Court, Malvern.*

THE HARDY FRUIT GARDEN.

DURING the past fortnight we have experienced frosts varying from 4° to 14°, and cold north and east winds, the effects of which will be beneficial to all kinds of fruit, retarding the opening of the buds. The frosts caused much ground work to be suspended, and gave an opportunity to wheel mulchings to places where it was needed. The amount of mulching given to any tree will depend upon its vigour, the quality and the depth of the soil, as well as situation. Those whose gardens are level have no idea of the disadvantages those are under who have gardens on hill-sides, for not only is the working of the latter garden much increased, but the drying influence of wind and the rapid exit of water are much more felt. We mulch almost everything, and by doing so the ground is kept moist, and when rainstorms come most of it is retained by the soil instead of running off, as it would do if no mulching were there. Trees growing vigorously and in good soil should only be mulched with half-decayed straw to the depth of 3 inches, this simply keeping the soil moist, and free from weeds; but trees growing in shallow or poor soils should have a heavier mulching, and farmyard manure, if it be procurable. Mulchings keep many of the roots in the upper stratum of soil, and any which are found to have gone into the lower stratum, should be lifted, and the roots laid higher. The condition of the roots is of more importance than that of the branches, for if the former are unhealthy, no attention bestowed on the latter will do any good. At the same time, the practice of starving trees into fruit bearing by cutting and mutilating two-thirds of their roots close to the stems, must be avoided; and the system of ringing the bark of branches and stems, are practices I strongly condemn. Much the best plan to adopt is to take part of the fruit borders annually and lift, and, if necessary, root-prune half round each tree, leaving the other half till the following or second season. With small trees commence about 20 inches from the centre of tree, and larger ones 3 feet, digging down below the roots, and cutting away any roots which may have passed directly downwards, pruning the roots carefully at the ends, before replacing them in the fresh soil. If at all exposed to strong winds, they must be securely tied to stakes, driving them in the opposite side to where the soil has been moved.

Grafting should be commenced, the more forward stocks and scions having precedence; and to avoid the necessity of having to renew the clay from grafts, bind it round with live moss at the time of grafting. Cuttings of Currants and Gooseberries, if the work has been delayed, may now be put in. The cuttings may be of any length, and inserted from 4 to 6 inches in the soil, and on Gooseberry and red and white Currants; from this part all the buds should be removed to prevent the formation of suckers or ground shoots, also rub off the eyes for a few inches above the ground-line to confine the bushes to stems only, black Currants excepted. Plums in bud are now very tempting morsels to the bullfinches, and, being trees not easily protected when once the birds get a taste of the buds, their appetite seems to become insatiable. If these birds are very numerous, powder and shot must be employed to lessen their numbers. *A. Evans, Lythe Hill, Haslemere.*

THE KITCHEN GARDEN.

ONIONS.—Take advantage of the first favourable occasion to get in the main crop of Onions. If the ground has been properly prepared, there will be but little difficulty now in making up good beds; and for this important crop no pains should be spared in getting the soil in good workable condition. It is essential that the ground be firm, especially if the soil is light and shallow; but if the soil be heavy and stubborn, some amount of judgment is required, and in some cases the less the ground is trodden upon the better. The bed should be slightly forked up early on a bright morning, so as to dry the soil before, it is made firm, then sow the seed thinly in shallow drills from 10 to 12 inches apart. If maggot be troublesome, give a thorough dressing of soot, and repeat several times during the early part of the season when damp, after the plants are up, after covering the seed with a rake, it may then be rolled, but if trod in, a slight rake over will suffice. Heavy stubborn soil should be marked out in 4 feet beds, raised several inches above the level, with 12-inch alleys between. The seed should be covered over by hand with some fine soil and burnt wood ash, smoothing the surface with the back of a spade. We shall limit ourselves to three varieties, viz., Veitch's Main Crop, Bedfordshire Champion, and James's Long Keeping.

Shallots and Garlic should now be planted, pressing the bulbs into the soil sufficiently deep to hold them fast; plant on well enriched beds 8 inches apart in the rows, the rows being 10 inches apart.

Carrots.—A good bed of the Early Nantes, or Short Horn, should now be made on a warm border, to follow those sown in frames; these may be sown rather closer than the main crop; the seed of the latter should remain in the packet for some time yet. Avoid sowing when the ground is sticky.

Parsley may now be sown on well-prepared beds, not too rich, and made firm, covering the seed with burnt garden refuse if obtainable.

Spinach.—A good bed should now be sown to follow the winter crop. Rich soil deeply dug suits this crop well; poor soils lead to early seeding. Soot is a capital fertiliser of this crop.

Radishes, Leeks, Lettuce, Brussel Sprouts, Cauliflowers, especially the Walcheren—a never-failing variety, being alike good in dry and wet weather—may be sown on well-sheltered borders; but in cold districts, Brussel Sprouts should always be forwarded in heat, so as to get good established plants early in the season.

Rhubarb.—New plantations, if required, should be made by dividing the old stools, and replanting on well-trenched and heavily-manured soil in a cool moist position. Do not gather the first season's yield.

Herbs.—Several of these will now need attention in the way of dividing and replanting. The whole border should be thoroughly gone over, the various kinds increased as may be required. Sage roots more freely from slips planted and trod in very firmly in April. Mint, although, as a rule, increased by roots being placed in shallow trenches, is much better done from young sprigs; these should be pulled up when 3 to 6 inches high, dibbled in rows 12 inches apart and 8 inches in the rows, on well-prepared beds, part of which should be in a cool position; increased in this way, it is astonishing what fine plants each make by the middle of June.

Onions and Leeks.—If large Onions and Leeks are required early, a box of each should be sown and forwarded in heat, and these bulbs, with care, will by the month of September have grown to a large size. Onions and Leeks transplant well, but anything likely to check the young plants must be avoided.

Tomatos for planting outside should now receive attention, it being essential that the plant be in a very forward state when put out. There are so many different varieties grown that selection must be left to individuals; Orangefield and Laxton's Open Air are both good. Sow the seed thinly in pans or pots of sandy soil, and place in warmth; and when the plants are large enough they should be transferred to small pots, putting two plants in each pot. Keep the plants growing, and repot them when necessary. Our heaviest crop last year was gathered from plants which had set much of their fruit when planted out. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	FEB. 24	Lilies, Roses, and Greenhouse Plants, at Protheroe & Morris' Rooms.
TUESDAY,	FEB. 25	Orchids in Flower at Protheroe & Morris' Rooms. Roses, Greenhouse Plants, &c., at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	FEB. 26	Roses, Fruit Trees, and Greenhouse Plants from Ghent, Border Plants, Shrubs, &c., at Stevens' Rooms. Japanese Lilies, Roses, and Plants in pots, at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 27	10,000 Lilium auratum and other Bulbs from Japan, Pearl Tuberoses, Tigridias, &c., at Stevens' Rooms.
FRIDAY,	FEB. 28	Established and Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—40°.2.

An Emperor among Potatos.

AT a recent meeting of the Academy of Sciences of Paris, M. AIMÉ GIRARD alluded to a variety of Potato but little known in France, and still less here, but which is, nevertheless, remarkable for its yield of tubers, and for the richness of these in starch. While, says M. GIRARD, the average yield of tubers in France does not exceed 7500 kilogrammes (say 147 cwt.) to the hectare, a hectare being 2·4 acres, and a yield of 15,000 or 18,000 kilos. is considered excellent, the variety known as Richter's Imperator may, under certain conditions, yield as much as 35,000 to 40,000 kilos. per hectare of tubers with more than 20 per cent. of dry starch.

M. GIRARD first tried the variety for three years on a small scale, but in 1888 and 1889 he grew it on a large scale, but still with the same general results, so that, in 1889, he obtained 39,000 kilos. of tubers per hectare, with a proportion of 20·4 per cent. of starch, representing consequently 7956 kilos. of dry starch, that is to say a weight of dry starch per hectare *superior to the general average weight of the tubers themselves in France.* [The italics are ours. ED.]

Moreover, M. GIRARD confided tubers to forty growers in different parts of France. From all these reports were received but ten were eliminated, as not having complied with the conditions, and thirty-three reports were selected as representatives of the ordinary field culture. The general result has been, that yields of 32,000 to 44,000 kilos. per hectare, with a proportion of 20·4 to 24·2 per cent. of dry starch, or a general average of 36,000 kilos., and of 7900 kilos. of dry starch have been obtained. Those cultivators, on the other hand, who lifted their tubers in September, or who planted cut sets, and not entire tubers, grew them at too great a distance apart, applied an insufficient quantity of manure, and so on, only obtained a yield of from 13,300 kilos. as a minimum, to 30,000 kilos. as maximum. A graphic diagram is added to M. GIRARD's communication, which show the facts very clearly.

The average yield per hectare is 7500 kilos., the yield in the Department of "Hautes Alpes," the most favoured in this respect being 11,700 kilos. The value of this variety for alcohol-making is thus, from the large percentage of starch which is capable of conversion into alcohol, so great that Richter's Imperator will not commend itself to the teetotallers. However, there are other uses for spirit than the manufacture of Potato brandy, and there is no doubt that M. GIRARD's investigations will prove of great economic importance. It may be added that M. DEHÉRAIN, the Director of the Agricultural Station at Grignon, has made experiments with Richter's Imperator in comparison with two other varieties similarly treated. Mr. DEHÉRAIN's observations substantially confirm those of M. GIRARD, although, on the whole, they are rather less favourable than those of M. GIRARD's correspondents. In VILMORIN's *Plantes Potagères*, among the German varieties, we find this description of Richter's Imperator:—"Tubers large, oblong, slightly flattened, but, nevertheless rather thick, of oval form, slightly notched, skin pale yellow, with a salmon tint; flesh almost white; shoots purple; haulm robust, erect, stiff; leaves rather distant, with rounded folded leaflets; flowers lilac. This variety is *demi tardive*, and somewhat resembles the English variety, Paterson's Victoria, but the tubers are larger and less regular.

Trade Prosecution.

WE publish in another column a report of the proceedings against FREDERICK WISE for obtaining goods under false pretences, and the case is not without its lesson. Perhaps of all trades, the horticultural trade is more open to such fraud than any other, and especially is this so in the case of head gardeners who send their produce to market, and who cannot be expected to have that knowledge of persons connected with the market which is possessed by others. That such frauds have been practised for a considerable time is well known, and this too notwithstanding the efforts on the part of the market authorities to prevent them. It is not always, however, that members of the trade who have been defrauded are found willing to devote the necessary time to prosecuting, to say nothing of the expense to which they would inevitably be put. We are glad, therefore, to see that the three prosecutors in the case (two of whom are head gardeners) have exhibited sufficient public spirit to give up their time and put themselves to a considerable amount of trouble and expense, in addition to being sufferers by the loss of their goods, in order to make an example of the man by whom they were defrauded. It is true that the prosecution was taken up by the Nursery and Seed Trade Association, but inasmuch as we understand there are no funds in that Association available for defraying the costs of prosecutions, it follows that the costs must be borne by individuals. A year ago the Association took up a prosecution for adulteration of Clover seed, which resulted in the infliction of the full fine, and in that case we believe the costs were defrayed by a few individuals. These facts taken in connection with the natural reluctance on the part of members of the trade to prosecute, point to necessity for the existence of a fund for the purpose of defraying the costs of such prosecutions; otherwise the trade is left at the mercy of fraudulent persons. We commend this to the attention of the trade, for what is every one's business is no one's business; but if it were the duty of such an Association to undertake, at the expense of the Association, such prosecutions, we have no hesitation in saying that the trade would benefit thereby. It would, indeed, be hard if the costs of the present prosecution should fall on the prosecutors themselves. They have given their time to it, and this is all that should be expected of them.

AERIDES AUGUSTIANUM. — This new species (fig. 36), was described by Mr. ROLFE at p. 9 of our current volume. It is allied to A. Roebeleni, but differs in its longer, stouter, nearly straight spur. It was discovered in the Philippine Islands by M. AUGUSTE LINDEN, to whom it is dedicated, and is offered by the Horticulture Internationale. The flowers are of a light rosy colour, each from 1 to 1¼ inch long.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—It will be of great interest to a large circle to know that Mr. HARRY VEITCH, the Treasurer of the Institution, will preside at the annual dinner on Thursday, June 12 next.

THE CARNATION AND PICOTEE UNION. — Mr. E. S. DODWELL has just issued the fifth annual report, which consists of a closely printed pamphlet of fifty-six pages. There are now about 350 subscribers to the Union, 104 having joined during the past year. In the year just past, the subscriptions amounted to £155 9*s*. In addition to the usual report, &c., there are given the names of the flowers shown in all the competing stands at the last exhibition, the proceedings at the luncheon, the annual general meeting, and—what is, perhaps, the most valuable—reports from leading growers as to the evidence of the season, and the good flowers grown or seen by them. Under this heading, interesting notes are supplied.

PRESTON AND FULWOOD HORTICULTURAL SOCIETY.—At a meeting of this Society on Saturday last, Mr. WATERS, who is leaving the district to take charge of the gardens at Hopwood Hall, near Manchester, was presented with a very handsome timepiece by the members as a mark of the respect and esteem in which he was held; Mr. CHAS. PARKER made the presentation in suitable terms. Mr. ROBERTS, and others briefly spoke on the matter, and the meeting cordially wished Mr. WATERS a prosperous career in his new sphere. Mr. WATERS acknowledged the kindness he had always received from the members, and spoke of the great good the Society was doing in a horticultural sense.

TELEGRAPH MONEY ORDERS.—It is announced from the Post Office that on and after the 1st of March, 1890, money may be transmitted by telegraph money order between all head and branch offices in the United Kingdom at which telegraph and money order business is transacted, under the following conditions:—The commission will be: for sums not exceeding £1, 4*d*.; for sums above £1 and not exceeding £2, 6*d*.; for sums above £2 and not exceeding £4, 8*d*.; for sums above £4 and not exceeding £7, 10*d*.; for sums above £7 and not exceeding £10, 1*s*. In addition to the commission, a charge will be made at the ordinary inland rate for the official telegram authorising payment at the office of payment, and for the repetition thereof, the minimum being 9*d*. The telegraph charges only cover the cost of transmitting the official telegram of advice to the



Fig. 36.—Aërides Augustianum: flowers rosy-lilac: from a water-colour sketch. (see p. 232.)

postmaster of the office of payment and its repetition. Any telegraphic communication which the remitter may wish to despatch to the payee must be paid for at the ordinary inland rate, the minimum being 6*d*. No single telegraph money order can be issued for a greater amount than £10. A receipt for the amount of the order will be handed to the remitter. Any person expecting a remittance by telegraph must furnish satisfactory evidence that he himself is the person entitled to receive the money. He, or some one on his behalf, must attend at the office to obtain payment. Should repayment of a telegraph money order be required, the remitter must make application to the Controller, Money Order Office, General Post Office, London, or to the Accountant, General Post Office, Edinburgh, or Dublin, according to whether the order was remitted from an office in England and Wales, Scotland, or Ireland. He must enclose the official receipt with his application. A new order will then be issued, less the ordinary commission, payable at any money order office named for the purpose. In other respects, telegraph money orders will be subject to the regulations which govern the transmission of ordinary money orders.

Australian Association for the Advancement of Science.—The second meeting of this body commenced at Melbourne on January 7, under the presidency of Baron von Mueller. Australian science was largely represented—indeed, to a much larger extent than many Europeans would have considered possible. The Baron's introductory address occupies some six columns of the Melbourne *Argus*, and included a review of the progress of science in Australia that was eminently satisfactory. The conservation of forests was advocated, and allusion made to the Australian Alps, to which an excursion of four days was devoted.

Paris Horticultural Congress, 1890.—This will be held at the apartments of the National Horticultural Society of Paris, 84, Rue de Grenelle, at the time of the General Horticultural Exhibition, May 21 to 26 next. Among the subjects for discussion are the following:—The permanence or otherwise of varieties; Enquiry as to whether, in order to obtain striped flowers, it is essential to begin with white flowers; Railway rates; Chemical manures, their use in horticulture; Customs dues; Destruction of garden pests.

National Footpath Preservation Society.—We are glad to see that this Society is making satisfactory progress. The chief offenders, it appears, are new proprietors, who endeavour to destroy rights of way, which their predecessors had not dreamed of treating otherwise than as public property. Very often this arises from sheer ignorance. Many disputes might be equitably arranged by this Society, which is careful of the rights of proprietors, as well as of the public.

Self-help Emigration Society.—This Society gives assistance to suitable persons desirous of emigrating to the British Colonies, by aiding them on the voyage, and facilitating the search for employment on arrival. Each intending emigrant contributes towards the expenses, the Society supplying the balance, and employing agents in Canada to watch over the interests of the emigrants on their arrival, and until they are settled. The Society is supported by public subscriptions, which fall short of what is demanded. The Treasurer is E. Barclay, Esq., 54, Lombard Street.

Botanic Gardens, etc.—The following appointments have been made recently:—

Berlin.—Dr. Pax, formerly of Breslau, has been appointed "Custos" of the Botanic Garden, Berlin. Dr. Niedenzu, also of Breslau, has been appointed assistant in the Berlin Botanic Garden.

Graz.—Dr. Molisch has been appointed Professor of Botany in the Technical High School.

Montpellier.—Dr. Granel has been appointed Professor of Botany, in the room of Professor Planchon; and Dr. Courchet becomes Professor of Botany in the School of Pharmacy.

St. Petersburgh.—Dr. Borodin has been appointed Professor in the University, in the place of Professor Famintzin.

Charkow.—Dr. Palladin has been called to the Professorship of Botany in the University.

New York.—Dr. Rusby, well known for his collections in tropical South America has assumed the Professorship of Botany in the New York College of Pharmacy.

Quito.—The Professorship of Botany and Directorship of the Botanic Garden, so long held by our correspondent, the late Dr. Jameson, has been conferred on Dr. Lagerheim.

Oxford.—Mr. Druce has been appointed subcurator of the Fielding Herbarium.

"Illustration Horticole."—The number for December 25, only recently received, contains a full illustrated account of the "Horticulture Internationale," the important establishment in Brussels directed by M. Lucien Linden, and of which we have already given an account in our columns.

"Die Naturlichen Familien."—This valuable publication, issued under the auspices of Professors Engler and Prantl, has now reached as far as the Composites, which are described by Professor Hoffmann, of Berlin. The numerous woodcuts are of great assistance.

Palermo Botanic Garden.—We have received the *Index Seminum* from this establishment, the extent of which may be judged from the fact that it consists of 38 quarto pages of three columns each.

Stephen's "Book of the Farm." Division IV.—The fourth divisional volume, just published, completes the spring work, and carries the reader through the greater portion of the operations of summer. It is practically a new volume, most of the chapters having been entirely rewritten, and the others very thoroughly revised. The volume opens with "Potato Planting," which is described very fully; the tilling, cleaning, and manuring of land for Potatos being exhaustively dealt with. A specially interesting section in this chapter is that describing the process of raising new varieties of Potatos from seed. The summer culture of cereal crops is completed by a short section describing the process of raising new varieties of grain by "Cross-Fertilisation." New chapters have been introduced on the insect and fungoid attacks on crops and stock. The preparing of pastures for stock, and the treatment of sheep, cattle, and horses in summer, are practically and fully discussed. The volume closes with an exhaustive treatise on "Dairy Work." This consists wholly of new matter, and occupies about one-fifth of the entire volume.

An Example not to be Followed.—We take the following from a French paper:—"Madame L., dog's tailor, has arrived at Nice with a large assortment of the newest 'toilettes' for dogs. She will exhibit these articles at the general Horticultural Exhibition! at Cannes on the 23—27th inst."

Nomenclature.—Our contemporary, *Le Jardin*, says that a Begonia, known in France as Le Mahouti, is identical with that known as Moonlight, which French readers are told to pronounce as if written "Mounlaite."

John Stuart Mill as a Botanist.—An interesting glimpse of a distinguished man is to be found in an earlier chapter of Mr. Tozer's voyages, which one may confidently recommend as a very pleasant book of scholarly travels. On his first two voyages among the Ægean Islands, Mr. Tozer had for his dragoman Alexandros Anemogaunes, who on various occasions had accompanied well-known travellers in Greece, such as G. F. Bowen, W. G. Clark of Cambridge, John Stuart Mill, Dean Stanley, and others. It is of Mill that Mr. Tozer tells us an interesting little fact. He says: "In the midst of the ruins [of the Temple of Apollo on Delos] Anemones of various colours—white, pink, and lilac—were growing, and I dug up some fine Narcissus roots to transplant to England. For this proceeding I had good authority. Our servant informed me that J. S. Mill, when he travelled with him in the Peloponnese, besides drying flowers, had an extra baggage mule in his train for carrying plants and roots." Mill, as is well known, was a confirmed botanist, and learnt in the methodical classification of flowers what he taught in logic. One of his biographers has related how he met "the (at that time) parliamentary logician, with his trousers turned up out of the mud, and armed with the insignia of his craft, busily occupied in the search after a marsh-loving rarity in a typical spongy wood on the clay to the north of London." We may add that Mr. Mill's herbarium is at Kew.

Black Walnut.—It is stated in *Garden and Forest* that one of the largest specimens of Black Walnut probably ever sent to an eastern market in the log may now be seen in the timber yard of Messrs. Johnson Bros., 385, Albany Street, Boston. The tree which produced it grew near the falls of the Kenawah, in West Virginia, on the line of the Chesapeake and Ohio Railroad. The trunk, which measured 64 feet to the first branches, has been cut into five lengths; the butt log, the centre of which is hollow from decay, measures at the base 8½ feet across. The diameter of the log, cut 25 feet from the ground, is 4 feet 2 inches, and that 50 feet from the ground has a diameter of 3 feet 11 inches in one direction, and 3 feet in the other. The upper end of the fifth log, at a point 61 feet from the ground, where the trunk had been a good deal flattened, measures 4 feet 1 inch through one diameter, and 2 feet 9 inches through the other. These measurements are all made inside the bark. A thousand feet of lumber have been cut from the main branches, and the five trunk logs are estimated to contain 10,000 feet. The wood in the butt log outside the central cavity is beautifully curled and marked. A superficial examination of the annual layers of growth shows that this great tree has grown on the whole with wonderful rapidity, and that it is probably less than 300 years old.

Seedling Sugar-canes.—The last number of *Garden, Field, and Forest* (Demerara), contains an interesting account of six seedling varieties raised at the Dodd's Botanical Station, Barbados. These were selected from a lot of natural self-sown seedlings, discovered in Barbados some two years since. They are spoken of as very promising. The seeds take about seven days to germinate.

Illustrations of British Fungi.—Dr. Cooke continues his valuable series of illustrations of British fungi. No fewer than 1146 coloured plates have already been given. The text is given in the current numbers of *Grevillea*.

"Botanical Magazine."—The February number contains coloured figures of the following plants:—

Podophyllum pleianthum, t. 7098.—See *Gardeners' Chronicle*, 1889, Sept. 14, p. 299, Kew.

Cottonia macrostachya, t. 7099.—A curious Vanda-like Orchid, with loosely-panicled flowers. Each flower measures about 1 inch in the longest diameter. The segments are oblong, yellow, striped with red; the lip is in form and colouring like that of Ophrys aranifera. It is a native of peninsular India and Ceylon. Kew.

Drosera cistiflora, t. 7100.—A very striking and large-flowered Drosera, with scarlet petals, on which repose the five white styles, each fringed at the apex. The leaves are linear, and studded with glandular hairs. It is a native of the Cape, and flowered at Kew.

Chironia palustris, t. 7101.—A perennial, with the leaves oblong-linear, the lower ones tufted, the upper opposite; flowers pale pink, with twisted yellow anthers. Native of the Cape of Good Hope.

Cypripedium Rothschildianum, t. 7102.—A superb species from New Guinea, and very close to, if not identical with, C. Elliottianum from the Philippines. The present plant has an ovate-lanceolate upper sepal, yellowish, with reddish-brown stripes, long linear petals, warted, and coarsely setose; a spoon-shaped lip, the pouch gibbous and decurved, of a brownish colour flushed with rose. The staminode is very peculiar, being linear terete, densely hairy below, sharply curved downwards in the middle. With reference to this species, the editor follows a practice we do not remember to have seen adopted before, viz., that of adopting a name given in an advertisement without any description. An advertisement is so purely a commercial matter, that we should hardly think it desirable to take any notice of a name so given in a botanical publication.

WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—This Society has held two meetings during the last month. On January 28 a paper on "Odontoglossums" was read by Mr. H. BROWN, which was much appreciated. On February 11, Mr. W. M. ALEXANDER submitted a paper on the "Cultivation of Soils for Garden Crops," which was followed by a discussion. The members are steadily on the increase.

HORTICULTURAL CLUB.—The annual dinner took place on Tuesday evening, February 11th, at the Club-room (Hotel Windsor), when there was a very full attendance. The chair was occupied by the Chairman of the Club, Mr. JOHN LEE, and there were present Sir John T. D. Llewelyn, Bart.; Dr. Hogg, the Rev. W. Wilks, Rev. F. H. Gall, Messrs. T. B. Haywood, P. Crowley, Harry J. Veitch, J. H. Veitch, George Deal, George Paul, T. W. Girdlestone, H. J. Pearson, W. Bull, H. Turner, Lynch White, Baker, J. J. Cousens, C. T. Druery, George Bunyard, Arnold Moss, and the Secretary. Vocal and instrumental music was given during the evening, under the arrangement of Mr. George Bunyard, and the meeting was a very successful one, and many good wishes were expressed for the prosperity of the Club.

THE IVIES, WINCHMORE HILL.—We notice that this place, with its well-kept and tidy garden, of which we gave an illustration in our issue for June 22, 1889, p. 779, is in the market.

SHOW FIXTURES.—The Crystal Palace Company announce a series of flower shows for 1890. The spring show takes place on Saturday, March 29, and the summer show on May 10. The National Rose Society's exhibition will be held at the Palace on July 5. The fruit show and National Dahlia Society's show is fixed for September 5 and 6; the autumn fruit show October 9, 10, and 11; and, lastly, on November 7 and 8, a Chrysanthemum show will take place. The first of the Royal Aquarium flower shows has been announced for March 12 and 13. The Royal Horticultural Society of Jersey will hold shows on March 12, June 25, August 20, October 22, and November 11 and 12. The annual exhibitions of the Devon and Exeter Horticultural Society will take place in Exeter on August 22 and November 7. The Paisley Horticultural Society's shows are fixed for March 27 and 28, and September 4 and 5.

LINNEAN SOCIETY.—At a meeting held on February 6, Mr. CARRUTHERS, F.R.S., President, in the chair, Professor STEWART, referring to an exhibition at a previous meeting, communicated some interesting observations on the habits of certain Seaweed-covered crabs. He also made some remarks on the "pitchers" of Nepenthes Mastersiana, upon which criticism was offered by Mr. THOMAS CHRISTY, Professor HOWES, and Mr. J. MURRAY. Professor G. S. BOULGER exhibited a series of original water-colour drawings of animals and plants of the Falkland Islands. Mr. W. H. BEEBY exhibited some forms new to Britain of plants from Shetland. Mr. C. B. CLARKE, F.R.S., then read a paper on the stamens and setæ of Scirpeæ, illustrated by diagrams, which elicited a detailed criticism from Mr. J. G. BAKER, to which Mr. CLARKE replied. A paper was then read by Mr. B. D. JACKSON, which had been communicated by the late Mr. JOHN BALL on the Flora of Patagonia, prefaced by some feeling remarks by the President on the loss which the Society had sustained through the recent death of this able botanist.

GHENT CHAMBRE SYNDICALE.—The first meeting of this year was held on Monday, the 10th inst., and was a very successful gathering. There was a good show of Orchids, and awards were made as follows:—First-class Certificates: to Asparagus medius, from Mr. L. Desmet-Duvivier; to Lycaste species, from Mr. A. Van Imschoot; to Lælia anceps var. Lindeni, Odontoglossum mulus, O. Wilkeanum albens, Oncidium incurvum album, Odontoglossum Alexandræ Trianæ var., and Cypripedium Elliottianum, from Mr. J. Hye-Leysen; to Houlletia odoratissima antioquensis, from Mr. Ed. Pynaert; to Vriesia Gravisiana, from Messrs. Jacob Makoy & Co.; to Epacris onosmæflora, from Messrs. F. Desbois & Co.; to Cattleya Trianæ var., from Messrs. Edm. Vervaet & Co.

A GIGANTIC ORCHID.—A paragraph is going the round of the Press concerning a huge Orchid from the Straits Settlement. We have some information on the subject from the discoverer, which we propose to publish in an early issue.

HORTICULTURAL EXHIBITION AT BRUSSELS.—We learn that it is proposed to hold a grand horticultural exhibition in Brussels on the occasion of the jubilee *fêtes* of the accession of King LEOPOLD II., to the Belgian throne, which was in December, 1865. The project has been submitted for consideration to the Royal Floral Society and the Linnean Society of Belgium.

GISHURSTINE.—At this time, when catching cold is especially to be avoided, one means of prevention is by guarding against damp feet, the benefits derived from an occasional coating of the soles of shoes, if not of the upper leather, should not be lost sight of by gardeners.

M. PRILLIEUX.—We are glad to see that the Paris Academy of Sciences has paid a well merited compliment to M. PRILLIEUX for his studies in vegetable pathology, and in particular for his essay on the diseases of cereals.

OODEYPORE.—The annual report of the gardens of H.H. the MAHARANA, G.C.S.I., is before us, showing that the garden suffered from drought and intense heat. During the cold season, English annuals thrive. Bamboos are found to do best in swampy soil. Eucalyptus does well. The Potato crop is reported to have been one of the best known in India. A large flower show was held in February under the auspices of Mr. T. H. STOREY, and was pronounced excellent, though it was arranged in haste in consequence of the anticipated visit of the Duke and Duchess of CONNAUGHT, who were, however, prevented from attending.

PLANT PORTRAITS.

ANTHURIUM DEVANSAYEANUM ×, *Illustrierte Monatshefte*, December, 1889.

NIGELLA HISPANICA, *Garden*, February 8, 1890.

PEAR MANSUETTE DE BOUGNIES, *Bulletin d'Arboriculture*, January, 1890.—Fruit medium-sized, Pear-shaped, somewhat oblique, with a short, thick stalk, and a deep eye; skin brownish-red, and speckled on the sunny-side; flesh juicy, perfumed, slightly acid; season, September.

SOLANUM WENDLANDI.—A warm-house climber, with large lilac-blue flowers; very ornamental. *Garden*, February 1, 1890.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM PLUNERUM, AND C. DOLIARE.

MR. NORMAN C. COOKSON has recently sent to Kew an interesting series of Cypripediums, among which are specially to be noted specimens of C. plunerum, Rchb. f., and C. doliare, Rchb. f., from the type plants. These are both hybrids, but the parentage of neither of them is known; Reichenbach, however, conjectured that C. plunerum might be a hybrid between C. villosum and C. venustum, and thought that C. doliare might perhaps be of the same origin. Now that I have had an opportunity of examining them, I very much doubt if C. villosum had anything to do with their origin, for there is one very peculiar feature about the flowers of these two hybrids of which Reichenbach has made no mention. It consists of a very broad groove running down the underside of the lip of C. plunerum, and a more feeble groove of the same kind down the underside of the lip of C. doliare. In preparing for a monograph of the genus, I have examined and drawn a great many forms, but I do not remember to have seen a similar groove in the lip of any other species or hybrid, except C. Stonei, in which it is very strongly marked. I learn, however, that C. Rothschildianum, and, I suppose, C. Elliottianum, also, have a similar groove, but I have not seen these in a fresh state. Can C. Stonei, or one of the hybrids derived from it, be one of the parents of C. plunerum and C. doliare? There are two other circumstances that support this view in a slight degree, one is, that the scape of C. plunerum is two-flowered; the other, that the lower sepal of both hybrids has a tendency to divide into its two component sepals, as is also the case sometimes with C. Stonei. Both hybrids are handsome and richly coloured, and as they have not yet been well described I add briefly their chief characteristics.

C. plunerum, Rchb. f.—Leaves strap-shaped, 5 to 6 inches long, and about 1 inch broad (in the specimen seen), dark green, with narrow, irregular markings of blackish-green; under-surface pale green, with indistinct, very pale purplish mottling. Scape 1 or 2 flowered, brownish-pubescent. Bracts green, with purple nerves and speckles. Ovary pale greenish, dusted with purple-brown on the ribs, pubescent. Upper sepal 1⅞ inch long, by 1½ inch broad; ovate, triangular pale greenish-white, with light green nerves, the middle nerves being purple-brown for two-thirds of its length; across the base is an indistinct, suffused band of pale purplish. Lower sepal ovate, entire, or divided into its two component sepals, pale green, with darker nerves. Petals oblong-spathulate, 2¼ to 2½ inches long, green at the base, the rest purple, with the midline, some spots on the upper margin, and numerous dots at the base, all dark purple-brown; the nerves are brownish-green. The lip has a broad groove down the under side, the front part is of a very rich deep purple, veined with darker, and very shining; the inflexed sides are ochreous, with rather large purple spots. Staminode reniform, three-toothed in front, purplish, with green venation.

C. doliare, Rchb. f.—Leaves oblong, 5 to 6 inches long, about 1½ inch broad, deep dull green, with indistinct, blackish-green, irregular, narrow markings; under surface densely mottled and dusted with dull purple. Flowers similar in general appearance to those of C. plunerum. Upper sepal elliptic, 1½ inch long by 1¼ broad, pale green, with a white border and darker green nerves, the central nerve being purple-brown. Lower sepal pale green, with darker nerves, ovate, entire, or divided into its two component sepals. Petals very shining, and very like those of C. plunerum in form and colour, but darker without the green area at the base, and with a dark purple-brown spot or two along the midline. The lip has a slight groove down the underside, is shorter than that of C. plunerum, but of the same rich dark purple colour, with darker venation, and is very shining; the inflexed sides are ochreous, with a purplish tint, marked with small light purple spots.

Staminode half-moon shaped, three-toothed in front. These two plants may not both have originated from the same two parents as Reichenbach supposed, but I think the flowers bear evidence that one of the parents must have been the same for both. *N. E. Brown, Herbarium, Kew.*

Cattleya Loddigesii candida.

This is the Cattleya candida of the *Orchid Growers' Manual*, where Mr. Williams states that the plant has become very rare in cultivation. A flower sent by C. Young, Esq., of 3, Royston Gardens, Richmond, perhaps belongs to the same, though it is whiter than the above is described, and also is without the dash of yellow on the lip. But Messrs. Veitch state that candida belongs to the form Harrisoniæ, on account of the corrugations on the lip. To my mind, however, the smaller side-lobes of Harrisoniæ afford more tangible character for separating it from typical Loddigesii, and viewed in this light Mr. Young's plant belongs to the latter, on account of the large and ample side-lobes of the lip. It is just possible that there may be a white variety of each form, but there is no specimen of the typical candida in the Kew Herbarium with which the new arrival can be compared. Perhaps some one will kindly bear this in mind when next they flower it. Mr. Young states that his plant was bought with others as Cattleya Harrisoniana (an older name than Harrisoniæ, be it noted). It is certainly a very beautiful thing. *R. A. Rolfe.*

White Lælia anceps.

Of the white Lælia anceps mentioned by your correspondent, "J. A.," the one in the collection of A. Heine (not Heimes) has this season had eighteen spikes of flowers, with three to five flowers on a spike. The variety is Sanderiana.

Lycaste Skinneri alba.

We have a plant here of the above, with one lead and thirteen spikes of flowers. *J. Cragg, Birchfield, Fallowfield.*

RAILWAY RATES.

We extract the following report of evidence, taken on February 12, from the columns of the *Times*:—"Mr. W. W. Berry, of Selling, Kent, near Faversham, examined by Mr. Balfour Browne, put in the agricultural classification agreed to at a Conference of fruit-growers and others in regard to agricultural produce and traffic. He described the labour at the Selling Station (London, Chatham, and Dover Railway) as very limited, possessing only a stationmaster, who had to issue tickets, and a porter, who had to attend all passengers, assist and relieve the signalman, and might give three hours' work in station terminal services to the traders, and yet £127 per annum was charged for this part of a man's work. An "average terminal" on the London, Chatham, and Dover system, would be most unfair on all the stations of line. He complained of the action of the London and Chatham and South-Eastern companies on carting, and he gave instances of what he considered overcharge. The fruit-growers asked to have the right conceded to them of doing their own cartage, if the railway companies—the London, Chatham, and Dover, and the South-Eastern — did not charge reasonably. The fruit-growers had brought a case against the London, Chatham, and Dover Company for charging a terminal at Selling, and won the case, and if the companies were admitted to charge an "average terminal," this allowance would reverse the verdict in that case. As to Hops, he said that the South-Eastern and London, Chatham, and Dover Railway Companies had doubly depressed the Hop industry by the charges for manure down and the high charges up, and this while merchants and brewers had their Hops carried at a less price. It often occurred that the same Hops sent to London at a high price would be sent back at a less price for carriage, though 25 per cent. had been added by the London journey, thus giving an advantage to the brewers and merchants refused to the hard-pressed grower. On the subject of "load through rates," he said this was a most important question for the county of Kent, and unless the growers of produce got a "load through rate," say from Kent to the north, they could not send the produce to the north, where it could not be grown. The fruit would either rot upon the ground or be consigned to London, and then re-consigned to the north at a greater cost and deteriorated. The Kent growers of produce wished to reach the northern markets on the Great Northern Railway.—Lord Balfour of Burleigh considered that it was no part of the duty of the tribunal to investigate such matters. Mr. Balfour Browne thought that the illustration given could be properly brought before the tribunal, as showing the difficulties of the traders in getting through rates, and the danger of entrusting the railway companies with excessive powers in regard to maximum charges, which powers would be exercised by such companies as the London, Chatham, and Dover to prevent the producers of Kent from reaching the consumers of the north. The Great Northern Company was anxious to have the traffic, the traders were anxious to send it, and the consumers needed the produce; but the London, Chatham, and Dover refused to carry it unless they had the enormous mileage of 1*s.* 6*d.* a ton, in order to compensate them for the loss of their exceedingly high charges for cartage.—Lord Balfour of Burleigh considered that the question of rates between companies and companies did not come before the tribunal. The witness then gave evidence as to the necessity of soft fruit being taken to the market quickly—a necessity which was thwarted by the difficulties interposed by the London, Chatham, and Dover Company, except at great cost; and, with regard to the statement put forward by the London, Chatham, and Dover Company in justification of terminal charges at Selling on account of land purchased for the services, the witness said that the statement made put the land at three times the actual quantity held, and this had been proved by the association, who had had the station surveyed.

On the 18th inst., Mr. Berry, Hop and fruit grower, of Faversham, Kent, was further examined by Mr. Balfour Browne, Q.C. He stated that, in his opinion, Hops were as easy to load and carry as wool, and should be in the same class. In regard to perishable articles, he did not complain of a distinction being drawn between hot-house fruits, which were worth £100 a ton, and ordinary fruit, which was only worth from £15 to £16 per ton. The rates proposed to be charged would, taking a full year, have the effect of doubling the price of Kentish fruit to the customer. He thought the principle which was adopted in the grain trade, of accepting an empty package, no matter whence it came, should apply also to the case of fruit. He suggested that empties should be classed in class C, which would leave the traders in the same position as that which they occupied at present. He had prepared a table to show the excess of the cartage rates proposed to be charged by the London, Chatham, and Dover Company over the ordinary station-to-station rate. Maidstone was 41 miles from London, and the charge for Apples was by the sieve and half-sieve. It was unusual to send Apples in any other way; 5½*d.* per sieve, or 3*d.* per half-sieve, was the rate quoted by the company, including delivery. The charge was 20*s.* per ton if packed in any other way, and the proposal of the company was to charge hereafter 16*s.* 3*d.* per ton for cartage by the sieve and 18*s.* 4*d.* for cartage by the half-sieve in London. In the case of soft fruit, the cartage of fruit in quarter-sieves would amount to £1 9*s.* 9*d.* per ton. The actual charge for cartage to the Borough Market was 2*s.* 1*d.* per ton, and 5*s.* per ton to Covent Garden, while, according to the present schedules, the charges were liable to be increased to £1 9*s.* 9*d.*, and £1 10*s.* 3*d.* In the tables for vegetables, the same inconsistency between the actual and the proposed charges was apparent. Faversham was 52 miles from London, and Green Peas, Broccoli, and Sprouts were sent to London and charged ½*d.* per package more than fruit, although the vegetables themselves might only be worth from 30*s.* to £2 per ton. From Faversham, including cartage, the rate would be 25*s.*, while the station-to-station rate was only 9*s.* 2*d.*

In cross-examination by Mr. Pember, Q.C., the witness said that all the fruit-growers asked was that, if these charges were to be made in future, they should have the opportunity of doing the cartage themselves. At present they had no reasonable facilities for doing it. If they had such facilities, there was nothing to prevent them from carting their own goods from the railway terminus to the London markets.

Adverting to the Hop trade, he said it was true that the traffic came in gluts, but it arose from the fact that the company had no convenience for loading them except in the open air, and therefore they refused to accept Hops in wet weather. It was not an uncommon occurrence for the company to carry 6000 or 7000 pockets upon one day, and only 1000 pockets upon another. The traders engaged in the fruit business simply asked for reasonable facilities for the reception and carriage of their traffic, and if the company were of opinion that it was unreasonable to ask them to keep their stations open all night, the growers would not object to pay a reasonable charge for the accommodation, say 1*s.* per ton. What they did object to was the proposal to charge them £1 9*s.* 9*d.* per ton for cartage. Apples were accepted by the London, Chatham, and Dover Company at the rate of fifty bushels to the ton. He believed that certain fruit growers at Sittingbourne entered into an agreement with the company in 1887 as to rates. The rates were lowered in consequence, but the real ground of the concession was that the Sittingbourne growers threatened to run a small steamboat to London in competition. Rainham, which also possessed the same water service, obtained similar terms. The reason why the steamboat competition was threatened, was that the high railway rates absolutely prevented the growers from obtaining a profit. The fruit traffic was usually carried on at night. The carmen in London preferred to work at night because the streets between Blackfriars and Covent Garden were less obstructed. If the traders did their own cartage, they could get it done for 2*s.* 6*d.* a ton.

THE ACTION OF LIGHT ON PLANTS (Fig. 37).

In my residence I have a small window which faces an unobstructed south light. About five weeks ago, a flower-pot containing a newly-planted rosette of leaves just taken from an old plant of Saxifraga sarmentosa was suspended close to the glass of this window. In a fortnight the new plant had taken vigorous root, and produced seven stolons or runners, as shown at s [1] in fig. 1, p. 237. At this time every leaf of the plant had turned and faced the glass, whilst the seven stolons grew in a straight line away from the glass. As the stolons grew and became pendulous, all the growing points were directed towards the room, and away from the light, as in fig. 2. These stolons, marked s [1], may be termed the stolons of the first generation. By-and-bye, the first-produced stolons began to produce rosettes of leaves at their tips; and, as it was necessary that the leaves should receive light, the stolons now changed their curve, and grew towards, instead of away from, the light, as in fig. 3, and the new rosettes of leaves almost touched the glass. Stolons of the second generation now grew from the base of the new rosettes, as at s [2], and each of these new stolons again grew in a direct line away from the light, as shown. In turn the stolons of the second generation produced small rosettes of leaves, and recurved to the glass. These produced stolons of the third generation, which grew away from the light, as in the previous growths, as shown at s [3], fig. 4.

The above observations were made under favourable circumstances before a small and strong light,

and it is obvious that nothing of the sort could occur in a greenhouse or in diffused light. At this time (after about five weeks) the three series of stolons are almost vertical from the weight of the rosettes of leaves. The stolons, with their rosettes of pendulous leaves in Saxifraga sarmentosa lend themselves readily to observations on heliotropism and negative heliotropism, although every observer of stolons in wild and garden plants must have noticed the tendency of stolons to creep into dark places, and there take root. Even in Strawberry plants I have sometimes been surprised to see the number of runners congregated in a more than usually shaded place. *W. G. Smith, Dunstable.*

THE ADVANTAGE AND UTILITY OF PLANTING WASTE LANDS.*

(*Continued from p.* 192.)

It may be well now to descend to a few cases in point, and I will, as indicated in the early part of this paper, give two examples drawn from my own personal experience; first, one from actual returns drawn from a plantation at a given age; and second, the present returns from woods planted within the last twenty-five years. The first I refer to was a plantation on the estate of Culzean in Ayrshire, the property of the Marquis of Ailsa, where my father was forester for twenty-five years.

The plantation in question extended to about 20 acres, and was mostly composed of Larch, with only a sprinkling of Scotch Fir and hard wood. At the time to which I refer, this plantation was about forty-five years old. Prior to this it had been frequently thinned, and from returns in the Estate Books, sums varying in extent from 30*s.* to £5 per acre had been realised from wood taken out in the four previous thinnings, which, as far as my information went, would give a gross return for the first forty years of about £8 or £9 per acre. In the year 1861 it was again thinned, when the sum realised for what was cut was about £10 per acre. In the year following it was decided, in order to square up a neighbouring farm, that it should be wholly cut down. It was therefore put up in convenient lots, and sold standing, the purchaser cutting down and removing the timber, when it realised within a fraction of £35 per acre. After this the ground was let, with the adjoining farm, at a rent of 10*s.* per acre, for grazing and arable purposes. Now, let us calculate this more closely:—

Rent of land for forty-five years, at 10*s.*	£22 10
Expense of planting and enclosing per acre, say...	4 10
Interest on the original outlay of £1 10*s.* per acre, compound interest, at 5 per cent., say ...	9 0
Expense of five thinnings, at 10*s.*	2 10
Total outlay ..	£38 10
Returns during forty-five years:—	
First five thinnings, say	£18 0
Ultimate sum realised	35 0
	£53 0

Showing nett profit, after paying rent, at the rate of 10*s.* per acre (the rent ultimately got for the land) of £14. If we then allow a deduction from this of £5, as the value of interest accruing in respect of unrealised rents of twenty-five years, we still have at our command a nett profit of about £10 per acre.

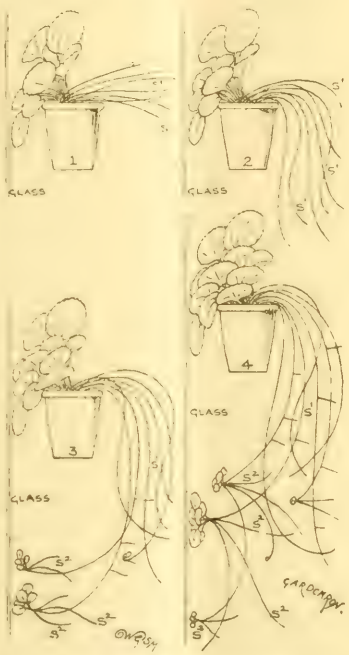
I give this as an actual example of realisation at the age of forty-five years; but had this plantation been allowed to grow for another twenty years, at which it would have been at maturity from the nature of the soil, the results, based upon an equally healthy state of the timber market, would have been even greater.

But while this may appear rather rosy, I am by no means disposed to say that all and every plantation would give similar results; on the contrary, I am prepared to affirm that such would not be the case, because the plantation in question was cut over at a time when timber was selling well. It was growing near the seat of a large local demand, and was particularly accessible, therefore the results were good; but as against this, again, we must consider that the realisation was immature, and the cultivable value of the land was greater than any lands I now propose should be planted.

With these facts before us, I think it is abundantly evident that the hundreds of thousands of acres of waste lands in England, Ireland, and Scotland, which are at present realising nothing, and some not much more than 1*s.* to 2*s.* 6*d.* per acre, would pay to plant. If not themselves, at least in the shelter they would give, and the improvement they would exercise on the climate, and thereby add to the value of contiguous lands.

I will now give another example, which, although in some respects different from the former, bears upon the same subject, and points to a similar result, although as yet, to a certain extent, unrealised.

In the year 1865, I was employed by Lord Powerscourt as his forester on his large estates in Ireland, and among other things I was instructed to direct and conduct the laying out and planting of a large tract of waste land on his estates with the view to the improving and developing their resources. I may here say that he was one who possessed, in a very marked degree, those characteristics which ought to actuate every possessor of land. He saw in the afforesting of his estate, not only wealth to himself and his successor, but the improvement of the country generally, and the prosperity of its inhabitants. Well would it be if there were more such, not only in Ireland but elsewhere.


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quantities, and a capital stock of plants is now at Slough. In the Camellia-house were several trees bearing a grand crop of bloom, which is used for the cutting from fimbriata, Reine des Fleurs, alba plena, and Lady Hume's Blush were the leading varieties. Other plants are also grown for cut flowers, and in this connection are Azaleas Deutsche Perle and indica alba, probably the two best varieties for the purpose.

FLOWERS IN WINTER AT MESSRS. H. CANNELL AND SONS.

A visit to the Swanley establishment at the present time would reveal not a few floral surprises, showing even at this comparatively flowerless period of the year what a wealth of subjects the florist has provided wherewith to make our plant houses interesting and attractive. Zonal Pelargoniums would seem to be perpetually in bloom here. Of new colours, we may mention the new shrimp-pink seen in Souvenir de Mirande, a variety certificated last year at the Temple show, and looking better now than then. In mauve there is R. Dean, the raiser says, that is nearly blue, but to that we demur. Dr. Tucker is a purple—the purple of Rollisson's Unique—rare in zonals hitherto. Rose-pinks abound, and magenta is not scarce; blush-white is seen in Duchess of Fife; and crimson, tinged with purple, in Lord Brassey. There are very dark shades of colour and various scarlet tints, for whose names we must refer the reader to Messrs. Cannell's voluminous list. In white flowers we must not omit Amy Campbell, Lily, International, and Swanley, single flowered.

Amongst miscellaneous subjects, three houses of Primulas were in full beauty, the notable varieties being White Perfection, Cannell's Pink, Improvement, red; Swanley Blue; Blush white; Eynsford Pink, lovely rosy-pink colour; Her Majesty, pure white, a robust-growing variety; Eynsford Red, a telling flower, the blooms being freely produced, &c. We noticed a fine batch of crosses and other seedlings of merit, some of them far in advance of anything in this way yet in commerce. They will doubtless be heard of. Cinerarias, both double and single-flowered, gave promise of being very fine about the middle of this month. Begonias, winter-flowering; one house is just now in full beauty; the following are a few of the most prominent sorts:—Semperflorens, gigantea, carminea, nitida, nitida alba, hybrida, multiflora, Carrieri, E. Pynaert, Gloire de Sceaux. A long house of Tree Carnations, just coming into flower, gave a welcome glow of colour. Amongst fine kinds, Bridesmaid is the best of all the whites, and Crimson King the best habit, flower, and colour of this class. Of course the older and popular varieties are grown, and in quantity, such as the indispensable Miss Jolliffe and other sterling sorts.

Amongst winter flowering new varieties of Heliotropes, White Lady is a very free-flowering variety, bearing large heads of bloom, fine habit, and under a system of warm treatment can be had in flower the greater part of the year—a decided acquisition amongst this deliciously-perfumed tribe of plants. Cyclamens, in a good sized structure, were observed just coming into flower, and promising some good things. Gesnera zebrina discolor, a grand lot, in full flower—orange, scarlet, and yellow blooms.

THE CLOVER AND GRASS CROPS.

THE SEED TRADE.—An English estimate of the past Clover, Grass, and forage seed harvests, comes to us from Messrs. Hurst & Son, seed merchants, of Houndsditch. Nearly every season produces some conditions entirely different from its predecessors, and it is highly requisite that early knowledge of the probable supplies should be procured in order that a true and fair market value may be established at the outset.

A leading feature of the coming season will be a plentiful supply of English red Clover. Messrs. Hurst & Son have long advocated the superior claims of home-grown red Clover seed over almost all that is foreign grown, and their wisdom in doing this was strongly exemplified last summer, thus confirming the experience of previous years by experiments carried out at their trial grounds with seeds sown in 1888 and treated under equal conditions. With the exception of Lowland Dutch, which produced the heaviest yield of forage of all the trials, home-saved seed came most markedly in advance of any others, American and Canadian seeds producing the lightest. As red Clover is likely to rule moderate in price, there will be laudable economy in using seeds free from weeds. The recent Merchandise Trade Marks Act, if properly enforced, will undoubtedly help to prevent the scandalous frauds of previous years of mixing foreign seed with English, and passing it off as all of home growth.

In reference to English red Clover and Cow-grass, Messrs. Hurst & Son say the crops are quite the converse of what they were stated to be in their last report. From the fact that the hay crop was so abundant, and the prospects of the hay crop so good, farmers did not require Clover hay, and left their Clover leys for seed, so that a larger acreage has been cut for this purpose than for many years. Reports from the Eastern counties, do not anticipate that the quality, or perhaps the yield, will be up to the average of good years in those districts; but the Southern and Western counties will more than compensate for any deficiency, although it is expected that generally, fine deep-purple coloured samples will be scarce. What is known as single cut Cow-grass is only saved over a limited area, and from these districts we have reports that the crop will prove an average one of medium quality.

As to foreign red Clover, owing to the abundance of home-saved seed, foreign red is not so important a factor with the dealers as last year. The crop in France is large, and much of the seed of good colour. Bold and clean samples from the northern provinces will command good prices, as with buyers a good sample is a prime consideration. Germany is reported to furnish a large crop of seed, but not of the finest quality; up to the present the few samples seen have been quoted at prices much in excess of current values. America has a large crop of small-grained seed. Canada has sent but little seed to this country for years; in fact, she imports from the States a considerable proportion of her own requirements, and this year will have to do so again. On the Continent, dealers are holding over a considerable quantity of yearling red, which may eventually find its way to our market, and be sold at low prices.

Of white Clover there is a large crop of English seed, the quality is inferior, injured by rain, and more than usually mixed with weeds. Germany has an average crop, and some fine samples are expected to put in an appearance from there as soon as frosty weather will allow of threshing taking place. Good growing yearling seeds are quoted at low prices at the markets.

Alsike Clover is a fair crop in England, the quality varied, and generally the samples are poor in colour. Trefoil is also a large crop in this country, but the seeds under average quality. Lucerne is also of good quality, but a short crop. French-grown Sainfoin is a short crop, while the English crop of Giant is reported short, and to lack average quality.

Of Italian Rye-grass, the crop of French seed is below the average both in quality and quantity. The Irish crop is very heavy, and of unusually good quality. Had it not been for the large yield in Ireland, French seed would have ruled considerably higher in price. There is an exceedingly heavy crop of perennial Rye-grass of heavy natural weight, but prices are very low; so much so, as to be quite unremunerative to the producer.

In regard to natural grasses, owing to the greatly diminished demand during the past two years, most of them have declined in value. Timothy is in large supply at low prices. Cock's-foot is plentiful, but clean samples free from Holcus are difficult to get. Meadow Fescue is a short crop. White Fox-tail is a good crop of fine quality. Dog's-tail is plentiful, and much finer than usual.

White Mustard is a short crop in England, but large supplies of fine quality are coming in from the Continent and California. Rape is a very short crop, and the average in England is the smallest on record. Genuine home-grown samples are certain to command high prices.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—Recently attention was called to the fact that the loss of Fellows of the Royal Horticultural Society was more than recouped during the past year by new guinea Fellows; and it is very obvious that now the public is beginning to understand how many privileges are offered to the guinea Fellow for so comparatively small a subscription, guinea Fellows promise to very rapidly increase. But all the same, this increase is by no means sufficiently rapid, because the society should have a constituency of some three to four thousand instead of but 1000, as at present. Recently, on receipt of the annual report—with accompanying appeal to secure, if possible, at least one other Fellow—I sent into the secretary seven names of residents in my locality, not unlikely to become Fellows, if properly invited from headquarters. Oddly enough, a very few days later one of these persons called and asked me to submit his name to the secretary of the society for election, although I had never mentioned the matter to him. I could perhaps later send a few other names for a like purpose. I mention this, because there are probably scores of Fellows who, like myself, have some considerable knowledge of the tastes and habits of persons in their respective districts, who would, if applied to, be not unlikely to become Fellows; and were, say, one hundred names per month sent in to the secretary, and each of these were furnished with reports, and special appeals, it is probable that through such means a very large addition of Fellows might in time be made to the Society. It should be obvious that all round the suburbs of London may be found large numbers of persons who, being fond of their gardens, would be pleased to join the Society at the reduced rates of payment. Those who reside near London can attend the meetings, shows, and conferences, and sometimes visit Chiswick, much more freely than can country Fellows; and for that reason the district round the metropolis should be widely worked. The recent proposals of Baron Schroder with respect to the providing of a permanent hall or home for the Society in London, lends additional interest to the Society's work just now. It shows to Fellows and outsiders alike that a real effort is being made to get free from the Drill Hall and its surroundings, and to make a central home worthy of the Society. The intention thus so enthusiastically promoted should be made as widely known as possible through the general press. If the public were led to perceive that the Society, so far from being in difficulty, was rising to higher flights, and looking confidently to success, its popularity would be enormously increased. The public believes in energy and success; and if assured of that will join in helping to that end freely. It is greatly to the Society's advantage that its ambitious scheme of a central home is in the hands of so able a financier as Baron Schroder. Many will follow the Baron's financial lead, who would fail to regard the proposals of less capable men. In your leader report of the recent meeting, you mention that the Fellows did not exercise their right to nominate members of the Council. The fact that notices to nominate must be given fully a month previous to the date of the general meeting practically prevents any such nomination being made. Could that period be reduced to one week, and the Fellows more fully notified, say twenty-one days beforehand, that such nominations must be made by a certain date, it is most probable the privilege of nomination would be used at times. Although the Council doubtless make the best selections possible, yet it is certain they ought to find pleasure in inviting the Fellows to make nominations. The sending round of voting or ballot papers, when only sufficient nominations are made to fill the vacancies created, is such a farce that some effort should be made to give the assembled Fellows an opportunity to exercise their voting franchise in a common sense form. The Council should consider that the Fellows have

the same desire to promote the interests of the Society that the governing body has, and act accordingly. But for the speech of Baron Schroder, the proceedings of the recent general meeting would have been of such an uneventful kind, that Fellows could hardly be expected to find pleasure in attending future ones. The greater the interest created, the greater will be the satisfaction with which the meetings will be regarded. The fullest confidence on the one hand will inspire confidence in return, and the interests of the Society be greatly benefited. *A New Fellow.*

DIELYTRA SPECTABILIS.—Although this is one of the most beautiful of hardy plants, it is one of the most neglected; at least, it would seem to be so, for how seldom it is that one sees it in flower borders; and yet, when it is met with, how very striking and handsome it is if in bloom. To have it at its best, outdoors, it is necessary to plant in a sheltered situation, as, owing to the early growth it makes, it is otherwise apt to be cut by cold winds or damaged by frost, which cripple the young shoots, and thus spoil their flowering. One of the finest and most effective specimens that I ever saw was planted on a grave just in front of the white headstone, and a more appropriately suitable plant could not be thought of, with its gracefully drooping stems and branches with the "bleeding hearts" depending from them, looked so fitting and suggestive of being bowed down by grief. Not only is the Dicentra well adapted for the situation and purpose referred to, but it is equally so to brighten up a greenhouse; it lends a cheerful aspect to the plant stages, and as a plant for a vase it is charming. When desired for the latter purpose, it should be gently forced under glass, as then the delicate tints of its foliage are heightened, and the colour of the flowers improved. Big plants may be taken up and divided into medium sized pieces, these looking better in pots than large ones, except for certain purposes, as niches in corridors, &c. To propagate and prepare a stock, division of the crowns must be resorted to, and every portion that has a bud will form a plant if not allowed to dry and shrivel before being put into the ground. The time to do this is just before growth commences, and to grow them well the plants should be planted in light rich sandy soil in a warm place, a border under a sunny wall or fence being the most suitable. *J. S.*

STATE OF THE SOIL.—Those who have so far resisted the temptation open weather and soil in good tilth has presented, to make early sowings of seeds, must have felt cause to rejoice when they saw the weather of the 15th inst.—heavy snowfall in the morning, and thin snow with cold rain and wind all day until a late hour of the night, followed by white frost the next morning. How many must have felt that seeds were far better in their packets or bags, than sown in the open ground and exposed to such dread influences as these. The greater portion of the failures which result after seed sowing arises from the tendency to commit seed to the soil long before there is warmth and sunlight sufficient to create healthy germination. We had far more suitable weather for seed germination in January than we have had since, but it would have been folly to have sown so early. We cannot hope, let the weather conditions be what they may early in the year, to have sufficient light to produce both robust and rapid growth until the middle of March is reached, and if the bulk of the seeds, excepting certain hardy Peas, Beans, &c., germinate in April, the better will it be all round. Slugs are as much as ever terrible pests to young seedlings, but the more rapidly the young plants make growth the less harm results from the slugs. Plants that are checked in their early growth by an interval of frost, clouded sky, or biting east wind, never make good healthy growth later. Of course, sowing of seeds must be largely contingent upon situation, but I write chiefly for what are known as the midland or home districts. Those who haste to sow are often like those who haste to be rich—they only reap failure for their pains. *A. D.*

LÆLIA ANCEPS DAWSONI AND ITS VARIETIES.—It would have been interesting if "J. A." had told us why these new L. anceps should not have descriptive names. "J. A." says they are all varieties of L. a. Dawsoni. Now, admitting that, if some at least of these names are not kept, how shall we be able to distinguish the different varieties, of which there are three that are as dissimilar as Dawsoni is from L. alba. There can be no doubt that these plants were very much mixed up at the time they were imported, and there can also be no doubt that a great number of these plants are to be found under names which will very likely turn out to be wrong ones; but, as far as I have seen, three distinct names must be retained to give an idea of the variety meant. Take, for instance, L. a. stella or vestalis, which I consider are synonyms. Again, take L. a. Sanderiana; "J. A." does not consider that this ought to be classed with the others. I fear his mind is not altogether free from bias. My own impression is, that it is a strong rival of L. Dawsoni, which he flowered so many years since, and looks upon with parental affection, as well he may. There is now L. a. Schroderiana; this, I have little doubt, "J. A." had not seen true at the time he penned his note, even if he has yet. This is the most distinct, and altogether the finest of those I have hitherto seen. The petals and sepals are larger than any of the other pure white varieties, as is also the labellum, with the exception of the orange-yellow stripe running up into the throat. The labellum is lobed, and folded over at the apex of the wings in a way quite distinct from any other anceps, and which then spreads out flat and broad. This is the variety which will be sought after when it becomes generally known. "J. A." asks, if a plant with seven spikes and thirty-five flowers is the best plant yet flowered? I do not know if any finer have been flowered than one which I had here with twelve scapes, and fifty-one flowers; this was L. Sanderiana. *A. G. Catt, Parkfield.*

QUASSIA.—I notice that this is recommended, or spoken of, as a preventive to birds devouring Crocus and fruit buds; but bitter Aloes is far more powerful, as a tiny piece of that leaves a taste in the mouth that remains a very long time, but whether it would remain on fruit bushes or trees without some vehicle such as lime, or liquified clay, I do not know; if it would do so it would be a boon, certainly, to growers of fruit. &c. *J. Sheppard.*

TREE CARNATIONS.—At Membland Hall, the residence of Lord Revelstoke, near Plymouth, a lean-to house is devoted to Tree Carnations. In the centre of this house a bed is planted with plants which have flowered one winter in pots; and there they are allowed to remain for two years, when they are thrown away, and the bed replenished with fresh soil and replanted as before. Narrow stages run along the front and ends, and on these stand the plants in pots. Judging by the quantity of bloom in the house on January 29, the gardener, Mr. Baker must obtain a very large quantity of it during the winter. *Constant Reader.*

THE WEATHER AND THE FRUIT CROPS.—Apples do not appear to have moved much, although other fruit trees have done so in a marked degree. Pear bloom will soon be at the mercy of frost, and Peaches too, which are getting forward, look well set with fruit-buds. The flower on nut bushes have been out in prodigious numbers, and as the weather was warm and favourable in East England, there must have been a good set. Strawberries seem to be at rest, and to protect them the old foliage should be preserved, as this forms the best shelter for the young leaves and flowers, and the ground between the plants should not be dug or broken, but a mulching of half-rotten manure or short stable dung applied. *J. S.*

MANURE TANKS.—I daresay that other owners of gardens have been bothered as I have been in getting cesspools or manure tanks emptied to the bottom. A short time back I was in the garden of an experienced friend, when he showed me a chain pump he had bought at the auxiliary stores, and had found it to answer its purpose perfectly. I bought one for Oakwood garden. My people then at first sight seemed not much taken with it, but now that it is in operation, speak very highly of it. It is simple in construction, and seems to pump everything up. It was new to me, so perhaps it may be so to others; I suppose that it can be had from any horticultural implement seller. The rats and mice ate our flowers in the wild garden; we had, therefore, to wage war against them, and since October 9 have caught 66 rats and 321 mice. *George F. Wilson.*

CHINESE NARCISSUS TAZETTA GRAND EMPEROR.—When this bulb is generally known, I have no doubt it will prove a general favourite. I planted two dry bulbs on December 20, and in five weeks, in an ordinary sitting-room, they were in full bloom, the two bulbs producing thirteen spikes, with sixty-five flowers on them. After three weeks they show no signs of fading. I planted them in rough stones, with a little sand on top. Whether they will be as luxuriant another season is questionable, as I think they must have received some special treatment to force their blooming powers. The perfume is very sweet, but rather different from other Tazettas. *Octavius Corder, Brundall, Norwich.*

VISCUM ALBUM, OR WHITE MISTLETO.—This is a plant very much admired by most people, and always attracts attention when it is seen; its remarkable habit of growing out of the body of trees always strikes the observer. This plant is to a tree what the cancer or tumour is to a human being, a parasite living at the expense of others. It is very easy to cultivate; in fact, I find the greatest difficulty is to destroy it. Many persons are very anxious to obtain it, and say they cannot get it to grow. The only method I pursue is to take a ripe berry at any time, place it on the bark of a tree, and rub with the thumb up and down until it adheres to the tree; and if the berry is a good one, and not injured by the rubbing, it will sprout. It matters not where you place them—no particular place is required, only it must be on a clean part of the rind; it will sprout on a cannon ball, stone, window-frame, or anywhere; but after sprouting, and turning the radicle on to the part it is on, if it is not a suitable place, it will dry up. It makes a very small amount of growth the first year, merely leaving the berry and straightening out. It only makes one joint in a year, and it will also grow as a double parasite, as was shown in these columns some years since. There are different forms of growth; some are very small in foliage, and others large, and very long-jointed. There are masculine and feminine forms, as some never produce a berry, and are much yellower than those which bear fruit. *J. S. C.*

STAKING YOUNG FRUIT TREES.—Where trees have to be planted which are three feet or more in height, it is much better to make them provisionally secure against the wind, until the soil has settled together with the roots of the tree. It is a good practice to secure each day all trees that have been planted, so that none blown may get loosened in the soil by the action of the wind and rain. This is not only a saving of much time in reinstating the trees, but saves also many roots that would otherwise be broken. The usual plan of securing trees from 2 feet to 8 feet high, when not top-heavy, is to drive one stout stake into the ground, close to the tree, and about one-third of the height of the tree. A piece of sacking or cloth about 3 inches wide is then bound round the bark of the tree, opposite the top of the stake which is intended to fix the tree in position by the aid of tar rope or some such material the tree is made secure to the stake; but this, by the constant movement of the tree by wind, becomes loose, and the bark of the tree gets chafed against the stake, and the protecting pad slips down lower than where it was at first. I now adopt a much safer plan, and instead of driving the stake into the ground close to the stem, it is placed 1 foot from it, and in some instances rather closer. Protecting material is used round the stem; instead of using rope or tarred twine, we use a stout withe of Hazel, which is first bound round the tree, then twisted tightly which prevents the tree moving at all as long as the stake remains firm; the withe is then made secure to the stake. *E. M.* [If two or even three stakes are employed, and the tree secured by withes or straw bands, as was figured in these pages, a tree is made secure even in the windiest of places. Ed.]

HARDY PRIMROSES.—The show of the National Auricula Society is fixed for April 22, some three months hence, and yet I have scores of fine Primrose plants in just that stage of blooming I should like to see them in early in April. As it is lifted and put into a greenhouse or frame, they soon come into full bloom. If some of those satiated persons who are always seeking for new sensations or methods of spending their money would construct a low span roof house, about 12 feet wide with a timber path running through the centre, make on either side half raised soil-beds, with some irregular rockwork on clinkers fixed on the surface, partly covered with moss, and plant in all the bare places strong Primroses of many colours, they would have a wondrously beautiful show of flowers from the beginning of the year, if not indeed earlier. Only sufficient warmth would be needed to keep the atmosphere dry during damp weather, and

top heating would answer best for that purpose; but during all ordinary open dry weather, no warmth would be needed. Where there were plenty of strong plants, and myriads may be had simply by sowing seed and planting out in bedding soil, exhausted plants from the house could be replaced by others from the open ground, and a charming succession of flowers maintained in this way for fully four months. *A. D.*

CHRYSANTHEMUM MRS. S. COLEMAN.—One would imagine that that which I wrote on p. 697 of the last volume of the *Gardeners' Chronicle*, respecting this Chrysanthemum was an effort of the imagination, if I may judge from the remarks of Mr. M. Russell, p. 52, where he says, "I probably had not even seen a flower of it developed from the crown bud," when in fact I saw the first flower of it that was staged by himself at the Portsmouth show. This flower, as I gather from his remarks on the same page, was from a crown bud; this I think is sufficient proof that I really had an opportunity of seeing a flower of this variety in what Mr. Russell calls good form. I venture to say it will require to be considerably improved, or there will not be any necessity for me to alter my opinion that "Mrs. S. Coleman will prove less serviceable for exhibition than any of the type." *E. Molyneux.*

CAMELLIA BUDS DROPPING.—All that your correspondent, Mr. Saunders, has said on the above subject does not affect my contention that Camellias which drop their buds are not necessarily unhealthy; as those which do so with me occupy a similar position, and receive treatment in no way differing from those which flower so freely. The variety which occupies the back wall of the vinery and drops its buds, is Antwerpensis. The drainage is the same throughout the border. Mr. Saunders has not read my notes aright, I think, as I did not wish him to infer that these suffer from drought, for then I should have expected the whole of them—more or less—to have shed their buds. Turning back to his notes, vol. vi., and the advice he gives "Subscriber," p. 632, he says "immediate attention may preserve the remaining buds and flowers (with the proviso), should the plants be healthy." If the plants dropped their buds they are unhealthy, according to his views. Here he practically admits that healthy plants may drop their buds. *W. H. Stephens.* [Healthy Camellia plants will, under certain conditions of management, cast their flower buds; and unhealthy plants, that is, badly-rooted plants, in soured, wet, or very dry soil, always do so should they indeed set any bloom buds. ED.]

IRISH APPLE, GIBBON'S RUSSET.—I venture a word in praise of this little known Irish variety of the Apple. Hitherto it has been localised in the South of Ireland, and possibly neither scions nor trees have as yet reached England. I may be wrong. Can you, Mr. Editor, or any of your readers, give me the information? *Corkonian.* [It is not mentioned in the Apple Congress list. ED.]

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 11.—Present: W. T. Thiselton Dyer, C.M.G., in the chair; and Professors Michael Foster, A. H. Church, H. Marshall Ward, D. H. Scott; Messrs. G. F. Wilson, T. Francis Rivers, H. J. Veitch, W. F. Blandford, R. McLachlan, Dr. Oliver, and D. Morris.

Mealy-bug at Alexandria.—Mr. Morris supplemented the information already given by him respecting this new Egyptian pest, by reading a letter from Mr. J. W. Douglas, to whom the specimens had been sent, stating that the coccids had proved to be not only a new species but a new genus. It was proposed to describe them under the name of Crossotosoma ægyptiacum.

Growth on Stem of Cattleya.—Mr. McLachlan reported on a peculiar growth on the stem of a Cattleya from Brazil. This was at first supposed to be of the nature of a cocoon, but a careful examination of the structure had shown it to be a gall. Professor Marshall Ward undertook to make further examination.

Sugar-cane borer at St. Vincent.—Mr. McLachlan drew attention to a disease in Sugar-cane at St. Vincent, where in some localities about 25 per cent. of the crop would be lost this year. According to Mr. Herbert Smith, who had examined the canes, a beetle of the family Scolytidæ, and the larva of a moth, were concerned. It is probable that the beetles only enter the canes by the exit holes of the moths. The moth is probably a widely spread species, already known to attack Sugar-cane in other countries. The affected canes should be burned, and steps taken to destroy the moth in the localities specially frequented by it.

Disease of Orchids.—Mr. Morris exhibited several specimens of a Cattleya attacked by a fungoid disease of apparently a very virulent character. From a specimen received about a fortnight ago, Mr. Massee, at Kew, had infected two or three healthy plants, and in three days the whole of the pseudobulbs had become diseased. Specimens of similarly affected plants were sent by Mr. James Douglas, from a gardener who was anxious to know if there was any remedy, as he feared his collection was in danger of being destroyed. The committee was of opinion that the disease, whatever the cause, was of a very virulent character. It was not the ordinary "spot" so well known to Orchid growers. The specimens were referred to Professor Marshall Ward, who had already given some attention to the subject.

Orchid Hybrids.—Mr. H. J. Veitch exhibited Cypripedium Lathamianum×, raised first at the Birmingham Botanic Gardens, by crossing C. Spicerianum♂ with C. villosum♀. Messrs. Veitch had raised similar hybrids, and had, moreover, raised hybrids from the reversed cross. Plants from all three sources were shown. These agreed so closely in all essential points, that they must bear the same name. The fact of plants obtained by crossing, and also by reverse crossing, producing seedlings of almost exactly the same character, is very interesting. Similar results have been obtained by Messrs. Veitch in crossings which have produced Cypripedium Sedenii×, and Fuchsia Dominiana×.

Mr. H. J. Veitch also exhibited a new hybrid Dendrobium. The seed-bearing parent was D. japonicum, and the pollen parent D. Wardianum. The hybrid, D. Wardiano-japonicum had smaller pseudobulbs than D. Wardianum, but the flowers were nearly those of D. japonicum, only larger and with broader segments. They were also highly scented, as in D. japonicum.

Canker in Apple Trees.—Professor Marshall Ward brought before the committee specimens of Apple trees badly affected with the so-called canker, on which there were numerous red perithecia of a Nectria. It is probable that the initial injury in this case had been caused by frost, and that the Nectria had established itself in the cracks thus formed.

Abies nobilis.—Mr. James Douglas forwarded branches of Abies nobilis affected by gouty swellings, due probably to the attacks of an Acarus (Phytoptus), or to Æcidium elatinum. Professor Marshall Ward kindly undertook to examine the specimens.

London Fogs.—Dr. Oliver and Professor Scott presented an interim report on the investigations undertaken by them respecting the effects of London fogs on plants under glass. Specimens of Orchids affected by fog had been received from Messrs. Veitch & Son, Chelsea; and of Tomato plants from the Superintendent of the Royal Horticultural Society's gardens at Chiswick. On the suggestion of the chairman, it was decided to take up an investigation of the chemical constituents of London fog, and trace the exciting cause of the injury to plants. The question was a very important one, and likely to demand considerable time and attention. In order to carry out the work under advantageous circumstances, it was resolved to make application to the Government Grant Committee of the Royal Society for £100.

The following is a list of the members of the Committee for this year:—

Chairman.—Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.B., F.R.S., The Camp, Sunningdale.

Vice-Chairmen.—W. T. Thiselton Dyer, C.M.G., F.R.S., Royal Gardens, Kew; Professor M. Foster, Sec. R.S., Great Shelford, Cambridge; Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W.

Hon. Secretary.—Rev. Professor G. Henslow, M.A., F.L.S., F.G.S., Drayton House, Ealing.

Baker, J. G., F.R.S., Royal Gardens, Kew.

Blandford, W. H. F., M.A., F.R.S., 48, Wimpole Street, W.

Burbidge, F. W., F.L.S., Trinity College Gardens, Dublin.

Church, Professor A. H., F.R.S., Shelsley, Richmond.

Darwin, Francis, F.R.S., Wychfield, Huntingdon Road, Cambridge.

Dod, Rev. C. Wolley, Edge Hall, Malpas, Cheshire.

Elwes, H. J., F.L.S., F.Z.S., Preston House, Cirencester.

Frankland, E., F.R.S., The Yews, Reigate Hill, Reigate.

Gilbert, J. H., Ph.D., F.R.S., Harpenden, Herts.

Godman, F. Du Cane, F.R.S., 10, Chandos Street, Cavendish Square, W.

Llewelyn, Sir J. T. D., Bart., F.L.S., Penllergare, Swansea.

Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.

McLachlan, R., F.R.S., Westview, Clarendon Road, Lewisham, S.E.

Michael, Albert D., F.L.S., Cadogan Mansions, Sloane Square, S.W.

Müller, Hugo, Ph.D., F.R.S., 13, Park Square East, Regent's Park, N.W.

O'Brien, James, Harrow-on-the-Hill.

Oliver, F. W., D.Sc., F.L.S., Royal Gardens, Kew.

Pascoe, F. P., F.L.S., 1, Burlington Road, Westbourne Park, W.

Plowright, C. B., F.L.S., 7, King Street, King's Lynn.

Salvin, Osbert, F.R.S., Hawksfold, Fernhurst, Haslemere.

Scott, D. H., Ph.D., F.L.S., The Laurels, Bickley, Kent.

Symons, G. J., F.R.S., 62, Camden Square, N.W.

Veitch, H. J., F.L.S., Royal Exotic Nursery, King's Road, Chelsea, S.W.

Vines, Professor, F.R.S., Fairacres, Oxford.

Ward, Professor, Marshall, F.R.S., The Laurels, Englefield Green, Staines.

Wilson, Geo. F., F.R.S., Heatherbank, Weybridge Heath.

Members of the Council are Members of all the Committees.

NATIONAL CHRYSANTHEMUM.

FEBRUARY 17.—A largely attended meeting of the committee took place at Anderton's Hotel, Fleet Street, London, on Monday evening last, Mr. E. C. Jukes in the chair. Six new members were elected, and the Norfolk and Norwich Horticultural Society admitted to affiliation. The meeting then proceeded to the election of five members of the Floral Committee, the choice falling upon Messrs. George Gordon, W. Boyce, C. Gibson, H. Cannell (old members), and Mr. H. J. Jones. The dates of the meetings of the committee for 1890 were fixed for September 10, October 15 and 29, November 11 and 25, and December 10, 1890, and January 7, 1891. The sub-committee appointed to arrange for and carry out the proceedings of the Centenary Exhibition and meetings in November next presented an interim report, in which it was stated that they had arranged for a centenary festival, including an exhibition, conferences, banquet, &c., to take place on November 11, 12, 13, and 14, at the Royal Aquarium; they recommended that the sum of £486 19*s.* 6*d.* be offered as prizes, independent of those specially contributed; that they had introduced, as special to the occasion, a centenary class for forty-eight blooms, to consist of twenty-four incurved and twenty-four Japanese, distinct, the prizes being £25, £20, and £15—the highest amount, it is believed, yet offered in such a class; that they had accepted prizes and medals from the Veitch Memorial trustees, the proprietors of the *Journal of Horticulture, Gardening World*, and others; that an advance in the value of the prizes has been carried out in most of the classes in the schedule; they also proposed that a special Bronze Centenary Medal be presented to every exhibitor in the large cut-flower classes, 1, 3, and 10. All entrance fees will be abolished, save in the case of non-members. Special Centenary Medals will be struck, and one of these will be placed at the disposal of every affiliated Society.

The report of the sub-committee was unanimously adopted, and the members were thanked for their labours. It was announced that the Marchioness of Headfort and Baroness Howard de Walden, with others, had consented to become patronesses of the Centenary Exhibition, the latter also sending a donation of £5. A vote of thanks to the chairman closed the proceedings.

LAW NOTES.

PROSECUTION OF A SALESMAN.

FREDK. WISE, who was lately committed at Bow Street Police Court for trial, was brought up at the London Sessions, Clerkenwell, before Sir P. Edlin, Q.C., on Tuesday last. Mr. G. P. Grain, instructed by Mr. C. Butcher, solicitor to the Nursery and Seed Trade Association (Limited), appeared to prosecute, and Mr. Besley, instructed by Mr. Ashton, solicitor, defended.

The Grand Jury having returned a true bill, the prisoner, acting under advice, pleaded guilty.

The facts of the case (stated the learned Counsel) were as follows:—Up to September, 1888, the prisoner was in partnership with a Mr. Rides, and occupied stall 360 in the Flower Market, Covent Garden. After he left that stall, he had memoranda forms and bill-heads printed, "Frederick Wise, 360, Flower Market, Covent Garden," and the false pretence alleged was that he thus held himself out as a *bonâ fide* stall-holder, whereas since that date he never had any stall inside the market, and by this means he obtained from Mr. T. Jannock, of Dersingham, flowers to the amount of £33 7*s.*; from Mr. Cook head gardener at Compton Bassett, Wilts, fruit and flowers to the amount of £14 2*s.*; and from Mr. Summers, head gardener, Sandbeck Park, Yorkshire, flowers to the amount of £7 5*s.* 4*d.*—in all a total of £54 14*s.* 4*d.* When the prisoner was arrested, there were found in his possession letters and papers from other persons, but he (the learned Counsel) was only prosecuting in these three cases. The prisoner had traded on the credit thus obtained, by representing himself as a stall-holder in the market, and had thus defrauded the prosecutors.

In answer to the learned Judge, Mr. Grain stated that the prisoner had been, in January, 1889, warned off the market premises.

The learned Judge, in passing sentence, said that he would take into consideration that the prisoner had been in custody since January 10. He would only sentence him to three months' imprisonment with hard labour.

THE WEATHER.

[BY the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending February 15.	Temperature. Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1890.	Below 42° difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 —	2	39	+ 40	— 47	4 —	25	8.7	40	17
2	4 —	0	56	+ 40	— 52	1 —	27	5.3	13	21
3	2 —	0	34	+ 36	— 69	2 +	24	2.7	17	21
4	4 —	0	41	+ 33	— 42	1 +	29	3.0	43	28
5	5 —	0	51	+ 34	— 29	2 —	27	3.6	24	22
6	4 —	0	35	+ 52	— 60	1 +	27	3.9	32	22
7	4 —	0	44	+ 35	— 62	9 —	33	8.9	11	17
8	5 —	0	48	+ 07	— 58	5 —	32	5.1	31	20
9	5 —	2	31	+ 28	+ 6	8 —	31	6.1	24	24
10	4 —	0	34	+ 18	— 34	6 —	34	5.4	23	24
11	3 —	7	26	+ 20	— 9	1 +	35	8.0	26	27
12	2 —	21	11	+ 73	— 21	4 +	36	5.7	49	28

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E. 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending February 15th, is furnished from the Meteorological Office:—

"The *weather* was fine during the earlier half of the week, but subsequently became cloudy and unsettled, with heavy falls of rain in the southern and eastern portions of the kingdom. Snow or sleet fell in many parts of Great Britain on the night of the 14th or on the 15th.

"The *temperature* has been below the mean, the deficit ranging from 2° in 'Scotland, N.,' 'England, N.E.,' and the Channel Islands to 5° in the western and central parts of England. The highest readings were observed between the 10th and 12th, when the thermometer rose to between 47° and 51° in most districts; in 'England, N.E.,' however, it never exceeded 44°. The lowest readings, which were recorded on very irregular dates, ranged from 12° in 'Scotland, E.' (at Braemar), 18° in 'Scotland, N.,' and 19° in 'Scotland, W.,' to 27° in 'England, N.E.,' and 'England, S.,' and 34° in the 'Channel Islands.'

"The *rainfall* has been more than the mean in 'England, N.E.,' 'England, E.,' 'England, S.,' 'Ireland, S.,' and the 'Channel Islands,' but less elsewhere. In the western parts of Great Britain the aggregate fall has been very slight.

"*Bright sunshine* has been, upon the whole, far less prevalent than it was during the preceding week. The percentage of the possible amount of duration ranged from 11 in 'Scotland, W.,' and 13 in 'Scotland, W.,' to 40 in 'Scotland, N.,' 43 in 'England, E.,' and 49 in the 'Channel Islands.'"

MARKETS.

COVENT GARDEN, February 20.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

No alteration. Business very quiet. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0
Aspidistria, doz.	...18 0 42 0
— specimen plants, each	... 7 6–10 6
Azaleas, various, each	2 0– 3 0
Christmas trees, doz.	4 0–24 0
Cyclamen, dozen	... 9 0–24 0
Cyperus, per dozen	4 0–12 0
Daffodils, doz. pots	8 0–12 0
Dracæna terminalis, per dozen	...30 0–60 0
— viridis, per doz.	12 0–24 0
Epiphyllum, per doz.	12 0–18 0
Euonymus, in var., per dozen	... 6 0–18 0
Evergreens, in var., per dozen	... 6 0–24 0
Ericas, various, doz.	8 0–24 0
Ferns, in var., per dozen	... ... 4 0–18 0
Ficus elastica, each	1 6– 7 0
Foliage plants, various, each	... 2 0–10 0
Hyacinths, p. doz	6 0– 9 0
Lily of the Valley, p. doz. pots	...18 0 24 0
Marguerites, doz.	6 0–12 0
Palms in var., each	2 6–21 0
Pelargoniums, scarlet, per dozen	... 6 0– 8 0
Roman Hyacinths, per dozen pots	9 0–12 0
Solanums, per dozen	6 0–12 0
Tulips, doz. pots	6 0– 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Abutilons, 12 bun.	2 0– 4 0
Acacia (French) bun.	0 6– 1 0
Azaleas, doz. sprays	0 6– 1 0
Bouvardias, per bun.	0 8– 1 0
Callas thiopica, 12 bl.	3 0– 6 0
Camellias, white, doz.	2 0– 4 0
— various, per doz.	1 0– 2 0
Carnations, 12 blms.	1 0– 2 0
Chrysanth., 12 bun.	4 0–12 0
Cyclamens., 12 blms.	0 4– 0 9
Daffodils, doz. blooms	0 4– 1 0
Eucharis, per dozen	3 0– 5 0
Gardenias, 12 blooms	12 0–24 0
Heliotropes, 12 spr.	0 6– 1 0
Lilac, white, Fr., bun.	4 0– 8 0
Lilium, var., 12 bl.	2 0– 6 0
Lily of the Valley, doz. sprays	... 0 6– 1 0
Maiden Hair Fern, 12 bun.	... ... 4 0– 9 0
Mignonette, 12 bun.	2 0– 4 0
— French, per bun.	1 0– 2 0
Marguerites, 12 bun.	3 0– 6 0
Narcissus, paper-white,	
French, doz. bun.	1 6– 3 0
Pelargoniums, scarlet, 12 spr.	... ... 0 9– 1 6
— dozen sprays	1 0– 2 0
Primroses, 12 bun.	1 0– 2 0
Primulas, double, 12 bun.	1 0– 1 6
Roman Hyacinths, Eng., doz. sprays	0 6– 1 0
— (French), 12 bun.	1 0– 2 0
Roses, Tea, per doz.	1 0– 3 0
— coloured, dozen	2 0– 4 0
— French, dozen	1 0– 2 0
— red, per dozen	9 0–12 0
— Safrano, dozen	1 6– 2 6
Spirea, doz. sprays	1 0– 1 6
Stephanotis, 12 spr.	9 0–12 0
Tuberoses, 12 blms.	1 6– 2 0
Tulips, doz. blooms	0 6– 1 0
Violets, 12 bun.	1 0– 2 0
— French, bunch	1 0– 2 0
— Parma, bunch	3 0– 4 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Apples, ½-sieve	1 6– 7 0
— Nova Scotia, brl.	12 0–25 0
Cobs, per 100 lb.	...140 0– ...
Grapes, per lb.	2 0– 5 0
Lemons, per case	12 0–20 0
Pine-apples, Eng., lb.	1 0– 1 6
— St. Michael, each	2 0– 6 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		*s. d. s. d.*
Asparagus, English, per 100	...12 0– ...	Mustard and Cress, punnet	... 0 4– ...
Beans, French, lb.	2 0– ...	Onions, per bunch	0 5– ...
Beet, red, per dozen	1 0– 2 0	Parsley, per bunch	0 6– ...
Carrots, per bunch	0 6– ...	Rhubarb, per bundle	0 6– ...
Cauliflowers, each	0 3– ...	Seakale, punnet	2 0– ...
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 6– ...
Cucumbers, each	1 0– 1 6	Spinach, per bushel	4 0– ...
Endive, per dozen	2 0– ...	Sprue, per bundle	1 6– ...
Herbs, per bunch	0 4– ...	Brussel Sprouts, pr lb.	0 3– ...
Leeks, per bunch	0 3– ...	Tomatos, per lb.	1 0– ...
Lettuces per dozen	1 6– ...	Turnips, per bunch, new	... 0 4– ...
Mushrooms, punnet	1 6– ...		

POTATOS:—Supply of old Potatos continue plentiful, and market has tendency to fall. Fresh arrival of Canary new potatos; price from 16*s.* to 22*s.* *J. B. Thomas.*

SEEDS.

LONDON: *Feb.* 19.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market thinly attended. No great activity is as yet exhibited in the trade; the larger provincial houses have already purchased, whilst the smaller country dealers seem generally disposed to postpone their operations as long as possible. Trefoil meets with continued favour, the late rise being well sustained. Red Clover seeds, both English and foreign, is unchanged. White Clover seed moves off slowly on former terms. Of fine Alsike the supply is short. Rye-grasses are exceedingly cheap. Winter Tares fairly brisk. Bird seeds unaltered. Blue Peas steady.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure (quarter), for the week ending February 15:—Wheat, 29*s.* 8*d.*; Barley, 31*s.* 8*d.*; Oats, 18*s.* 7*d.* For the corresponding period in 1889:—Wheat, 29*s.* 6*d.*; Barley, 26*s.* 9*d.*; Oats, 16*s.* 5*d.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *Feb.* 19.—Very good supplies of fresh vegetables and Potatos. Limited supply of English and foreign fruits. Demand exceedingly slow for the former, but good for fruit. Prices:—English Apples, 4*s.* to 7*s.* per bushel; American do., 18*s.* to 24*s.* per barrel; forced Rhubarb, 1*s.* 9*d.* to 2*s.* per dozen bundles; natural do., 1*s.* 6*d.* to 2*s.* 6*d.* do.; Savoys, 1*s.* to 2*s.* per tally; Cauliflowers, 4*s.* to 8*s.* do.; Greens, 2*s.* 6*d.* to 5*s.* 6*d.* do.; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Curley Kale, 4*d.* to 6*d.* per bushel; Spinach, 4*d.* to 1*s.* per bushel; Brussels Sprouts, 4*d.* to 6*d.* per half-sieve; Turnip-tops, 1*s.* 6*d.* to 2*s.* per sack; Sprouting Broccoli, 6*d.* to 9*d.* do.; do. 3*d.* to 4*d.* per sieve; Turnips, 1*s.* 6*d.* to 2*s.* 6*d.* per dozen bunches; Carrots, 1*s.* 6*d.* to 2*s.* do.; Parsley, 2*s.* to 3*s.* 6*d.* do.; Horse-radish, 1*s.* to 1*s.* 4*d.* per bundle; Celery, 4*d.* to 1*s.* do.; Parsnips, 4*d.* to 8*d.* per score; Beetroots, 4*d.* to 6*d.* per dozen; Endive, 1*s.* 6*d.* to 2*s.* do; Leeks, 1*s.* to 1*s.* 3*d.* do.; Mustard and Cress, 1*s.* to 1*s.* 6*d.* per dozen baskets; English Onions, 10*s.* to 11*s.* per cwt.; Spanish do., 9*s.* 6*d.* to 10*s.* 6*d.* per case; Bordeaux do., 6*s.* to 7*s.* 6*d.* do.; Belgian do., 7*s.* to 7*s.* 6*d.* per bag of 110 lb.; Dutch do., 7*s.* to 7*s.* 6*d.* do.; Carrots, 16*s.* to 24*s.* per ton.

STRATFORD: *Feb.* 18.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the undermentioned prices:—Savoys, 3*s.* to 5*s.* per tally; Turnips, 25*s.* to 35*s.* per ton; Carrots (household), 30*s.* to 40*s.* do.; do. (cattle feeding), 20*s.* to 23*s.* do.; Mangels, 14*s.* to 18*s.* do.; Swedes, 13*s.* to 16*s.* do; Onions, English, 10*s.* to 11*s.* 6*d.* per bag; do., Dutch, 6*s.* to 7*s.* do.; Apples, English, 2*s.* 6*d.* to 7*s.* 6*d.* per bushel; do., American, 18*s.* to 30*s.* per barrel; Watercress, 6*d.* per dozen; Celery, 4*s.* to 10*s.* per dozen rolls; Rhubarb, 1*s.* 9*d.* to 2*s.* per dozen bundles; Sprouts, 1*s.* to 1*s.* 6*d.* per half sieve.

POTATOES.

BOROUGH AND SPITALFIELDS: *Feb.* 18.—Quotations:—Regents, 40*s.* to 90*s.*; Hebrons, 40*s.* to 90*s.*; Magnums, black land, 40*s.* to 50*s.*; Bedfords, 40*s.* to 55*s.*; Lincolns, 45*s.* to 60*s.*; Yorks, 50*s.* to 70*s.*; Scotch, 50*s.* to 100*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *Feb.* 19.—Quotations:—Magnums, 40*s.* to 65*s.*; Regents, 50*s.* to 75*s.*; Champions, 40*s.* to 60*s.*; Imperators, 40*s.* to 70*s.*; Hebrons, 40*s.* to 55*s.* per ton.

STRATFORD: *Feb.* 18.—Quotations:—Scotch Magnums, 50*s.* to 75*s.*; do. Regents, 50*s.* to 70*s.*; do. English, light, 45*s.* to 65*s.*; do., dark, 40*s.* to 45*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 73*s.* to 96*s.*; do., inferior, 46*s.* to 75*s.* Best hay, 60*s.* to 90*s.*; do., inferior, 26*s.* to 50*s.* Straw, 26*s.* to 38*s.* per load.

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

ADDRESS.—Will Mr. W. H. Aggett, who sends communications to us, kindly say where he resides, not necessarily for publication, but as an earnest of good faith.

ALDER, ROOT-GALLS: *J. W.* Not uncommon. There are two forms—one caused by a fungus, the other by a mite.

APPLE STOCKS: *F. Y.* See *Gardeners' Chronicle*, March 9, 1889, p. 296, where will be found an account of the various stocks employed.

BOOK ON TREES AND SHRUBS: *E. S. Handbook of Hardy Trees, Shrubs, and Herbaceous Plants* (Decaisne, Naudin, and Hemsley), Longman & Co., London.

BOOKS: *Ajax.* Get Henfrey's *Elementary Course of Botany*, by Dr. Masters (published by Van Voorst).

BRYOPHYLLUM CALYCINUM: *D. E.* Peg the leaves on to the surface of moist soil in gentle heat, and you will find small buds originate from the edges.

BULB MITE: *J. Marshall.* The bulb of Eucharis sent by you is infested by the mite.

CATTLEYA HERMISEANA: *T. L. C., Liverpool.* This often appears with imperfectly developed flowers, similar to those you send. This may be partly because the plant is not yet well established with us, and partly on account of its flowers being produced in our dull season. It is distinct from C. Skinneri parviflora, but what its relation to typical C. Skinneri may be has not yet been fully determined. This and several others which botanists might consider simply varieties of C. Skinneri are amply distinct for garden purposes. It is better to persevere in the tolerably cool treatment you give. The plant will doubtless behave better next year, and would not have done better with more heat.

CORRECTION.—"Earliness of Vegetation in the Scilly Islands," on p. 207 in our last issue, for "H. Tonsem," read Mr. J. C. Tonkin.

CRICKETS IN THE GREENHOUSE: *A. G. G.* Try putting diluted carbolic acid into their haunts; it will drive them away. Killing them is labour in vain!

CURRANT-BUD MITE: *D. B.* The numbers are out of print. Unfortunately, you can do nothing but burn affected shoots. Encourage the tom-tits.

FRUIT-FARMING IN ESSEX: *D. D.* We cannot advise you, as the circumstances are so varied; but this we may safely say—do not put all your eggs in one basket, but let all your eggs be of the first quality.

HALL FOR HORTICULTURE: *An Alarmed Fellow and many others.* The Society, being scarcely out of the frying-pan, will hardly, as such, commit itself to any such folly as is supposed. The scheme, as we understand it, leaves the Society, in its corporate capacity, quite free.

LANDSCAPE GARDENING: *P. Whatever Observations*, published in 1770, was the first complete treatise on landscape gardening.

NAMES OF PLANTS: *J. K.* Toxicophlœa Thunbergii. —*G. R. T.* Odontoglossum triumphans. *D. E.* Bryophyllum calycinum.

ORCHID FLOWERS DYING: *Secretary.* We cannot say for certain what may have caused the flowers sent to turn yellow, but it may probably have been caused, as you suggest, by an escape of coal-gas.

ORCHID PEAT: *R. M.* Not a good sample for the particular purpose, though otherwise it is good. Knock out as much of the soil as possible from the lumps.

PAPER POTS: *Somerset.* We do not know. The makers should advertise.

PACKING FLOWERS FOR LONG JOURNIES: *Florist.* Pack in boxes not more than 2 inches deep, 1 foot wide, and 1 foot 8 inches long. These should be made to fit into a light crate easily, but without movement. Use no wadding in the boxes amongst the flowers. Very choice things may be wrapped singly in thin tissue paper, and very clean live moss used to separate things. Many kinds of flowers travel with the least amount of injury in bunches of ten to twenty blooms, notably Narcissus, Tulips, Freesias, and the like. Camellias, fine Rose blooms, Gardenia, Eucharis, Stephanotis, Allamanda, travel best when embedded singly in the moss. Strew moss lightly over all, or place tissue paper. Pack with a moderate degree of firmness.

SHELLAC FOR FLORISTS' GUM: *Shellac.* The formula you give is a proper one, but perhaps it was not allowed to remain sufficiently long in a warm place; or, the spirits used were too much diluted. Use strong methylated spirit.

TUBEROUS BEGONIA: *H. J.* The tuber may be shaken out of the old soil; the old roots trimmed off and repotted, burying two-thirds of the tuber; soil light, rich, somewhat sandy. The tuber may then be put into a pit or house, with a night temperature of 55°, with 10° to 15° rise in the day time. Do not give any water if the soil is moist; and, water carefully, and only when it is very dry. When young shoots appear, and are 2 to 3 inches long, any of these taken off with a very thin layer of the tuber will strike in sandy soil in heat under a bell-glass or case. Keep the mother plant in warmth, and near the glass, until June, when it may be planted out-of-doors; or it may be kept in a pot, and receive slight shifts as may be required.

ZONAL PELARGONIUM: *T. E. B.* The appearance is due to over-feeding. There is nothing to fear.

CATALOGUES RECEIVED.

LUTHER BURBANK, Santa Rosa, Sonoma County, California.—Novelties, &c.

KELWAY & SON, Langport, Somerset.—General Catalogue for 1890.

STRACHAN AND THOMSON, 145, Union Street, Aberdeen, N.B.—Vegetable and Flower Seeds, &c.

JOSEPH BRECK & SONS, Boston, Mass., U.S.A.—Vegetable and Flower Seeds, &c.

E. WEBB & SONS, Wordsley, Stourbridge.—Farm Seeds.

JAMES WRIGHT, 49, Granby Street, Leicester.—Vegetable and Flower Seeds.

WILLIAM STRIKE, 62, High Street, Stockton-on-Tees.—Vegetable and Flower Seeds.

RICHARD DEAN, Ranelagh Road, Ealing, W.—Primroses, Pansies, Potatos, &c.

J. R. BECKWITH, 34, Guildford Street, Leeds—Vegetable and Flower Seeds.

COMMUNICATIONS RECEIVED.—Dr. L., Nova Scotia.—Dr. B., Middelburgh, Holland.—Secretary of National Horticultural Society of France.—L. R.—G. H., Malta.—C. de B.—J. J. W.—H. Ellacomb.—E. H. Woodall.—J. B.—A. D.—A Foreman (please send full name and address).—J. O'Brien.—J. R. J.—W. R.—R. M.—E. M.—R. B.—S. H.—W. H. Aggett.—A. D. W.—J. W.—W. E.—Chas. Wood.—W. H.—A. Taylor.—R. A. R.—J. G. B.—D.—P. E. N.—J. C. T.—V.—C. W. D.—W. D.—J. W.—A. E. (next week).—P. N.—W. T. T. D.—H. J. V.—A Fellow.—J. W.

DIED.—At 5, South Street, Halifax, Nova Scotia, February 5, CAROLINE MATILDA LAWSON, beloved wife of George Lawson, Professor of Chemistry, Dalhousie College, and daughter of the late William Jordan, Halifax.

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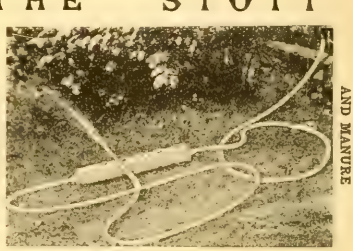
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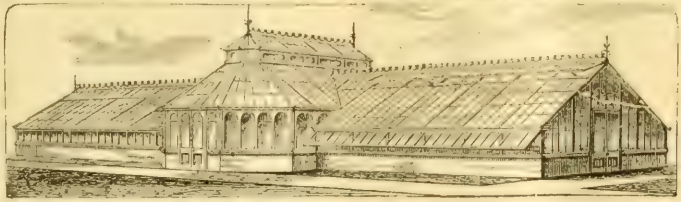
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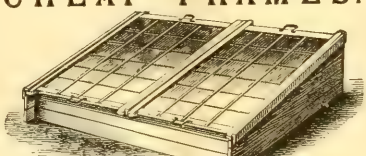
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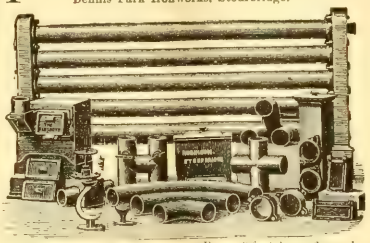
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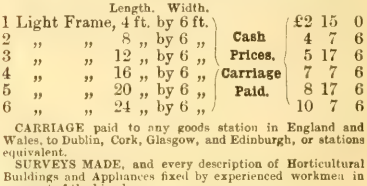


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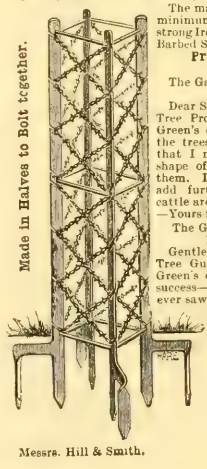


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The maximum of utility and the minimum of cost. Constructed of strong Iron Uprights and Galvanised Barbed Steel Wire.
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—Yours faithfully, J. WEARING.

The Gardens, The Whittern, Kingston, Sept. 26, 1888.

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8	„	..	0	5	0	19	„	..	0	10	6
9	„	..	0	5	6	20	„	..	0	11	0
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Mr. W. CUNISON, late Head Gardener to W. M. TUFNELL, Esq., Hatfield Place, Chelmsford, has been engaged as Head Gardener to PANMURE GORDON, Esq., Loudwater House, Rickmansworth, Herts.

Mr. W. BROOKS, late Head Gardener to C. T. JACOBY, Esq., Lyegrove, Chipping Sodbury, has been appointed Head Gardener to H. G. LAKE, Esq., Fairlawn House, Chiswick, Middlesex.

Mr. F. KNIGHT, late Foreman at Warren House Gardens, Great Stanmore, has been engaged as Head Gardener to D. BROMILOW, Esq., Bitteswell Hall, Lutterworth.

Mr. W. Wm. EDWARDS, formerly Gardener at Honeylands, Waltham Abbey, Essex, has been engaged as Head Gardener to J. H. SAUNDERS, Esq., Porter's Park, Shenley, Herts.

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GARDENER (HEAD); age 34, married, one child.—W. HOWARD, Esq., The Grove, Teddington, would be pleased to recommend his late Head Gardener to any Nobleman or Gentleman requiring a good Gardener in all branches. Highest references from other employers. Abstainer, Churchman. Country preferred.—G. A. B., 41, Wellington Street, Strand, W.C.

GARDENER (HEAD).—Age 31; thoroughly practical in all branches of gardening. S. DAVIES, late Head Gardener to Capt. Drummond, Enderby Hall, would be glad to recommend his late Foreman, who has served as Head Gardener at the above place. Seventeen years' excellent references from good establishments.—Address in first instance to S. DAVIES, Weybridge Park, Surrey.

GARDENER (HEAD), age 40; twenty-five years' experience in first-class places.—H. CROSS, for nine and a half years Head Gardener at Woodcote Hall, Newport, Salop, is open to treat with any Lady, Nobleman, or Gentleman requiring the services of a first-rate all-round Gardener, a good Manager of Men, and thoroughly conversant with the requirements of a Large Establishment. Highest testimonials from past and present employers.—Address, in first instance, to H. CROSS, Woodcote Gardens, Newport, Shropshire.

GARDENER (HEAD); age 36.—RICHARD MILNE, for twelve years Gardener to the late J. D. Corbet, Esq., Sundome Castle, Shrewsbury, will be pleased to treat with any Lady, Nobleman, or Gentleman, requiring a first-class all-round Gardener, first-rate Plant, Fruit, and Vegetable Grower; also understands the Management of Woodlands, and all kinds of Forest Plantings. First-class references.—Mr. W. PRATT, The Gardens, Longleat; and Mr. J. MUIR, The Gardens, Margam Park, will also be pleased to answer any questions respecting me.

GARDENER (HEAD); age 30.—Mr. J. CREBAR, Gardener to J. G. Cattley, Esq., Shabden, Merstham, Surrey, will be pleased to recommend his Foreman, Arthur Stote, who has been with him four and a half years. Thoroughly competent.—Address as above.

GARDENER (HEAD WORKING).—Age 30, single; fifteen years' experience. Three years as Head in last situation.—A. G., 6, Elgin Terrace, Maida Vale.

GARDENER (HEAD WORKING).—Age 32; well recommended. Personal reference.—X. Y. Z., 17, High Road, Knightsbridge, W.

GARDENER (HEAD WORKING), where one or two are kept.—Married, no family; thoroughly good all-round man.—E. SEYMOUR, The Gardens, Mount Mascal, Herne Hill, S.E.

GARDENER (HEAD WORKING), where one or two are kept.—Age 30, married, two children; good all-round man. Well up in all branches.—H. W., D. Sprigings, Nurseries, St. Albans, Herts.

GARDENER (HEAD WORKING).—Married, no family; thorough practical experience in all branches. Six years in present situation. Good character.—T. ROBERTS, Garden, Highley, Balcombe, Sussex.

GARDENER (HEAD WORKING), where two or three are kept.—Single; a thorough good Single-handed. Understands Management of Stock if required. Good references.—P. F., Riversdale Lodge, Hanworth, Middlesex.

GARDENER (HEAD WORKING), where two or more are kept.—Age 27, married when suited; well versed in Fruit and Plant Growing, Kitchen and Flower Garden. Two years as Foreman in last situation.—W., 21, Abinger Road West, New Cross, S.E.

GARDENER (HEAD WORKING), where two or three are kept.—Thoroughly experienced in all branches, Land and Stock. Wife no objection to Poultry and Dairy. Five years' personal reference—G., Jubilee Cottage, Much Hadham, Herts.

GARDENER (HEAD WORKING); age 27.—Mr. GIBSON, Steventon Manor Gardens, Micheldever, Hants, can with every confidence highly recommend his Foreman, F. Eden, to any Lady or Gentleman requiring a practical man as above.

GARDENER (HEAD WORKING); age 28.—G. NIXON, Head Gardener to Sir Hugh Cholmeley, Bart., Easton Hall, Grantham, can with confidence recommend his late Foreman, W. Button, now disengaged, as a thorough good practical all-round man. Abstainer.

GARDENER (HEAD WORKING).—At liberty; understands Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, and Flower and Kitchen Gardens. Unexceptional character.—GARDENER, Asylum Cottages, Beddington, Surrey.

GARDENER (HEAD WORKING).—Age 33; eighteen years' practical experience in all branches. Well up in Forcing Vines, Peaches, Cucumbers, Melons, &c. First-class references from past and present employers.—Abstainer.—F. LANE, Wray Park Gardens, Reigate, Surrey.

GARDENER (HEAD WORKING).—Age 34, married, no encumbrance; well experienced in Vines, Peaches, Fruit, Flower, and Kitchen Gardens, Forcing, &c. Highest references for trustworthiness, &c. G., 5, Devonshire Mews South, Portland Place, London, W.

GARDENER (HEAD WORKING).—Age 23; thorough good all-round man. Seventeen years' experience in good establishments. Trustworthy and fond of his work. Excellent testimonials.—A. G., 5, Vernon Street, West Kensington, W.

GARDENER (HEAD WORKING).—Age 33, married; eighteen years' practical experience in the cultivation of Fruits, Flowers, and Vegetables, and the General Work of a Large Garden. Six years' excellent testimonials from present employer as Head.—GARDENER, Purbeck House, Swanage.

GARDENER (HEAD WORKING); age 30, married, two children.—G. N. HOARE, Esq., would be pleased to recommend his Head Gardener to any Lady or Gentleman requiring the services of a thoroughly experienced man as above.—GEO. WIGGENS, The Gardens, Finchers House, Amersham.

GARDENER (HEAD WORKING), where three or four men are kept.—Married; sixteen years in present situation as Head. Leaving through gentleman giving up. Twenty-five years' experience in good establishments. Good character.—J. TICKELL, Mells, Frome, Somerset.

GARDENER (HEAD WORKING), where two or three others are kept.—Age 35, married. Mr. W. P. BOUVERIE desires to recommend a steady and industrious young man. Twenty-one years' experience. Thirteen years in present situation. Leaving solely owing to death of Mr. E. P. Bouverie.—JAMES CLARK, The Gardens, Manor House, Market Lavington, Wilts.

GARDENER (HEAD WORKING), or good SINGLE-HANDED).—Age 33, married, two children; good references from present and last employers.—E. B., 4, Winterbourne Road, Thornton Heath.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 46, three in family; great experience in Early and Late Forcing all kinds of Fruits, Flowers, Vegetables, Flower and Kitchen Garden, &c. Highest references.—L. M., Ash Cottage, Windmill Hill, Enfield, N.

GARDENER (HEAD), or good SINGLE-HANDED.—Age 31, married, no family; thoroughly conversant with the Growing of Orchids, Flowers, Fruits, and Vegetables. Five and a half years in last place. Now disengaged. Highest testimonials.—HENRY SELL, Wallingford, Berks.

GARDENER (HEAD), or good SINGLE-HANDED.—Age 33, married, small family; first-class Grower of Grapes, Peaches, Melons, Tomatos, Cucumbers, Cut Flowers, Stove Plants, Vegetables, &c. Three years' character. Wages expected 25*s.* per week with cottage.—W. HOWARD, Ingersoll House, Willesden Green, N.W.

GARDENER (HEAD), or FOREMAN.—Age 35; practical in all branches. Wife could Manage Dairy. Good character.—J. TIMMS, Brookhill Road, New Barnet.

GARDENER, or GARDENER and BAILIFF.—The LIVERPOOL HORTICULTURAL Co. (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, wish to recommend a first-class man in the above capacity. Unexceptional references. Full particulars on application to the Company.

GARDENER, where one or more are kept.—age 34; married, four children; upwards of 20 years' experience in all branches.—H. COURSE, Ashcroft, Kingston, near Brighton.

GARDENER, Out-door.—Age 23; willing to help in the Houses. Over three years' good character from present situation.—WM. WELLS, Caldy Manor Gardens, near Birkenhead, Cheshire.

GARDENER.—Age 33, married; thoroughly experienced in Orchids, Fruits, Stove and Greenhouse Plants, &c., Flower and Kitchen Garden.—W. W., 34, Rignold Road, Camberwell, S.E.

GARDENER. — Age 30, married; highly recommended by present employer, wishing to better myself. Understands Kitchen and Fruit Gardens, Vines, Cucumbers, Melons, Flowers. Five years' character. Abstainer. —Apply by letter, J. P., 17, Eliot Place, Blackheath.

GARDENER (good WORKING), where help is given.—Age 40, married, one child, 10 years; understands Gardening in all its branches, Cows, Pigs, Poultry, and Meadow Land. Good character. — G. L., Vine Cottage, Arborfield, near Reading.

GARDENER (SINGLE-HANDED), or otherwise. —Age 36; good with Chrysanthemums. Good character. —C. EMETT, Crowthorn, Wokingham, Berks.

GARDENER (SINGLE-HANDED). — Age 33, married, no family; thoroughly practical. Total abstainer.—Good references.—J. F., Rockhills, Crystal Palace Park, Sydenham.

GARDENER (SECOND), where four are kept. 10 years' experience, three and a half years' character from last situation.—J. DUBBIN, 10, Hartrup Street, Tonbridge Road, Maidstone.

GARDENER (SECOND).—Age 26; ten years' experience Inside and Out. Eighteen months' good reference, five years previously.—A. B., Albion House Stables, British Grove, Chiswick.

GARDENER (SECOND).—Age 23; nine years' experience Indoors and Out.—Four years' good character from present employer.—A. B., 158, Romnaay Road, West Norwood, S.E.

GARDENER (SECOND).—Age 24; well experienced Inside and Out. Can be well recommended. Eight years in present situation.—F., 2, Holdernesse Road, Tooting.

GARDENER, where another is kept.—Age 23; nine years' experience; six outside, three under Glass in present situation. Abstainer.—S. FENNELL, The Gardens, Somerhill, Tonbridge, Kent.

GARDENER, where another is kept, or good SINGLE-HANDED.—Age 28, married, no family; good general experience. Can Milk. Leaving through Gentleman giving up.—LOVEGROVE, 8, Queen's Road, Chislehurst, Kent.

GARDENER (SECOND), respectable young man seeks situation as above; experienced Inside and Out.—Good references.—E. R., Effingham Nursery, Lee, S.E.

GARDENER (SECOND), or JOURNEYMAN in a good Establishment.—Age 22; good character from present and previous employers.—F. WRIGHT, Post-office, Shooter's Hill, S.E.

GARDENER (UNDER), or good SINGLE-HANDED, where help is given.—Age 22; eight years' experience Inside and Out.—J. JONES, The Salmons, Warlingham, Surrey.

GARDENER (UNDER), or THIRD in a good place, Inside and Out.—Age 21; seven years' experience; excellent character; bothy preferred.—J. UMPLEBY, Bolnore, Hayward's Heath.

GARDENER (UNDER), Inside and Out.—Age 23; eight years' experience in good Gardens. Good character. Bothy preferred.—H. WELLS, 48, Stanley Road, Bromley, Kent.

GARDENER (UNDER).—Age 23; nine years' good practical experience, including Syon House. Very highly recommended.—A. CANNING, 3, Hartland Road North Street, Isleworth, Middlesex.

GARDENER (UNDER), Inside or Out.—A Gardener can with confidence recommend a respectable young man as above. Can Milk if required. — J. P., 61, Houblon Road, Richmond, Surrey.

GARDENER (UNDER).—Age 21; six years' experience. Twelve months' good character.—A. M., Staines Road, Upper Sunbury.

GARDENER (UNDER), where others are kept.—Two years' and nine months good character from last place.—T. LUCKETT, Milton Park, Egham, Surrey.

GARDENER (UNDER).—Age 22; strong and willing. Four and a half years' good character.—J. T., 17, Pope Road, Bromley Common, Kent.

GARDENER (UNDER), in Gentleman's Establishment.—Age 20; six years' experience in Houses and Out. Good character.—W. SLADE, 55, Zennor Road, Balham, S.W.

GARDENER (UNDER). — Age 23; seven years' experience Inside and Out. Can be well recommended by Gentlemen and Gardeners. Abstainer.—C., Newman Gardens, Chester Lodge, Andover, Hants.

GARDENER (UNDER), or IMPROVER.—Age 21; nearly three years in Gentlemen's Gardens. Good character.—F. PETTICAN, Mr. Raxon, The Gardens, Westwood, near Colchester.

BAILIFF and GARDENER.—A GENTLEMAN wishes to recommend his Bailiff and Gardener, who has been with him for twelve years. He has had the entire Management of Land, Stock, and Garden. Would fill a similar place or engage as either.—T. HEATH, R. Ovey, Esq., Budgemore, Henley-on-Thames.

To Florists.

MANAGER of Branch, or FOREMAN in Good London Trade.—Age 24; well up in Furnishing, Cut Flower arrangements, &c. Highest references; open for engagement at once. C. R., 56, Goldney Road, London, W.

FOREMAN, or MANAGER of a Nursery.—Well up in Growing Soft-wooded Stuff; also Cut Flowers, Tomatos, and Cucumbers, for Market.—C. A., 17, Charles Street, Burrage Road, Plumstead, Kent.

FOREMAN, in a First-class Place, or HEAD in Smaller Place; married, no family. R. ASHTON, Gardener to Lord Rowcliffe of Gibsey, can very highly recommend his Foreman, Robert Read, as above. Good Plantsman and Table Decorator. Four years here. Five years at Aston Towers, Grassington, Derbyshire.

FOREMAN, in good Establishment.—Age 26; eleven years' experience. Good character and references.—W. BLUNT, Wood'ey House, Hitchin, Herts.

FOREMAN, in a good Establishment; age 25.—Mr. J. P. LEADBITTER, The Gardens, Tranby Croft, Hull, desires a situation for Samuel Crofts. Address as above.

FOREMAN, in the Houses.—Age 23; eight years' experience, late two years Foreman. Good reference.—A. POLLARD, Norton, Daventry, Northamptonshire.

FOREMAN, in a good Establishment.—Age 27; over thirteen years' experience. Excellent testimonials from last and previous employer.—C. LINK, The Gardens, Everingham Park, York.

FOREMAN, in Market Nursery.—Age 28; Growing Cucumbers, Tomatos, Strawberries, &c., Ferns, and Cut Stuff. Good references. State wages to B., 7, Butts Road, Southwick, Brighton.

FOREMAN, and Grower of Fruits, Plants, Cut Flowers, &c., in quantity for Market or Private purposes. Age 31, married.—S. E., Jarvis Road, New Town, Bishop's Stortford.

FOREMAN.—Age 23; good character; seven years' experience. Two years in present situation. Abstainer.—H. WHITE, The Gardens, Hackwood Park, Basingstoke, Hants.

FOREMAN, Inside.—Age 27; fourteen years' experience in good situations. Well up in all branches. Can be well recommended.—W. FOOTE, The Gardens, Elvaston Castle, Derby.

FOREMAN; age 25.—A HEAD GARDENER will be pleased to recommend a strong, active, and intelligent young man, with eleven years' experience, as above, where five or six are kept. Bothy preferred.—VERTICAL, 41, Wellington Street, Strand, W.C.

FOREMAN; age 28.—S. KNOWLES, Gardener, Pylewell Park, Lymington, wishes to recommend his Foreman, G. Harding, as above. Three years' character from present situation. Knowledge of Stove and Greenhouse Fruit, Early and Late Forcing. Address as above.

FOREMAN, in the Houses; age 26.—Advertiser desires an engagement as above in a good Establishment. Thirteen years experience under glass. Good references from present and previous employers.—E. B., 59, Thurlow Hill, West Dulwich, S.E.

To Nurserymen.

FOREMAN (WORKING), good PROPAGATOR, or to take charge of a small Nursery, with a thorough knowledge of General Nursery Stock; age 25.—GRAY AND SONS of Chertsey, can recommend a young man as above. Good References as to abilities and character.

FOREMAN, or SECOND in good Establishment. Age 25; nine years' experience Inside and Out. Good character. Abstainer.—C. S. MARKHAM, Foreman, Ribston Hall, Wetherby, Yorks.

FOREMAN, PROPAGATOR, and GROWER for Market, or otherwise.—Twenty years' experience, Plants and Cut Flowers.—L. GUIBERT, 5, Paddock Road, Bexley Heath, Kent.

To Nurserymen.

FOREMAN, or PROPAGATOR, Outdoor.—A young man with twelve years' practical experience of the Propagation and Growing of Roses, Fruit Trees, Conifers, Flowering and Evergreen Shrubs, is open to engagement as above; a good Grafter, a quick and successful Budder. First-class testimonials; five years in last place.—ALPHA, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOREMAN, or PROPAGATOR and GROWER.—Age 24; used to London and Provincial Nurseries.—W. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOREMAN, or FIRST JOURNEYMAN.—Age 23; two years as Second in last situation. Seven years' experience. Good references.—E. BEDFORD, Sarsden Gardens, Chipping Norton.

FOREMAN, PROPAGATOR and GROWER.—Twenty years' experience in Pot Roses, Palms, Ferns, and Soft-wooded Stuff for Market; Wreaths, Crosses, and Furnishing. Good Salesman.—WALTER, 5, Sem Gardens, Old Dover Road, Blackheath, S.E.

To Nurserymen.

PROPAGATOR, Indoors.—Young; open to engagement. Exceptional experience in hardy plants, also good knowledge of Stove, Soft-wooded Stuff, and Nursery Stock generally.—G. WATERS, Coombe Wood Nursery, Kingston Hill, Surrey.

To Nurserymen.

PROPAGATOR (Soft-wood), or General Indoor ASSISTANT.—An experienced young man seeks engagement as above. Thorough knowledge of the work, also a first-class hand at Bouquets, Wreaths, Crosses, and general Florist's Work.—HORTUS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

JOURNEYMAN (FIRST), in the Houses.—Age 23; seven years' experience, partly in the Midlands. Good recommendations.—H. SNELL, Upton St. Mary Church, Torquay.

JOURNEYMAN (FIRST); age 23. Mr. A. OCOCK, Havering Park Gardens, Romford, will have much pleasure in recommending W. Batchelor to any Gardener requiring a man of good abilities as above. Nine years' experience; two and a half years in present place.

JOURNEYMAN (THIRD), in the Houses; age 19.—C. W. Cook can, with every confidence, recommend a young man as above.—The Gardens, Rendcombe Park, Cirencester.

JOURNEYMAN, in Houses.—Age 22; two and a half years in present situation. Can be highly recommended.—P. PYLE, Rodborough, Stroud, Gloucestershire.

JOURNEYMAN, in the Houses.—Age 20; five years' experience, two years in present situation.—H. AMOR, The Gardens, Lockerley Hall, Romsey.

JOURNEYMAN, in good Establishment.—Age 20; four and a half years' in previous situation, and two years in present. Well recommended.—W. SUTTON, The Gardens, Temple House, near Great Marlow, Bucks.

JOURNEYMAN, in the Houses; Age 17.—W. J. NOVELL, Gardener, Catton Hall, Burton-on-Trent, would be pleased to recommend a strong willing youth as above.

JOURNEYMAN, in good establishment.—Age 20; four years in Gentleman's Garden, and two years growing for Covent Garden. Excellent Character.—H. SILK, Whiteness Gardens, Margate.

JOURNEYMAN, in the Houses under a Foreman in good establishment.—Age 25; ten years' experience. Five years' good character.—W. G., Portley Cottage, Caterham, Surrey.

JOURNEYMAN, in the Houses.—Ten years' experience in Propagating, Growing, and General Inside Work. Good Wreath Maker and Rose Budder.—WOOD, Posbrooke Gardens, Titchfield, Hants.

JOURNEYMAN, in the Houses; age 19.—Mr. NORRISH wishes to recommend F. Willey as above. Two years in present place. Bothy preferred.—The Quarries Gardens, Exeter.

JOURNEYMAN, Inside, under a Foreman; age 21.—J. TRIGGER, Milton Park Gardens, Peterboro', can highly recommend a strong and active young man as above. Bothy preferred.

JOURNEYMAN, in the Houses.—Age 23; six years' experience in both Private and Market Establishments. First-class testimonials.—B. LARRY, Sunny Hill Vineries, Littleover, Derby.

JOURNEYMAN, in the Houses, or Kitchen Garden and Pleasure Ground.—Age 19; six years' excellent character. Good recommendation.—J. CLARK, Shadwell Court, Thetford, Norfolk.

JOURNEYMAN, in the Houses; Age 21.—W. WEBBER, Norton Hall Gardens, Daventry, can with every confidence recommend William Harrison as above. Two and a half years in present situation.

JOURNEYMAN.—Age 20; good experience, Inside and Out. Strong, energetic, and willing. Not afraid of work. Characters good.—JACKSON, Claydon Park, Winslow, Bucks.

To Nurserymen.

JOURNEYMAN, in the Houses.—Age 24; five years' experience under Glass in a Leading Nursery. Permanent employment required. Good reference.—H. B., Pince's Nursery, Exeter.

JOURNEYMAN, in the Houses, in a good Establishment.—Age 21; abstainer. Excellent character from previous and present employers as to abilities.—Please state wages, with bothy, to S. PRESTON, Bodorgan Gardens, Llangefni, Anglesea.

JOURNEYMAN; age 22.—A HEAD GARDENER will be pleased to recommend a strong, active, intelligent young man as above, with seven years' experience where five or more are kept. Bothy preferred.—VERTICAL, 41, Wellington Street, Strand, W.C.

JOURNEYMAN, in the Houses, where two or three are kept; age 22.—A GENTLEMAN recommends a young man as above; eight years' experience; excellent character.—JAMES CLARK, Elleray Gardens, Windermere; or (for references) A. H. HEYWOOD, Esq., Elleray, Windermere.

JOURNEYMAN, or IMPROVER in a Gentleman's Garden.—Age 21; total abstainer. Nine years' good character.—A. ARNOLD, The Gardens, Weeting Hall, near Brandon, Norfolk.

IMPROVER, Inside and Out.—Age 18; strong, willing. Three years' experience. One year last place. H. BEST, The Gardens, Dutchlands, Great Missenden, Bucks.

IMPROVER, in the Houses.—Age 17; three years' experience.—G. OSBORNE, The Gardens, Brandfold, Goudhurst, Kent.

IMPROVER, Inside, in a Gentleman's Garden, Age 19; four years' good character. Would pay a premium.—F. T., 17, Pope Road, Bromley Common, Kent.

IMPROVER, in the Houses.—Age 21; two years' good character from present employer.—J. HILDRETH, Formosa Gardens, Cookham, Berks.

IMPROVER, in the Houses.—Age 21; three years' good character from present employer.—T. GRESWELL, Formosa Gardens, Cookham, Berks.

TO NURSERYMEN.—Situation wanted by a young Man in the Houses. Good experience in Market and Private Nurseries. Excellent references. North preferred.—BETA, Mr. Mitchell, Hoddesdon, Herts.

TO NURSERYMEN.—Wanted, by a young Man (age 20), a situation in Nursery. Used to Stove Plants and Ferns. Well recommended.—X., 2, Circn Place, Church Road, Tottenham, N.

TO NURSERYMEN.—Situation wanted by young Man (age 22), quick at Potting, Tying, and General Nursery Work.—RYNOR, 51, Thorne Street, Wandsworth Road, S.W.

TO NURSERYMEN.—Situation in Nursery; age 18; used to Potting, Tying, Watering, and General Nursery Work.—W. L., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO GARDENERS, &c.—Wanted, by a Lad (age 17), situation in the Garden, where two or three are kept. Twelve months' good character.—G. G., Jackwood, Shooter's Hill, S.E.

TO GARDENERS.—Advertiser (age 23), been in private and P. O. service, seeks situation under a Gardener, has little knowledge of same; willing to be generally useful at anything. Low wages at start, good character. W. SAVAGE, 76, Mydleton Road, Hornsey, N.

SHOPMAN (HEAD). — Thoroughly experienced in every detail of the Seed, Bulb, and Sundries Trade. Knowledge of Plants. Efficient Correspondent. Sound business tact. Eighteen years' experience as above.—W., 2, Church Row, Horselydown, London, S.E.

SHOPMAN.—Age 24; a young man with eight years' experience in all branches, seeks re-engagement.—A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO FLORISTS.—Wanted by a young man in a good establishment; thoroughly experienced at Bouquets, Wreaths, Crosses, Sprays, and all Cut Flower Work.—LOTUS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FLORIST.—Situation wanted by experienced hand (Lady), as ASSISTANT, Indoors or Out.—L. J., 1, Fortune Parade, Harlesden, N.W.

FLORIST.—Required, a situation as an ASSISTANT, by a young Lady; experienced. Good references.—A. K., 96, Gray's Inn Road, W.C.

HOLLOWAY'S OINTMENT and PILLS.—Counsel for the Delicate.—Those to whom the changeable temperature is a protracted period of trial, should seek the earliest opportunity of removing all obstacles to good health. This cooling Ointment, perseveringly rubbed upon the skin, is the most reliable remedy for overcoming all diseases of the throat and chest. Quinsey, relaxed tonsils, sore throat, swollen glands, ordinary catarrh, and bronchitis, usually prevailing at this season, may be arrested as soon as discovered, and every symptom banished by Holloway's simple and effective treatment. This Ointment and Pills are highly commended for the facility with which they successfully contend with influenza; they allay in an incredibly short time the distressing fever and teasing cough.

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ROLLING AND COLLECTING MACHINES FOR 1890.

The Winners of every Highest Prize in all cases of competition, and they are the only Mowers in **constant** *use at all the Royal Gardens and at the Royal Horticultural Society's Gardens, South Kensington.*

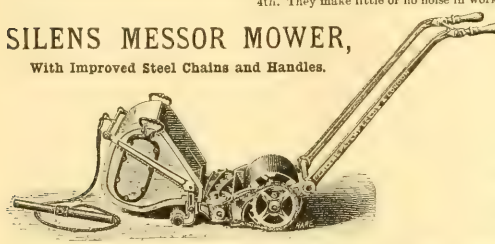
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HER MOST GRACIOUS MAJESTY THE QUEEN on many occasions,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
THE KING OF THE BELGIANS.
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," *of June 9, says:*—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

Upwards of 155,000 of these Machines have been Sold since they were first introduced in the year 1856,
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They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off the Highest Prize that has been given.

The following are their Advantages over all others:—
1st Simplicity of Construction—every part being easily accessible. 2nd. They are worked with much greater ease than any other. 3rd. They are the least liable to get out of order. 4th. They make little or no noise in working. 5th. They will cut either short or long Grass, wet or dry.

SILENS MESSOR MOWER,
With Improved Steel Chains and Handles.



SINGLE-HANDED LAWN MOWER.

	Price.
To cut 6 in., can be worked by a Lady ...	£1 15 0
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To cut 10 in., do. by a strong youth	3 10 0
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DOUBLE-HANDED LAWN MOWER.

To cut 16 inches, can be worked by one man on even lawn ...	£6 10 0
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These Mowers are the "Ne Plus Ultra" and "Acme" or perfection of all Lawn Mowers extant.

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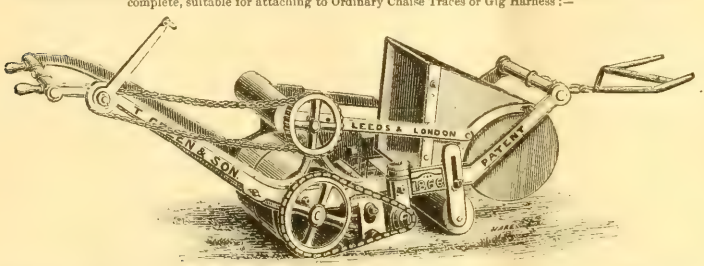


Size and Price, 7 inches wide, 7 ins. diam., **£1 16s.** Packing Case, 3s.

Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

☞ **A very useful and serviceable Machine.**

Prices of Donkey, Pony, and Horse Machines, including Patent Self Delivery Box, or Side Delivery, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—



DONKEY and PONY MACHINES.

To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

HORSE MACHINES.

To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

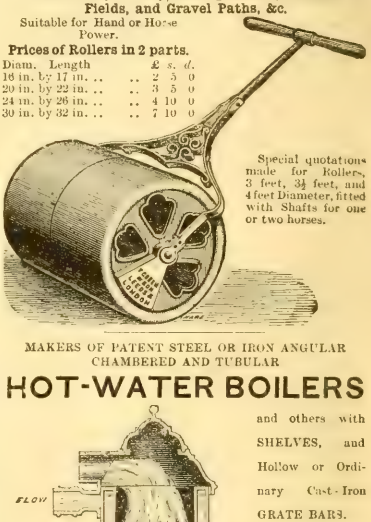
The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machine makes little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the machine. Packing Cases as per List, except when for export.

REDUCED PRICES OF
GREEN'S Patent ROLLERS,
For Lawns, Drives, Bowling Greens, Cricket Fields, and Gravel Paths, &c.

Suitable for Hand or Horse Power.

Prices of Rollers in 2 parts.

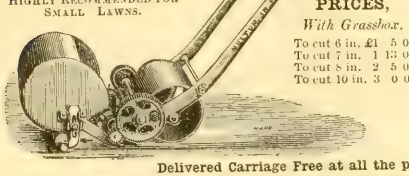
Diam. Length	£ s. d.
16 in. by 17 in. ..	.. 2 5 0
20 in. by 22 in. ..	.. 3 5 0
24 in. by 26 in. ..	.. 4 10 0
30 in. by 32 in. ..	.. 7 10 0



Special quotations made for Rollers, 3 feet, 3½ feet, and 4 feet Diameter, fitted with Shafts for one or two horses.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

HIGHLY RECOMMENDED FOR SMALL LAWNS.

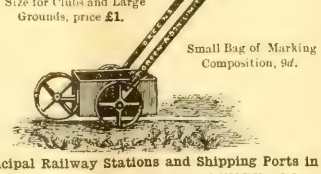


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With Grasshox.

To cut 6 in. £1 5 0
To cut 7 in. 1 13 0
To cut 8 in. 2 5 0
To cut 10 in. 3 0 0

GREEN'S Patent LAWN TENNIS COURT MARKER.
No. 2412.

The Best Marker made.
Size with 1 wheel for Ordinary Courts, price **14s.**
Do., with 3 wheels, **17s.**
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Small Bag of Marking Composition, 9*d.*

MAKERS OF PATENT STEEL OR IRON ANGULAR CHAMBERED AND TUBULAR
HOT-WATER BOILERS



SECTION

and others with SHELVES, and Hollow or Ordinary Cast-Iron GRATE BARS.

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GARDEN SEATS AND CHAIRS, AND HORTICULTURAL IMPLEMENTS OF EVERY DESCRIPTION, WIRE NETTING, &c., &c.

Descriptive Illustrated PRICE LISTS Free on application to

THOMAS GREEN & SON, LIMITED, SMITHFIELD IRONWORKS, LEEDS; AND SURREY WORKS, BLACKFRIARS ROAD, LONDON;

or they can also be had of any Ironmonger, Seedsman, Merchant, or Factor in the United Kingdom.

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, is $4.30 for Twelve Months.

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ROYAL AQUARIUM FLOWER SHOWS.

FIRST SPRING EXHIBITION WEDNESDAY and THURSDAY, March 12 and 13.

Schedules for the whole Series of Shows now ready, and may be had free on application.

WILLIAM HOLMES,
Frampton Park Nurseries, Hackney, London, N.E.

PRESTON and FULWOOD HORTICULTURAL SOCIETY.

The TWELFTH GREAT SPRING FLOWER SHOW and FLORAL FÊTE will be held in the large Public Hall, Preston, on WEDNESDAY and THURSDAY, March 19 and 20, when over ONE HUNDRED and TEN POUNDS will be offered in Prizes. All entries must be sent in not later than March 10. By the great kindness of its members, the magnificent Orchestra of the Manchester Beethoven Society, numbering sixty performers, will be present the first day from 3 to 9.15 P.M. Schedules of Prizes and all other information from—Mr. JOHN ATHERTON, Fern Bank, Cadley, Preston.

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25 SEAFORTHIA ELEGANS,
10 ARECA LUTEA and A. BAUERII,
10 KENTIA BELMOREANA,
10 ,, FORSTERIANA,
30 COCOS PLUMOSA and PLUMOSA, &c.
From 12 to 20 feet high, with many leaves.
Also a very fine selection of the above varieties from 6 to 10 feet high, in the best perfect condition for decorative purposes. W. ICETON, Putney Park Lane, S.W.

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J. W. BARNHAM (late of Squelch & Barnham) RECEIVES ON COMMISSION, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention ensuring highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found. Long Market, Covent Garden, W.C.

MESSRS. GREGORY and EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied. Telegraphic Address—"COMMISSION, SIDCUP."

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CHARLES COOPER and CO., WHOLESALE FLORISTS and COMMISSION AGENTS, Bedfordbury, Covent Garden, W.C., are OPEN TO RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS. Also supply same. Boxes forwarded.

WANTED.—CALCEOLARIA Invincible, BOUVARDIA Vulcan, CARNATIONS Comte de Chambord, Millie, Carle, Prince of Orange, The Governor; ACHIMENES Harry Williams, ECHEVERIA farinosa, PACHYPHYTUM bracteosum, MESEMBRYANTHEMUM tigrinum, HYDRANGEA paniculata, LYSIMACHIA nummularia aurea; also LILY OF THE VALLEY from old beds.
H. CANNELL and SONS, Swanley, Kent.

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T. G. SHUTTLEWORTH, Church Street, Sheffield.

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1000 FLOWERING BULBS of Galanthus Elwesii, Chionodoxa Luciliæ or Chionodoxa Sardensis, are offered for 12 francs by FRANZ SCHLOSSER, Nurseryman and Florist, Smyrna, Asia Minor. Orders not later than the end of the month of April.

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To the Trade.

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GEORGE HOLMES, Haxby Road, York.

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FLETCHER BROS., have a very large stock of Standard PLUMS and DAMSONS, also AUCUBA JAPONICA, 1 to 3 feet, bushy.
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POTATOS and GARDEN SEEDS.—All the best kinds, in Large or Small Quantities. Also an immense stock of Garden Seeds at very Low Prices. All Seedsmen and Market Growers will do well to consult our Price LIST, to be had free of
HARRISON and SONS, Seed Growers, Leicester.

HENDERSON'S "Early Puritan" POTATO. The earliest variety in cultivation; large, handsome, first-class quality, and enormous cropper. Price 6s. per cwt., £5 per ton. GEORGE PRINCE, Rose Grower, Oxford.

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WM. THOMSON and SONS, Clovenfords, Galashiels, N.B

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post free from the manufacturers, CHADBORN and COLDWELL, MFG. Co., 223, Upper Thames Street, London, E.C.
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SALES BY AUCTION.

Orchids.—Orchids.—Orchids.

PART of the UNRIVALLED COLLECTION of BLENHEIM ORCHIDS, many Lots to suit the Trade. Thousands of Odontoglossums.

MESSRS. POPE AND SONS will SELL by AUCTION, on WEDNESDAY, March 5, 1890, absolutely without reserve, at 6, Phillip's Street, Birmingham.

Catalogues in a few days.

Monday Next.

2000 LILIUM AURATUM, including several lots of immense Bulbs; also LILIUM KRAMERI, SPECIOSUM, and others, from Japan; a large assortment of English-grown LILIES and Hardy BULBS, TUBEROSES, GLADIOLUS, TIGRIDIAS, BEGONIAS, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE and MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, March 3, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE and MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 4, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Camden Road, N.

HIGHLY IMPORTANT to FLORISTS, FRUITERERS, and OTHERS.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at The Mart, Tokenhouse Yard, London, E.C., on WEDNESDAY, March 5, at 1 for 2 o'Clock precisely, in 2 Lots, the Valuable LEASEHOLD PROPERTY, known as Brecknock Nurseries, Camden Road, N., occupying the most valuable site in the North of London, with the magnificent Conservatory; also the Leasehold 9-Roomed Residence adjoining, and Stabling in rear; also the Leasehold Nursery and Tennis Grounds, situate at Hilldrop Crescent, Camden Road, N., and close to the foregoing Property; together with the Goodwill of the Old-established Business, so successfully carried on for years by the present Proprietor and Vendor.

Particulars had at The Mart, E.C.; of Messrs. TRUEFITT AND GANE, Solicitors, 54½, Bishopsgate Street Within, E.C.; and of the Auctioneers, Estate Agents, and Valuers, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Harlesden, N.W.—Almost without Reserve.

To Nurserymen, Florists, and others interested in the Horticultural Trade.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, London, E.C., on WEDNESDAY, March 5, at 2 o'Clock precisely, the Beneficial Interest in the Lease and Goodwill of the Old-established NURSERY and FLORISTS' BUSINESS, known as and being the Harlesden Park Nursery, St. Mary's Road, Harlesden, N.W., eight minutes' walk from Willesden Junction Station. The property comprises 1½ acres of Ground, 13 capital Greenhouses, and 3 Pits, heated by 3-inch and 4-inch Hot-water Piping, the movable Galvanized Iron Erections of Cirt and Van Sheds, and 2-stall Stable and Potting Shed. There is a Six-roomed Dwelling-house and Conservatory.

Particulars and conditions of Sale may be obtained on the Premises and at the various local Inns; of the Mart, E.C., of GEO. LOCKYER, Esq., Solicitor, 487, New Cross Road, S.E., and 1, Gresham Buildings, Basinghall Street, E.C., and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Wednesday Next.

193,000 COCOS WEDDELLIANA SEEDS.

Just to hand in splendid condition, and forming, probably, the largest number ever offered in one day, the previous consignment having all been disposed of.

4000 KENTIA FORSTERIANA SEEDS.

Only just received, 1000 BEGONIAS from Belgium, 9000 GLADIOLUS BRENCHLEYENSIS, and 850 LILIUM UMBELLATUM from Holland, 5000 German Crowns LILY OF THE VALLEY, some FREESIA REFRACTA ALBA, 2000 African TUBEROSES, and

500 VALLOTA PURPUREA,

Very fine bulbs; 500 APONOGETON DISTACHYON; 500 GLADIOLUS SAUNDERSII.

7000 LILIUM AURATUM,

Splendid bulbs; also 1000 L. LONGIFLORUM, RUBRUM, KRAMERI, and TIGRINUM FLORE PLENO from Japan, grand bulbs of L. WASHINGTONIANUM, HUMBOLDTII, and the rare L. NEILGHERRENSE.

300 JAPANESE TREE PÆONIES AND IRIS FROM MR. GORDON.

Many of the former, including exceptionally large and beautiful varieties, Certificated by the Royal Horticultural Society; a large assortment of English-grown LILIES, Greenhouse and Stove FERNS, PALMS, and other DECORATIVE PLANTS; 3000 named Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 5, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

SALE of NURSERY STOCK from SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on March 6, large quantities of NURSERY STOCK from Sample, including the following:—

50,000 SCOTCH FIRS.
10,000 PRIVET.
2,000 CUPRESSUS.
2,000 RHODODENDRONS.
1,000 LIMES.
200,000 APPLE, PEAR, and CHERRY Stocks.
5,000 SEAFORTHIAS.
5 000 ARALIAS.
600 COCOS WEDDELLIANA, LATANIA BORBONICA, and CORYPHA AUSTRALIS.
2,000 Hardy British FERNS.
1,000 Double White PRIMULAS.
600 CACTUS DAHLIAS.
20,000 LILY OF THE VALLEY.
20,000 STRAWBERRIES.
Standard ROSES, FRUIT TREES in great variety, and quantities of other Stock.

Samples will be on view the morning of Sale, and Catalogues may be had on application.

Friday Next.

Two magnificent specimens and grand varieties of CYMBIDIUM LOWIANUM, each bearing thirteen spikes, one plant having about 323 flowers. From a private collection.

MESSRS. PROTHEROE AND MORRIS will include the above TWO PLANTS in their SALE on FRIDAY NEXT, March 7.

Friday Next.

IMPORTED ODONTOGLOSSUM CRISPUM (ALEXANDRÆ), in splendid condition; O. PHALÆNOPSIS, O. HASTILABIUM, O. HALLII, O. CIRRHOSUM, O. EDWARDII, and the rare ODONTOGLOSSUM POLYXANTHUM.

ONCIDIUM MACRANTHUM, in splendid condition; and MAXILLARIA SANDERIANA, with good healthy growths.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., of Clapham, and Heaton Bradford, to SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 7, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed to include in their SALE on FRIDAY NEXT, March 7, a consignment of ORCHIDS from a native Brazilian amateur, about to leave them. In this consignment will be found many novelties and rarities. Also a consignment of the DENDROBIUM NOBILE from Northern India, which produces the big white-flowered variety; also came with them an apparently new CYMBIDIUM, and this will be in the Sale; it has upright old flower-spikes, and very large flowers-eats; the spikes have also had many flowers on them. Also a very fine lot of LELIA ANCEPS WILLIAMSII, in grand and superb variety; 50 lots of FLOWERING ORCHIDS, including the magnificent Phaius tuberculosus, a chaste and superb new Lycaste, and splendid plants in spike of one of the finest exhibition Orchids, Oncidium ampliatum majus, Cattleya velutina, a grand specimen in flower of Cattleya Schofieldiana, also a plant of the grandest of all Cymbidiums, the big-flowered scarlet variety from Madagascar, Cymbidium Lowe-Chauvieri, Reichenbach sub.—This is the finest new Orchid in existence.

On view morning of Sale, and Catalogues had.

Romford.—Expiration of Lease.

ABSOLUTE CLEARANCE SALE, by order of Mr. F. H. Spackman.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION on the Premises, the Nurseries, Romford, Essex, about ten minutes' walk from the station, on MONDAY, March 10, the whole of the NURSERY STOCK, including 900 Standard and Dwarf Roses, 1600 Red and Black Currants, 500 Poplars and Thorns, &c., the whole of the Greenhouse Plants, Roses in pots, Ferns, Azaleas, Camell as, the erections of four Greenhouses and Pits, Hot-water Piping, Boilers, and other effects.

May be viewed one week prior to the Sale. Catalogues had on the premises, at the *Essex Times* Office, Romford, and of the Auctioneers, 67 and 68 Cheapside, London, E.C.

10,000 Baskets and Hampers,

Absolute Sale Important to Florists and Others.

The Entire Stock of BASKETS, manufactured by Messrs. R. & J. Pullman (of Greek Street, Soho Square), at their Paris Factory, the Lease of which is Expiring.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, March 11, at half past 12 o'Clock, positively without the slightest reserve, about 10,000 BASKETS and HAMPERS, in various sizes, made in white and brown Osier. A great portion will be found useful for packing purposes.

Samples will be on view the day prior and morning of Sale. Catalogues of the Auctioneers on application.

Wednesday Next.

Choice named Standard and Dwarf ROSES, Hardy Ornamental SHRUBS and CONIFERS, Pyramid and Dwarf-trained FRUIT TREES, DAHLIAS, CARNATIONS, and other Border Plants; LILIUM AURATUM, and other LILIES, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 5, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

10,000 Grand Bulbs of LILIUM AURATUM, L. A. MACRANTHUM, L. KRAMERI, L. SPECIOSUM ALBUM and RUBRUM, from Japan; also PEARL TUBEROSES, TIGRIDIAS, and scarce LILIES, from America, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 6.

On view morning of Sale, and Catalogues had.

Thursday Next.

VALUABLE IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 6, at half-past 12 o'Clock precisely, a fine lot of IMPORTED ORCHIDS from Madagascar, comprising Angræcum eburneum superbum, Acampe Renschiana, &c.; also a choice collection of ESTABLISHED ORCHIDS, many in Flower and Bud.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 13, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this SALE will PLEASE SEND LISTS NOT LATER THAN THURSDAY NEXT.

Mount View, Sheffield.

SALE of the SECOND PORTION of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS, formed by the late David Ward, Esq., J.P. The Collection is in the best possible condition, is one of the finest in the district, and includes specimens from several well-known collections. This Sale will include a fine lot of Dendrobium Wardianum and Dendrobium nobile, magnificent specimen Cymbidium Lowianum, with sixteen flower-spikes; four large Cœlogyne cristata, Odontoglossum Andersonianum, &c. Also STOVE and GREENHOUSE PLANTS, Rhododendrons in pots, including five specimens of Lady Alice Fitzwilliam, six fine Lapageria alba, Camellias, Fruit Trees in pots, &c.

MESSRS. WILLIAM BUSH AND SON respectfully give notice that they are instructed by the Executors to SELL by AUCTION, at the residence, as above, on WEDNESDAY and THURSDAY, March 5 and 6, at 11 o'Clock each day, the Second Portion of the above VALUABLE COLLECTION, comprising upwards of 500 lots in Bloom and Bud.

Catalogues and orders to view may be had of Mr. J. KEELING, the Head Gardener, on the Premises; or, of the Auctioneers, at their Offices, 2 and 3, East Parade, Sheffield.

WANTED TO RENT, acre or two, of MEADOW LAND, with 10,000 to 15,000 feet of Glass erected thereon, especially adapted for Cucumber Growing. Must be modern, in thorough repair. State full particulars to B. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR SALE.

ABOUT 3 ACRES of FREEHOLD LAND,

SUITABLE FOR A NURSERY,

With about 16,000 super. feet of Glasshouses recently erected thereon. Also two Blocks containing four Cottages.

Situated 20 Miles south of London.

For particulars apply to PROTHEROE AND MORRIS, Cheapside, London, E.C.

FOR SALE, a small compact NURSERY, seven Glass Houses, and Store Pit; all well heated and nearly new; 12 years' lease; rent only £45; stock at option.

Full particulars on application to J. PREWETT, Swiss Nursery, Hammersmith, W.

East Retford, Notts.

TO BE SOLD, by Private Treaty, a first-class NURSERY (glass only), consisting of 6000 square feet, in full working order. A splendid opportunity for a good man. Retford is within a short distance of Newark, Sheffield, Doncaster, Leeds, Bradford, and Lincoln Markets. For full particulars apply, F. W. HODSON, Groveleigh Nurseries, Retford.

NURSERY PREMISES and BUSINESS.—Most compact, good dwelling accommodation, on a main road. Lease of 87 years at a ground rent. TO BE DISPOSED OF, Price £750, including all Utensils, or first reasonable offer. Stock at value. Portion can remain on mortgage if desired.—HERBERT DRAKE, Auctioneer, 343, Harrow Road, Paddington.

TO BE LET or SOLD, Aylestone, near Leicester, a valuable and most eligible FREEHOLD and FLORIST'S NURSERY, consisting of a well-built Bay-windowed Villa Residence, 7 large Greenhouses, and a good Garden well-stocked with Fruit Trees, having a river frontage, and situated 2 miles from Leicester on the main road to Lutterworth, known as Aylestone Park. Rent £60 per annum. No stock. Trams pass the door every 10 minutes.

Apply to S. WALKER, Aylestone Park; or HARRISON AND SONS, Seed Merchants, Leicester.

A Rare Opportunity.

TO BE LET, with immediate possession (owing to ill-health of occupier), comfortable DWELLING-HOUSE, 8 Greenhouses, consisting of 6 Vineries, Cucumber, Tomato, and Plant Houses. Partly established South Coast.

A. Z., 41, Wellington Street, Strand, W.C.

Fruiterers, Greengrocers, and Florists.

TO BE LET, a first-rate, well-fitted SHOP, in above line, in main road, W. One Horse, two Vans, &c. Cheap. Long Lease. Rent £65, £25 let off.

234, Uxbridge Road, W.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease, for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex

TO BE LET, 1 to 10 acres of GRASS LAND, on Lease, for 7, 14, or 21 years. Rent, from £8 to £12 per acre, with the option of Purchase of the Freehold within the first seven years. Near the main road, Enfield Highway, about 9 miles from London.

Apply, H. MOORE, 59, Bishopsgate Street Within, E.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

AGENTS WANTED, for the SALE of NATIVE GUANO. The Best and Cheapest Manure for Garden use.—Address, THE NATIVE GUANO COMPANY (Limited), 29, New Bridge Street, Blackfriars, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Are offering a fine lot of newly imported Dendrobium Wardianum Lown, D. Brymerianum (true long-bulbed variety), and many other fine Dendrobes and Orchids, also an immense stock of Established Orchids. LISTS with Prices and particulars post-free on application to the Company.

THE VINEYARD AND NURSERIES, GARSTON, near LIVERPOOL.

STRAWBERRIES.—Leading kinds, in 3½-inch pots, for immediate Planting or Potting on for Forcing. Send for LIST.

FRANCIS B. KINGHORN, Sheen Nurseries, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

PEARSON'S SEEDS are not ALL HOME GROWN; but some are imported from the Continent, and others are procured direct from Specialists, and Sold to the Public without being re-christened. No effort is spared to have the best of everything. CATALOGUE free on application: Prices extremely moderate. No coloured plates, but value given in seeds. Established 1782.

J. R. PEARSON AND SONS, Chilwell Nurseries, Notts.

100 Strong Flowering Hardy HERBACEOUS PLANTS in fifty distinct sorts, free for 12s. 6d. per hasser's selection, 100 in 100 sorts, 20s. Descriptive LIST free. True to name. Carriage paid.

H. BOBBIE, Florist, Framingham, Norwich.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE are prepared to make very low offers of all the principal kinds of Seed POTATOS, grown expressly for Seed purposes from the finest selected stocks. The samples are very good, and free from coarse and diseased roots.

Seed-growing Establishment, Wisbech.

Bulbs and Seeds for Spring Planting.

ANT. ROOZEN AND SON, of OVERVEEN, HAARLEM, beg to announce that their New BULB and SEED CATALOGUE for Spring, 1890, is now ready. It contains full details of their extensive Collections of Gladioli, Dahlias, Lilies, Begonias, Exotic Sheeds, and other Bulbs for Spring Planting, and also of a large Collection of CHOICE FLOWER SEEDS, which can be recommended with every confidence.

The Catalogue will be sent, post free, on application to themselves direct, or their Agents, Messrs. MERTENS & Co., 3, Cross Lane, St. Mary-at-Hill, London, E.C.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.

J. J. CLARK, Gold-tone Farm, Brighton.

To the Trade.

CHOICE VEGETABLE SEEDS.

H. AND F. SHARPE'S Special Priced LIST of VEGETABLE SEEDS comprises all the best varieties under cultivation of 1889 growth, and of the very finest quality. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

Cucumber "Lockie's Perfection."

CHARLES TURNER, having purchased the Stock of this sterling new variety, is much pleased to introduce it, and can with the greatest confidence recommend it as the best Cucumber ever sent out. Price per packet, 1s. 6d. and 2s. 6d. Descriptive CATALOGUE upon application.

The Royal Nurseries, Slough.

PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.

FRANCIS B. KINGHORN, Nursery-man, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

Trained Peaches and Apricots.

PAUL AND SON can supply Dwarf and Standard-trained Trees of the above—indeed, their trained Trees of all Fruits are good.

The Old Nurseries, Cheshunt, N.

To the trade.

PEAS! PEAS!! PEAS!!! SUTTON'S BERKSHIRE PRIZE MARROW, Dr. McLean, Harrison's Glory, Imperial (Bedmon's), Invicta, Little Gem, No Peas Ultra, Triumph (Sharpe's), Sangsters, Long Pod, and Harlington WINDSOR BEANS, all carefully hand-picked. Will be offered cheap to clear out. Apply, GEORGE ELSOM, Seed Grower, Spalding, Lincolnshire.

LILIUM AURATUM.—Hard as bricks, as fresh as when taken out of the ground in Japan. Grand selected Bulbs, measuring 9 to 10 inches round, 12, 6s.; 50, 21s.; 100, 35s.; specially recommended. Larger Bulbs, the very best, 12, 10s.; 50 for 35s. All carriage paid. Impossible to obtain better anywhere.

W. H. HUDSON, Lily Importer, Tottenham, London. Address for telegrams, "Auratum, London." Specialty: Japanese Lilies.

MAGNIFICENT NEW DWARF STRIPED

PETUNIA SEED.

SHOULD BE SOWN AT ONCE.

The Covent Garden Growers declare this the finest strain in the country, and order every year, expressing their pleasure in doing so. This is acknowledged the finest strain possible to grow. The plants commence to bloom 3 inches high, and are most attractive—scarcely two flowers are alike. Thousands are sold in Covent Garden Market, and acknowledged by all to be the best they have ever grown. 1s. 6d. per packet.

Good Standard ROSES, to name, few left, will pack and put on rail at 12s. per dozen.

ZONAL GERANIUM CUTTINGS, of all the best sorts; assorted, at 6s. per 100.

MUSK, Harrisonii, 10s. per 100.

MUSK, Large-leaved Giant, 8s. per 100.

FLOWER OF SPRING, fine stock stuff, many shoots, 24s. per 100, really fine plants.

DAHLIAS "CACTUS."

Dry Roots. Assorted to Name.

Mrs. Hawkins, Lauren, Empress of India, King of the Cactus, Prince Imperial, Constance, Mr. Tait, William Pearce—twelve kinds, including above, for 4s. 6d. per dozen, free collection.

Single Dahlias, all the best kinds, 2s. 3d. per dozen.

The above carriage paid, cash with order.

CHAS. BURLEY, NURSERIES, BRENTWOOD.

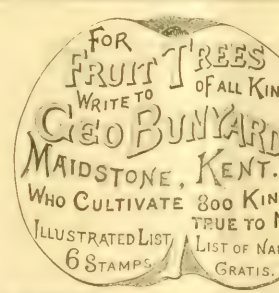




CUTBUSH'S MILL-TRACK MUSHROOM SPAWN, long well known to require description. Price 6s. per bushel 1s. extra per bag for packages, or 6d. per cake. Carriage paid. 1s.

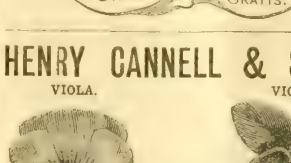
Note the enormous increased packages and printed cultural directions enclosed with every signature attached.

WM. CUTBUSH AND SON, Nurserymen and Seed Merchants, Highgate Nurseries, N.



HENRY CANNELL & SONS'

VIOLA. VIOLET.



Have the largest and most complete collection (2 acres) of the above, and will be pleased to send Catalogue of Prices and full particulars.

SWANLEY, KENT.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."

First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser,

G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

Special Cheap Offer.

WILLIAM BARRON AND SON, LANDSCAPE GARDENERS and NURSERYMEN, offer the following special bargains:—

NAMED RHODODENDRONS, all the best varieties grown in loam, fine healthy plants, 1½ to 2 feet high, most kinds well set with bloom bud, 27s. per doz., £9 per 100.

ABIES MENZIESI, 3 to 4 feet, 35s. per 100.

CUPRESSUS LAWSONIANA, 7 to 8 feet, extra transplanted, 45s. per dozen.

" " ERECTA VIRIDIS, 1½ to 2 feet, 30s. per 100.

" " GRACILIS PENDULA (the finest form of a green Lawsoniana), 4 to 5 feet, 24s. per dozen.

PICEA NOBILIS, 1 to 1½ feet, 30s. per 100; 1½ to 2 feet, 40s. per 100.

PINUS AUSTRIACA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet, 30s. per 1000.

" LARICIO, 9 to 12 inch., 35s. per 1000; 12 to 15 inch., 45s. per 1000.

FOREST TREES and QUICKS of all sizes, very cheap.

The finest Collection of Hardy EVERGREEN TREES in the Midland Counties.

Plans and Estimates furnished for the Improvement of Public and Private Parks or Gardens.

Descriptive CATALOGUES on application.

Elvaston Nurseries, Borrowash, Derby.

PELARGONIUMS.—Extra strong, healthy, bushy plants, showing bud; Show, French, and Decorative kinds, by name, in 48 and 32 size pots, 12s. and 16s. per dozen, 90s. and 100s. per 100. Boxes and packing free. Cash with order.

JAS HOLDER AND SON, Crown Nursery, Reading.

SEEDS FOR 1890.—Catalogues free. Ten to 40 per cent. off for cash. Our Seeds are warranted fresh, and the very best that money can buy. Mushroom Spawn, 1s. per pack. We have Vegetable and Flower Seeds, from 10 to 60 packets for 1s., post free. Shops supplied. We sell Greenhouses at 4d. per foot, any size. Lights, 6 feet by 4 feet, 7s. 6d. each. Two light frames, 6 feet by 8 feet, 21s. Span Frames, 6 feet by 3 feet, 12s. We sell 1400 feet Greenhouse for 45 13s. 8d., all painted and put on rail. We Build Greenhouses in any part of the country at 7d. per hour, or contract. Write

GARDENER AND CO., 62, Strand, London, W.C.

THE BIG SALE

Embraces General Nursery Stock.

RHODODENDRONS, Standards and Dwarfs.

AZALEAS, Named and others.

ANDROMEDA FLORIBUNDA.

ERICA CARNEA or HERBACEA.

A few fine Trained FRUIT TREES.

Hardy EVERGREENS of most kinds.

Requirements are suited.

As Everything is Offered at a Reduction.

CHARLES NOBLE, Bagshot.

FOR SALE, 18 CAMELLIAS of sorts, in pots, and 5 planted out, from 2 feet high and through to 7 feet do., erect etc., also large LEMON and CITRON TREES. No reasonable offer refused. Address

G. J. BARNES, Gardener, Standleigh Court, Tiverton.

To Market Growers.

SELECT STOCKS of VEGETABLE and FLOWER SEEDS at WHOLESALE PRICES. Before purchasing elsewhere, send for General Seed CATALOGUE.

R. L. COLEMAN, Seed Merchant, Sandwich, Kent.

HARDY BRITISH FERNS, numerous varieties: 20 large Rockery Roots, 2s. 6d.; 50, 5s.; 100, 8s.; 24 th. Hamper, Botanically named, Carriage paid.

GEORGE CARRADICE, Monument Place, Kendal.

To the Trade.

WHOLESALE SEED CATALOGUE for 1890. We have now published our Catalogue of Vegetable and Flower Seeds, containing also all the best Novelties of the season. May be had on application. Any of our customers not having received one by post will oblige by letting us know, when another shall at once be posted.

WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.

LILIUM AURATUM, specially fine consignment to hand from Japan, 9 inches round, 8s. per dozen, 40s. per 100; 10 inches round, 7s. 6d. per dozen, 50s. per 100; 11 inches round, splendid bulbs, 10s. per dozen.

LILIUM LANCIFOLIUM RUBRUM, extra fine, 6s. and 9s. doz.

GLADIOLUS BRENCHLEYENSIS, Scarlet, 3s. 6d. per 100.

Cash with order. Package free. Orders over 20s. carriage paid.

J. AND R. THYNE, 83, St. Vincent Street, Glasgow.

THE "STANLEY" KIDNEY POTATO is the best of the Early Ashleaf section, an enormous cropper, grand quality, both when young and matured. Grown on red soil. Price 3s. 6d. per stone, cash with order.

H. HAVELOCK, Hexham.

Special selection, 1 stone Stanley, 1 stone Bruce, 1 stone Imperator, the best Potatos grown, true to name, 7s., bags free, cash with order.

H. HAVELOCK, Hexham.

A. LIETZE, Rio de Janeiro, PALM SEEDS, ORCHIDS, NEW CALADIUMS.—Apply for CATALOGUE to Messrs. ADOLPH v. ESSEN AND CO., 73, Gr. Reichens rasse, Hamburg, Germany.

To the Trade (surplus).

WM. BAYLOR HARTLAND offers the following from SEEDS, Crop 1889:—

AQUILEGIA, Munstead White.
AURICULA alpina, &c.
CHIONODOXA LUCILLÆ.
,, SARDENSIS.
PRIMULA OBCONICA, fine selected.
PRIMROSE, yellow BEACONSFIELD, fine large strain.
POPPIES, Snowdrift and Mikado.
DAFFODILS from his celebrated collection.
*** DAFFODILS, Cut Blooms of Ard Righ, per 1000 from open ground.

Price on application.

Seed Warehouse, 24, Patrick Street, Cork.

FORBES' CATALOGUE of FLORISTS' FLOWERS for 1890—(116 pages),
Is the Largest, Best, Most Reliable, and Complete ever issued on Florists' Flowers. It gives accurate descriptions of thousands of varieties of Florists' Flowers that cannot be had elsewhere, besides a very full List giving Colour, Height, Month of Flowering, and Price of nearly One Thousand Perennials and Hardy Border Plants, with a mass of other useful information indispensable to all who would excel in the Cultivation of Flowers.

This Catalogue forms a most useful and convenient Reference Book on all sections of Florists' Flowers that should be in the hands of all who love a Garden. Free on application.

JOHN FORBES, Nurseryman, Hawick, Scotland.

STRONG FOREST TREES, &c.
ALDER, 4 to 5 feet, and 5 to 6 feet.
ASH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet.
,, Mountain, 3 to 4 feet, and 4 to 5 feet.
BEECH, 2 to 3 feet, 3 to 4 feet, 4 to 5 feet, and 8 to 10 feet.
BIRCH, 2½ to 3 feet, 3 to 4 feet, and 4 to 5 feet.
ELM, Wych, 3 to 4 feet, 4 to 5 feet, and 5 to 6 feet.
FIR, Austrian, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet.
,, LARICIO, 2 to 3 feet, and 3 to 4 feet.
,, Scotch, 1½ to 2 feet, 2 to 2½ feet, and 2½ to 3 feet.
,, Spruce, 1½ to 2 feet, 2 to 2½ feet, and 2½ to 3 feet.
LARCH, 1½ to 2 feet, 2½ to 3 feet, and 3 to 4 feet.
OAK, English, 3 to 4 feet, and 4 to 5 feet.
PRIVET, Common, 2½ to 3 feet, and 3 to 4 feet.
,, OVALIFOLIA, 2 to 2½ feet, 2½ to 3 feet, and 3 to 3½ feet.
All these different sizes, are stout, good, well-rooted plants, and the prices quoted will be very reasonable in order to clear.
JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

RED CURRANTS, Raby Castle and Red Dutch. COB NUTS, strong well-rooted plants. APPLES, Pyramid, good sorts, 5 to 7 feet. Scarlet CHESTNUTS, fine trees, 6 to 9 feet. STRAWBERRY PLANTS, Vicomtesse Hericart de Thury, Stirling Castle.—TODDINGTON ORCHARD CO., Winchcombe, Gloucestershire.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Seed saved from Prize Plants. In beautifully illustrated Packets, choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, Named Singles, from 12s. to 42s. per doz.; Unnamed Seedlings, 12s. to 24s. per doz.; Bedding, choicest, 6s. and 9s. per doz.; choicest Named Doubles from 42s. per doz.; Unnamed, very choice, 24s. and 30s. per doz.; choicest Mixed, 18s. per doz. Order direct from us, to procure our splendid strain. CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

"Now is the Time to Plant Trees."

ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.
The Nurseries, Trinity Road, Wandsworth Common.

Special Cheap Offer.

ISAAC MATTHEWS AND SONS have to offer 100,000 very fine plants of RHODODENDRON for forcing, Cunninghame's White, Jacksonii, Caucasicum pictum, PONTICUM RHODODENDRON, from 3 to 6 inches, and intermediate sizes up to 4 feet, about 600,000; Seedling Hybrids, in sizes from 4 to 6 inches to 3 feet, about 400,000.
HOLLIES, Common LAURELS, Portugal LAURELS, English YEWS, CUPRESSUS RETINOSPORA, AZALEAS, 200,000 strong 4-yr. and 5-yr. THORN QUICK.
For prices and particulars apply to the Nurseries, Milton and Wetley Moor, Stoke on-Trent.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton,
Have a large Stock of the following particularly well-grown and good roots:—
ARTICHOKES, Globe.
ACACIA, Common, 3 to 4 and 4 to 5 feet.
ASH, Common, 2 to 3, 4 to 5, and 5 to 6 feet.
,, Mountain, 4 to 5, and 5 to 6 feet.
BEECH, Common, 1½ to 2, 2 to 3, and 3 to 4 feet.
BLACKTHORN, a very large stock. (Samples free.)
GORSE, Common, 1, 2, and 3-year.
HORNBEAM, 2 to 3 feet.
LABURNUMS, 3 to 4, and 4 to 5 feet.
MAHONIA AQUIFOLIA, nice bushy stuff.
PINUS AUSTRIACA, 1 to 2, and 2 to 3 feet.
,, LARICIO, 1 to 2, 1½ to 2, and 2 to 3 feet.
POPLARS, in variety, 8 to 10, and 10 to 12 feet.
PRIVET, Evergreen, 2½ to 3½ feet.
SYCAMORE, 2 to 3 feet.
THORN QUICKS, for Hedges, several millions. (Samples free.)
LAURELS, Caucasica, 2 to 3 feet.
,, ROTUNDIFOLIA, 1½ to 2, and 2 to 3 feet.
,, Portugal, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
YEWS, English, 2 to 3, 3 to 4, and 4 to 5 feet.
,, Irish, 2 to 3 feet.
Special Prices on application.
Telegrams—"PARAGON, Northampton."

SEEDS.

VEGETABLE and FLOWER SEEDS
of the very best quality, carriage free.
CATALOGUES Post-free on application.

THE LIVERPOOL HORTICULTURAL CO.

(John Cowan), Limited,
THE VINEYARD and NURSERIES, GARSTON, LIVERPOOL.

ABUNDANCE SEED POTATOS.
Low Quotations on application to
DICKSONS, Seed Warehouse, CHESTER.

FOR PLEASURE AND PROFIT.

FRUIT. Nothing so profitable and easy to grow. 74 Acres in stock.
See CATALOGUE for simple Instructions and kinds of Trees to suit all soils.

ROSES. 20 Acres.
Bushes 8s. per dozen, 60s. per 100.
☞ Packing and Carriage Free for Cash with Order.

ROSES IN POTS from 15s. per dozen.
ORNAMENTAL TREES, 91 Acres.
4 Acres of Glass.
CLEMATIS (80,000), 12s., 18s., and 24s. per doz.

SEEDS & BULBS. VEGETABLE, FLOWER, and FARM.
Descriptive LISTS free.

RICHARD SMITH & CO., WORCESTER.



TO BE SOLD CHEAP,

TO CLEAR GROUND WANTED FOR BUILDING PURPOSES,

50,000 RHODODENDRONS,

in 200 named varieties, many of our own raising, all covered with flower buds, at from 18s. per dozen; hybrid seedlings, own raising, from 6s. per dozen; our sweet scented and other Greenhouse kinds also well budded. Many thousands of common Hollies, also Hodgins', laurifolia, and variegated of sorts, from 2 to 6 feet; Box Trees, 4 to 5 feet, rotundifolia Laurels, 2 to 3 feet; Aucubas of sorts, Chinese Junipers, Retinospora, and other Conifers, Ornamental Trees, deciduous Shrubs, Lilium auratum, own grown flowering bulbs and general Nursery Stock. Priced CATALOGUE free.

ISAAC DAVIES & SON,

NURSERYMEN,
ORMSKIRK, LANCASHIRE.

NEW AND CHOICE TOMATOS.

Each Post-free at prices quoted.

NEW PEACH, per pkt.,	1/6	CRIMSON QUEEN, per pkt.,	1/-
LORILLARD ,,	1/6	NEW EARLY CHAMPION ,,	1/-
PRELUDE ,,	1/6	GOLDEN EAGLE, per pkt.,	6
SCARLET PERFECTION ,,	1/-	OPEN AIR ,,	6

The Collection, One Packet each, 7/6, post-free.

DANIELS BROS., Seed Growers, **NORWICH.**

CHRYSANTHEMUM,

MRS. ALPHEUS HARDY,

The finest lot of strong plants.
Extra large, 3s. 6d. and 2s. 6d. each; 36s. and 27s. per dozen.

A. J A. BRUCE,
The Nurseries, Chorlton-cum-Hardy, Manchester.

J. E. DIXON'S "PRESIDENT CARNOT" BRUSSELS SPROUTS.
J. E. D. will be able to supply this extraordinary fine strain at 1s. per packet, for season 1890. The following testimonial (one of many similar) has been received from—
Mr. GEORGE SUMMERS, *Gardener to the* Earl of Scarbrough:—
"DEAR SIR,—I have grown your President Carnot Brussels Sprouts by the side of several other well-known varieties, and have come to the conclusion that it is the hardiest and best variety grown."
London Wholesale Agents:—HURST AND SON, 152, Houndsditch, E.; COOPER, TABER AND CO. (Limited), 90, Southwark Street, Borough, S.E.
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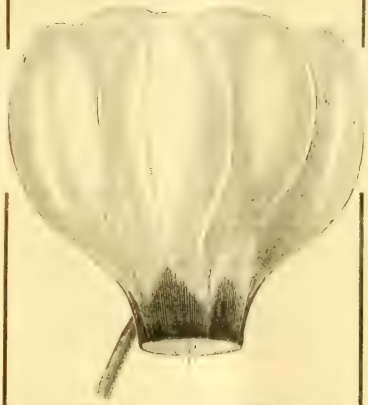
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For further particulars, see Illustrated SEED CATALOGUE *for* 1890,
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THE
Gardeners' Chronicle.
SATURDAY, MARCH 1, 1890.

JOHN MILLER, AND HIS WORK.

WHEN writing the history of the *Botanical Magazine*, I alluded to this accomplished botanical artist (see *Gardeners' Chronicle*, third series, i., p. 151), and mentioned his work, *Illustration of the Sexual System of Linnæus*. This abbreviated title is hardly intelligible, standing alone, yet it is almost unnecessary in this place to add that the sexual systems of plants is intended. At the time I wrote, I had not seen the work, but a magnificent copy, or rather double copy, one coloured and one uncoloured, has lately been presented by the Bentham Trustees to the library of the Royal Gardens, Kew, and I dare say a few particulars of the man and his work may interest many persons who have not direct facilities for obtaining such information.

Johannes Sebastian Mueller was born at Nürnburg in 1715, and became an artist and engraver. An early inclination for botany led him to make his profession as an engraver subservient to the cultivation of his favourite science. At what date he came to England I have not ascertained, but, so far as I know, he did not begin publishing until 1759, though, as he himself states, he had laboured many years at the engravings. Pulteney does not mention him, and Pritzel, the great botanical bibliographer, does not seem to have been aware that there was a coloured edition of the work in question; but he gives the price as twenty-one pounds.

This work is a large folio, containing 108 plates, with explanatory letterpress opposite; and it was issued uncoloured, except the first four plates, or rather four separately numbered plates placed at the beginning, and representing the forms of leaves; and some copies were coloured, though probably only a few. Of the good quality of the work there can be no difference of opinion, both as to the drawing and the accurate and careful colouring. Some of it is almost or quite equal to Ehret's work; some of it, on the other hand, was evidently not done from life, and is faulty in drawing and colouring. Linnæus, to

whom a copy had been sent, declared that the figures were prettier and more accurate than any that had been seen since the foundation of the world. Here are his words: "Donum tuum operis immortalis charioris veniet pretio quam, ut id remunerare valeam. Figuræ enim sunt et pulchriores et accuratiores quam ullæ quas vidit mundus a condito orbe." In several other letters the great Swedish botanist speaks most highly of the quality of Miller's work, and stated that he should be under everlasting obligation to the author for so magnificently illustrating his classification of plants. Without going so far as to say that Miller was unsurpassed, even by his contemporaries, it may safely be asserted that much of the work of the present day is far behind him, and he will always rank as a master.

The plants selected for the purpose are mostly common ones, in order to render the book useful to persons who had not access to the rarer plants of botanic gardens and large private gardens; and the arrangement is, of course, after the Linnean classes and orders, beginning with Canna indica, to represent the Monandria monogynia, followed by Blitum virgatum, referred to the Monandria digynia, though it is now known that the stamens vary in number from one to five. Each class and order is taken in its turn, and some of the plates are most elaborate productions, exhibiting an amount of detail that is truly surprising, both in the drawing of the plant itself, and the number of dissections.

Although the object was to choose common plants, such comparatively little known subjects appear as Hamamelis virginica, Turnera ulmifolia, Petiveria alliacea, Galenia africana, Cassytha baccifera, Melianthus major, Pentapetes phœnicea, Hermannia alnifolia, and Momordica charantia.

Specially effective among commoner plants are the Sunflower, Hollyhock, common Marigold, a single Pæony, Blackberry, Apple, Fig, and the common Passion-flower. The figures of the Sunflower and single Hollyhock are really admirable pictures, representing the flowers of the natural size, the Sunflower being 8 inches across.

The common Hop, Sarracenia, and the little Adoxa, are conspicuous examples of failure, the last being represented with 20 to 30 flowers in a cluster, and the others were evidently not drawn from living plants.

I have mentioned that the Bentham trustees had presented Kew with both a coloured and an uncoloured copy. This is hardly true, because the coloured copy wants the letterpress, and the four plates representing the forms of leaves. What is wanted is more than compensated for, however, by the fact that the plates are "proofs before lettering," most carefully coloured, and probably unique!

I believe the volumes, which are lettered I. and II. formed part of the library of the late Mr. Lee, of the Vineyard, Hammersmith. The original James Lee, if I may so designate him, who was born in Scotland in 1715, and died at Hammersmith in 1795, was a botanist as well as a nurseryman, ranking with Miller, Gordon, and Aiton; and his name is amongst the list of subscribers to John Miller's book. Miller died in 1780, and it is probable that Lee acquired the coloured copy subsequently, as it has the appearance of being an author's copy. Lee himself was author of a highly esteemed *Introduction to Botany*, which went through five or six editions, of which I have seen only the first.

Returning to the list of subscribers, it is interesting to find David Garrick's name associated with many so much better known as lovers or patrons of botany. Altogether there were eighty-two subscribers, taking about 125 copies.

Two German editions of the *Illustration* were published, one at Darmstadt in 1790, and the other at Frankfort-on-Maine in 1804. Both were coloured, and the latter sold at 76 thalers, or about £11.

Miller also published an octavo edition of the *Illustration of the Sexual System* in 1779, and a second volume illustrating botanical terminology. There was a German edition of this work, of which I have seen only the second volume. This consists almost entirely of the floral dissections of the larger work.

At Kew there is a copy of all that was published of an earlier folio work (1759—1760), of which there is no title-page, but only an advertisement worded as follows:—"Proposals for publishing one hundred prints, exhibiting a curious collection of insects and plants. By John Miller, Engraver." Only ten plates were published, and the explanatory letterpress as far as the eighth plate. In the Kew copy the ninth and tenth plates are in duplicate, somewhat differently lettered, and the descriptions are in manuscript. It is not surprising that this elaborate and beautiful work was not carried beyond the tenth plate, for it must have been a most costly production. It equals, if it does not surpass Ehret's *Plantæ et Papiliones*, which appeared earlier, and probably furnished the idea for it. The price was 5*s.* a part each part containing two plates and letterpress; and Miller states in a footnote to the advertisement that if he met with encouragement in the undertaking, he proposed going through the whole animal creation, according to the system adopted by Dr. Linnæus. Most of the plates contain representations of two or more different plants in flower and fruit, and various moths, butterflies, and other insects preying upon them, and depicted in a variety of positions and stages. To say nothing of the original work, the colouring of a plate must have occupied a person from one to two days. The Apple, Gooseberry, Grape, Jasmine, Dead-Nettle, and Lilac, with the caterpillars of the hawk, peacock, swallow-tail, and other moths and butterflies, are among the subjects illustrated.

In the same volume is a fine coloured large folio engraving of the Tea-shrub, with a page of letterpress. The drawing was prepared from a plant that flowered in the Duke of Northumberland's garden at Syon House in 1771, and was published by Miller in the same year, apparently in a separate form.

An uncoloured engraving of the Coffee-shrub accompanies it, but the only lettering on it is "J. Miller, &c."

Finally, there is a copy, in the same volume, of John Miller's last work—a fragment of an ambitiously designed *Icones Plantarum* that only reached the seventh plate, when death overtook the artist. In this work, also, some of the plates in the Kew copy are represented by unlettered proofs, as well as the published plates. The plants figured are Sophora tetraptera, Phormium tenax, Stuartia virginica, Fothergilla alnifolia, Strelitzia regina, and Lagerstrœmia indica; and most of them were drawn from plants that flowered at Kew. *W. Botting Hemsley.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 107.)

LÆLIA.

L. × Batemaniana, Rchb. f. = Sophro Cattleya × Batemaniana.

L. × bella, Rchb. f. = Lælio-Cattleya × bella.

(4.) L. Boothiana, Rchb. f., in Otto and Dietr., *Allg. Gartenz.*, xxiii. (1855), p. 322; *Id.*, *Xen. Orch.*, i., p. 218, t. 91. *Cattleya lobata*, Lindl., in *Gard. Chron.*, 1848, p. 403, with fig. *Bletia lobata*, Rchb. f., in Walp. *Ann. Bot.* vi. (1861) p. 424 (also *B. Boothiana*, Rchb. f., in note). *Lælia Rivieri*, Carrière, in *Rev. Hort.*, 1874, p. 331, with plate. *L. lobata*, Veitch, *Man. Orch. Pl.*, pt. 2 (1887), p. 74, with fig. *L. grandis purpurea*, Rchb. f., in *Bonplandia*, ii. (1854), p. 89.—Brazil. Imported by Messrs. Loddiges, of Hackney, and flowered in their nursery in 1847, when it was described by Dr. Lindley as Cattleya lobata. Afterwards it was described as Lælia Boothiana, by Reichenbach, from a plant in the collection of Herr Lorenz Booth, of Flotbeck, near Hamburgh, where it had existed for many years without flowering. It appears to be only known from one station on the coast of Rio de Janeiro, where it is said to grow on a bare rock that is washed by the ocean below, and where it is fully exposed to the sun from morning till night. It is probable, however, that it grows in other localities in Southern Brazil.

L. Brysiana, Lem. = Lælio-Cattleya × elegans.

L. × callistoglossa, Rchb. f. = Lælio-Cattleya × callistoglossa.

L. × caloglossa, Rchb. f. = Lælio-Cattleya × caloglossa.

L. × Canhamiana, Rchb. f. = Lælio-Cattleya × Canhamiana.

L. Casperiana, Rchb. f. = L. purpurata.

(5.) L. cinnabarina, Bateman, ex Lindl., *Sert. Orch.* (1838), t. 28; Paxt., *Mag. Bot.*, vii., p. 193, with plate; *Bot. Mag.*, t. 4302; *Gartenflora*, 1869, t. 559; Warn. and Will., *Orch. Alb.*, vii., t. 314; *Orchidophile*, 1888, p. 337, with plate. *Bletia cinnabarina*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 430.—Brazil. Native of the southern part of the province of Minas Geraes, and the adjacent parts of the province of Rio de Janeiro, at an altitude of 2500 to 3500 feet, growing on the rocks, half concealed by the herbage. It was introduced by Mr. Young, a nurseryman of Epsom, in whose establishment it flowered during the following spring. *Bletia cinnabarina* var. ? *Sellowii*, Rchb. f., *Xen. Orch.*, ii., p. 61, to which *Bot. Mag.*, t. 4302, is somewhat doubtfully referred, does not appear to me to present any obvious difference from the typical form, and is therefore here ranked as a simple synonym.

Var. crispilabia, Veitch, *Man. Orch. Pl.*, pt. 2 (1887), p. 63. *L. crispilabia*, A. Rich., ex Warn., *Sel. Orch.*, ser. 2 (1865—75), t. 6. *L. Lawrenceana*, Hort., ex Warn., *Sel. Orch.*, ser. 2, sub t. 6. *Bletia crispilabia*, Rchb. f., *Xen. Orch.*, ii. (1872), p. 61.—Flowers amethyst-purple, instead of cinnabar-red, lip somewhat deeper in colour, and with the disc of the front lobe white.

(6.) L. cinnamomea, Rchb. f., in *Hamb. Gartenz.*, xvi. (1860), p. 180. *Bletia cinnamomea*, Rchb. f., *Xen. Orch.*, ii. (1872), p. 47. —Brazil. Appeared in the collection of Consul Schiller, of Hamburgh. Only known to me by a very rude tracing in Lindley's Herbarium. It may be a natural hybrid, as the pollen-masses are described as unequal; the segments cinnamomeo-cupreous, the lip white, with purple nerves at the base, and the front lobe purple. The lip is strongly 3-lobed, the lateral lobes semi-ovate, and the front one rhomboid and obtuse.

(7.) L. Crawshayana, Rchb. f., in *Gard. Chron.*, 1883, pt. 1, p. 142.—Mexico. A supposed natural hybrid, which appeared in the collection of Mr. De B. Crawshay, of Rosefield, Sevenoaks, Kent, after whom it is named. It is probably a natural hybrid between L. albida and L. anceps, though at first it was supposed to be between the latter species and L. autumnalis.

Var. leucoptera, Rchb. f. = L. leucoptera.

(8.) L. crispa, Rchb. f., in *Fl. des Serres*, ix. (1853—4), p. 102; Veitch, *Man. Orch. Pl.*, pt. 2, p. 63, 64, with fig. *Cattleya crispa*, Lindl., *Bot. Reg.*, xiv. (1828), t. 1172; Paxt., *Mag. Bot.*, v., p. 5, with plate; *Bot. Mag.*, t. 3910; Hook., *Cent. Orch.*, t. 32; Rchb. f., *Fl. Exot.*, t. 268; *Gartenflora*, t. 574; *Belg. Hort.*, 1854, p. 161, with plate (var. *reflexa macrophylla* in text, var. *pendula* on plate). *Bletia crispa*, Rchb. f., in Walp. *Ann. Bot.*, vi. (1861), p. 423.—Brazil. Grows on lofty trees fully exposed to the sun and air, and sometimes even on rocks, in immense masses on the mountains near Rio de Janeiro, also in the southern parts of the province of Minas Geraes, at an elevation of 2500 to 3500 feet. It was one of the first Lælias cultivated in Great Britain, having been sent to the Horticultural Society of London in 1826 by Sir Henry Chamberlain. It flowered at Chiswick in August of the following year. The following varieties have been described:—

Var. Buchananiana, Veitch, *Man. Orch. Pl.*, pt. 2, p. 64. *Cattleya crispa Buchananiana*, T. Moore, in Warn. and Will., *Orch. Alb.*, ii., t. 81. A large flowered form, with the front

lobe of the lip broad and open, and of a rich purplish-crimson.

Var. DELICATISSIMA, Rchb. f., in *Gard. Chron.*, 1881, pt. 2, p. 364. *Cattleya crispa delicatissima*, Williams, *Orch. Gr. Man.*, ed. 6, p. 177. A form in which most of the colour has vanished from the lip, leaving the flower nearly white.

Var. PURPUREA, Warn., *Select Orch.*, ser. 2, t. 9, *Cattleya crispa purpurea*, Williams, *Orch. Gr. Man.*, ed. 6. p. 178. *Bletia crispa purpurea*, Rchb. f., *Xen. Orch.*, ii., p. 52. A large-flowered form, in which the sepals and petals are tinged with blush, and the lip blotched with deep purple, which runs out into radiating lines near the margin.

Var. REFLEXA, Rchb. f., in *Fl. des Serres*, ix., p. 102; *Cattleya reflexa*, *Id.*, in *Bonpl.*, ii., p. 89. *Cattleya reflexa*, Parmentier, ex Rchb. f., in *Fl. des Ser.*, ix., p. 102. *Cattleya crispa* var. *reflexa macrophylla*, D'Enghien, ex C. Morr., in *Belg. Hort.*, 1854, p. 161 (var. *pendula* on plate). *Bletia crispa reflexa*, Rchb. f., *Xen. Orch.*, ii., p. 52. According to Reichenbach, this differs from the type in having the blotches near the base of the lip orange-yellow instead of citron-yellow, though I cannot see the difference in the figure here cited.

Var. SUPERBA, Warn., *Select Orch.*, ser. 2, sub t. 9. *Cattleya crispa superba*, Williams, *Orch. Gr. Man.*, ed. 6, p. 178. A large-flowered form, with the lip much fringed and brilliantly coloured.

L. crispilabia, A. Rich. = L. CINNABARINA var. CRISPILABIA.

L. Davana, Rchb. f. = L. PUMILA var. DAVANA *R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

LONGEVITY OF FERN SPORES.

In the *Gardeners' Chronicle* of August 3 last year, p. 140, is a short article on the above subject, the gist of which is, that "after several inquiries had been made to him as to whether he knew how long Fern spores would retain their vitality, he determined to experiment on the subject, the result of such experiment being that spores that were gathered in 1886 retained their vegetative powers up to that time, a period of three years." Since that article was written, I have sown some spores which had been gathered and kept dry for six years, so that possibly they will retain their power of germination for long periods of time. Perhaps it may be interesting to some of your readers to know how I came to have Fern spores so long in my possession, and why I, not being altogether an experimentalist (though every gardener should be one) should have been induced to try the experiment.

In August, 1883, I was visiting a little place called South Knighton, between Newton Abbot and Ashburton, about 4 miles from the latter place—I was there on a holiday tour—when, in strolling about the place, I came to a lane with a stone wall on either side, on which I saw a number of small Ferns growing; stopping to examine them, I found a quantity of Asplenium trichomanes, and also A. ruta-muraria. Scanning the wall more intently, I found a single root of A. Ceterach, or Ceterach officinarum (the scaly Spleenwort). I had never previously seen it growing wild, but there was no mistaking its pretty little fronds. As I was going to be some days longer away from home, I did not take the root up, as I should have done if I had been returning at once, but picked off the only two fronds it had, and put them in my pocket-book, making at the time a note of the situation in which it was found. After I got home I fastened them upon a sheet of paper, and put them away in a desk, and thought no more of them until last August, when I again went into the same neighbourhood, and as I had resolved before I left home that I would try and find my Ceterach, so I searched for the plant, but in vain—it was not to be found, nor any of its kind; and, search as I would, my search was hopeless, so that I lamented not having secured the root when I first saw it; but I had read the article referred to previously, so I determined to hunt up the fronds I had, and see if they had any spores. One of the fronds had become detached, and was not to be found, but the other seemed to be pretty well stored with fructification. As a preparation to sowing, I filled a 3-inch pot nearly to the rim with good loam, and after giving it a good watering, I covered the surface with a little powdered charcoal, then taking the tiny frond (not more than an inch in length) in one hand, and a knife in the other, I scraped off the scales with the spores from the back of it upon the powdered charcoal, covered the pot with a piece of glass, and put it in a moist heat of about 65°. After having been sown about three weeks or a month, there began to be shown signs of life, and the soil has now become entirely covered with the first green development of the young Ferns, and I am hoping that if all goes well, to get several plants from it. I am not a specialist in Ferns, nor a large grower of them, but I am a great admirer of them; and nothing I think presents so much chaste beauty as a lot of well grown Ferns, even if they are growing wild, and a bank of Ferns is worth walking a mile or two to see. I remember some years ago, when in Cornwall, seeing a large bank completely covered with fine specimens of the Lady Fern, and the effect was truly delightful. It has been noted that there is a growing tendency in the public taste for the beauties of the floral kingdom; and running side by side, is the taste for the beauties of Ferns. *W. H. Blackmore, Duryard Gardens, Exeter.*

LONDON SUBURBAN MARKETS.

During a period of some three years there has grown up on the broad road area on the Middlesex side of Kew Bridge, a kind of impromptu vegetable market, and the thing has of late become so extensive that the attention of the local authorities has been drawn to it in such a way as must shortly lead to some change for the better. The market has been composed of laden vans and carts coming from west Middlesex and parts of Surrey, which have of necessity to concentrate at that particular spot on their way into London. Originating with a little cart-tail trade, with a few local dealers, it grew so considerably that now, on Monday, Wednesday, and Friday mornings, some sixty to seventy vehicles, heavily laden with vegetables, and, in the proper seasons, with fruit and flowers also, may be found congregated at this particular spot. No wonder that traffic of an ordinary kind has been materially interfered with.

This particular market is not made up of the ordinary Covent Garden consignments, which pass up during Monday, Wednesday, and Friday nights, ready for the market of each succeeding morning. Large numbers of market growers do not send to Covent Garden at all; they have all over the west side of London a big shop trade, done on the mornings which are not sacred to Covent Garden. The Kew Bridge market purchasers are made up chiefly of shopkeepers and dealers from the most populous of the western suburbs, who have, in thus meeting all the market vans, ample opportunity to select from any of the best and cheapest rather than to put up with what only one or two calling vans may furnish. They also have the advantage of trading in a convenient locality, and under less pressure than is found in Covent Garden. As this impromptu market is held in the district of the Brentford Local Board, that body is the first to take the matter of the provision of a proper public market into consideration. But the Kew market is held also just in the confines of the Chiswick Local Board district, and has better opportunities of providing the needful market area than has the Brentford authority.

But again there is the Middlesex County Council dominating over these local bodies, and were that new, and so far not very active authority, alive to its responsibilities, it would ere now have dealt with the question of the provision of proper suburban markets. Further, some 2 miles or so from Kew Bridge are found the borders of the domain of the London County Council, and here again we find an authority which does not evince any too much haste to deal with the very important subject of public vegetable markets for London. Were the body to establish one such market at its western border of Hammersmith, it would probably obviate the need for a market at Kew Bridge; if the Middlesex County Council were to establish such a market at Chiswick, one at Hammersmith would be a superfluity. Whilst the various authorities have been sleeping or inactive, the market growers have been making in a tentative way a market for themselves, and it would seem as if they will have to wait some time yet ere any proper accommodation is furnished for them by the local authorities. The whole subject of providing proper markets for the metropolis requires to be dealt with by Royal Commission, and at once. That these markets should be well into the populous or immediate suburbs of London is evident. Not only should the dealers, but the consumers, have free access to them; whilst the emptied market vans might be reloaded with manure from the district ere they return homewards.

MANURES.

In a previous article upon this subject (p. 714, vol. vi.), we briefly described some of the general properties of the more important ingredients used by plants to increase their growth.

We now come to the questions of manurial supply and demand, believing that an exact and thorough knowledge of every process connected with the physiology of plant life, and the chemistry of plant-food cannot fail to result in economic applications of the most important character.

Soil Fertility.

The stock of fertility which exists in productive garden soils, though generally large, is for the most part in a very insoluble form. For instance, the combined nitrogen which is the product of previous vegetable and organic life, forms the chief source of nitrogen for the future growing plant. Before it is assimilable by the plant, however, this combined nitrogen undergoes a process of oxidation, which is due solely to a living organism within the soil. The nitrates thus formed are absorbed by the plant, when its manuring properties are exceedingly active.

The mechanical operations of ploughing, digging, raking, hoeing, &c., which take place in a garden, have for one of their objects the promotion of oxidation, and the formation of nitric acid. Abundant crops depend very much upon the capacity of the growing plants to take up the few pounds per acre that is produced of this most important ingredient of plant-food, and the skill of the gardener is displayed in so arranging his methods of culture and course of cropping, that the nitrates so liberated shall be a source of profit instead of loss.

Sir J. B. Lawes describes a fertile soil as one which is competent to liberate a considerable amount of active nitrates from its store of combined organic nitrogen; while an abundant season is one in which the crop is enabled to take up an unusual amount of this active nitrogen.

But if the amount of fertility liberated by the bacterian organisms, or nitric ferments as they are sometimes called, were sufficient to produce full crops, there would be no necessity for applying manure; it is quite evident, however, that such is not the case.

Some soils, it is true, require but little aid, owing to their inherent richness; but there are others—more especially those of a light, sandy character—that are almost entirely dependent on the fertility they get from external sources. Practical experience has shown in different districts, and on different classes of soil, what is required to grow full and remunerative crops.

The first problem, therefore, which a gardener has to solve, we take it, is to preserve the present stock of soil fertility, and to increase the accumulation of plant-food for future use. It is true that the stores of mineral food—potash, phosphoric acid, lime, and

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the like—in the soil and subsoil of our best garden soils accessible to plants are very great, and it would require many years of cultivation, and removal of crops, to entirely exhaust the supply, yet we may fairly assume that the system of horticulture which leaves the soil in an impoverished condition is certainly not an economic one to follow.

Supply and Demand of Plant-food.

There are, doubtless, larger external sources of plant-food supply now at hand, which were quite unknown to a former generation of gardeners, which afford the means of adequate restoration to the soil under a very much less restricted system, both as to cropping and sales of produce, than that which now prevails, and is considered essential for the maintenance of the fertility of our garden soils. In ordinary practice, however, the bulky farmyard or stable manure is very largely relied upon for all crops, and is sometimes applied in very large quantities.

This may probably be accounted for by the fact, not only of the simplicity of its application, but its safety in working. Independently, also, of its liberal supply of all necessary constituents of plant food, the beneficial effects of stable manure are in a considerable degree due to its influence on the mechanical conditions of the soil, rendering it more porous, and easily permeable to the surface roots, upon the development of which the success of so many of our garden crops depend. Then, again, something may be due to an increased temperature of the surface soil, engendered by the decomposition of so large an amount of organic matter as is supplied in 10 or 20 tons per acre of stable manure, which quantity is frequently exceeded in market gardens; whilst the carbonic acid evolved in the decomposition of the dung will, by the aid of moisture serve to render the mineral resources of the soil more soluble.

Let us follow up an instance of frequent occurrence in common market garden practice of manurial supply and demand.

The following table shows us the amount of selected manurial constituents that will be supplied to the soil in 10 tons of ordinary farmyard or stable dung, and the average amount of the same ingredients that will be removed from the soil, by the growth and sale of 10 tons of vegetables as gathered for the market. The vegetables will comprise Carrots, Parsnips, Turnips, Peas, Cabbage, Onions, Beans, and Lettuce.

Selected Chemical Constituents in 10 tons of Farmyard Manure, and in 10 tons of Vegetables, and the difference (+ more, or — less) the Manure than the Produce, in pounds.

	Nitrogen	Phosphoric Acid	Potash.	Lime.
	lb.	lb.	lb.	lb.
In 10 tons farmyard dung	120	80	110	160
In 10 tons of vegetables...	193	33	68	34
Manure more or less than vegetables	−73	+47	+42	+126

These figures clearly show that the manure supplies to the soil an excess of mineral ingredients over and above that required by the growth of a corresponding weight of marketable crop, but that the supply of nitrogen, the most expensive of all the manurial constituents, is quite inadequate to the demand, showing in the 10 tons a deficiency of 73 lb.; hence the desirability of supplementing a dressing of dung with 1, 2, or 3 cwt. of some nitrogenous artificial manure.

Further, it is found, in the case of many of our garden crops, that only a small proportion of the nitrogen of farmyard manure is taken up in the year of application. And the Rothamstead agricultural experiments seem to indicate that some plants are able to avail themselves of a less proportion of the nitrogen of the manure than others, and that this is especially so in the case of the Potato; let us, therefore, put this crop to the test of manurial supply and demand as we have done above for the other vegetables.

The following table shows the amount of four selected manurial constituents supplied to the soil by the application of 10 tons of farmyard manure, and the amount of the same constituents taken from the soil by the growth and removal of 10 tons of Potatos.

Selected Chemical Constituents in 10 tons of Farmyard Manure, and in 10 tons of Potatos, and the difference (+ more, or —less) the manure than the Potatos, in pounds.

	Nitrogen.	Phosphoric Acid.	Potash.	Lime.
	lb.	lb.	lb.	lb.
In 10 tons farmyard manure	120	80	110	160
In 10 tons Potatos ...	80	80	120	15
Manure more or less than Potatos	+40	...	−10	+145

We here see how great is the demand the Potato makes upon the mineral resources of the soil, and that potash forms an item of considerable importance in growing this crop, which is not a matter of surprise when we consider how essentially potash is connected with the formation of starch; for this reason farmyard manure, which itself supplies large amounts of potash to the soil, is supplemented by Potato growers with kainit or potash salts.

For the production of garden vegetables generally very large quantities of farm or stable manure are applied, beyond what is required as a mere supply of constituents to the crops; the process being, to a great extent, one of forcing, to which we have already called attention, and a necessary result is a great accumulation of unexhausted residue within the soil.

We learn from statistics given in a recent lecture by Professor J. H. Gilbert, "On the Growth of Potatos," that in some localities where this crop constitutes an important item of production, the quantity of dung used ranges from 12 to 15, and even to more than 25 tons per acre, and sometimes as much as 10 cwt. of artificial manure is used as a supplementary dressing, consisting chiefly of superphosphate or dissolved bones, and potash salts, or kainit.

Seaweed is largely used as a manure on some parts of the coast for the growth of vegetables, and it is found especially suited to the Potato crop which, as we have seen, requires much potash—a large mineral constituent of seaweed.

Atmospheric Resources of Plant Food.

It is entirely fallacious to suppose that garden crops, whether flowers, fruit, or vegetables gain a large amount of nitrogenous plant-food from atmospheric sources by means of this extended leaf-surface. The quantity of combined nitrogen brought to the soil and growing plants by rain-water and the atmosphere, is so inconsiderable an amount when compared with the whole weight required by the crop, that we may fairly say, no plants are more dependent on nitrogen in an available condition within the soil than are garden vegetables. No matter how good the normal condition of the soil may be, it will not long produce paying crops of vegetables, or even fruits without manure. Certain it is that if a garden will not pay with liberal manuring, it will not pay without it. *J. J. Willis, Harpenden.*

Dacrydium laxiflorum is interesting, says Kirk, in his *Forest Flora of New Zealand*, as being the least of all the Conifers, fruiting specimens being sometimes found less than 2 inches in height; usually it is from 6 to 12 inches high. Occasionally it may be found growing amongst other shrubs, and supporting its weak stems among their branches to the height of 3 to 4 feet, but left to itself the stems are weak and prostrate.

A HISTORY OF ENGLISH GARDENING.

(Continued from p. 198.)

Garden-Flowers of the Early Tudor Period.

Indian Pepper.—"This herbe groweth in certain gardaynes in England." (Turner, 1548.)

Iris.—Mentioned among the common garden plants by Tusser.

Jasmine.—"It groweth comonly in gardines about London." (Turner, 1548.)

Kidney Beans.—Plants of this species were commonly grown in the flower gardens of early Tudor times. They were sometimes used for training over the garden arbours: "Kidney Benes or Arber Benes, because they serve to cover an arber for the tyme of somer." (Turner, 1548.)

Lavender.—Mentioned by Tusser.

Leeks.—Tusser recommends that the seeds should be set in spring, and the young plants removed in June. The average price of the seed in Henry VIII.'s reign was 2*d.* a lb. (Roger's *Agric. Prices.*)

Lettuce.—"Divers sortes" were grown: "Cabbage Lettis . . . spredyng Lettis and grene Endive." (Turner, 1548.) The seed was usually set in March, and the young plants were planted out in May. (Tusser.)

Lily of the Valley.—"Groweth plenteously in Germany, but not in England that ever I could see, saving only in my Lordes gardine at Syon." (Turner, 1548.) Mentioned among the common garden plants by Tusser.

Lote-tree.—"Groweth now in Syon garden.' (Turner, 1548.)

Lovage.—"Groweth only in gardines, so much as I have seen." (Turner.)

Marjoram.—Tusser mentions it among the common garden flowers of his time.

Medlars.—"Common in England." (Turner.) This fruit was very cheap, some 400 being sold in 1515 for 6*d.* (Roger's *Agric. Prices.*)

Mint.—Tusser says that seed may be sown at all times. It was used chiefly for culinary purposes: "Take thou this herbe and vinegar, and make sauce, and it will make thee have a talent to thy meat." (*Grete Herbal.*)

Mellons.—Grown in the royal gardens belonging to Henry VIII. (*P. P. Exp. of Henry VIII.*)

Mulberries.—"Groweth in diverse gardens in England." (Turner, 1548.)

Narcissus.—"One with a white flower groweth plenteously in my Lordes gardine at Syon." (Turner, 1548.)

Onion.—"This erbe is comon ynough." (Macer.) "Plant from December to March." (Tusser.) The average price during the first half of the sixteenth century was 1*d.* per bushel. (Brewer, vol. ii., p. 1515.)

Panicum.—"I have not seen it in England, saving in my Lordes garden at Syon." (Turner, 1548.)

Pansies.—Mentioned by Tusser, "Paunces or Heartesease."

Parsley.—"Groweth nowhere that I knowe, but only in gardines." (Turner, 1548.) Largely grown for culinary purposes: "good in potage and to stop chekyns." (Macer.) The average price of the seed in the early part of the sixteenth century was 2*d.* a lb. (Roger's *Agric. Prices.*)

Parsnips.—Directions for planting it are given in Macer's *Herbal.*

Peach.—Commonly grown in Kent and in London in Henry VIII.'s reign. (Brewer, vol. ii., and *P. P. Exps. of Henry VIII.*)

Pears.—Pears were generally grown, and a number of varieties were known (see *Grete Herbal* under "Cheryes"). The commoner kinds fetched, on an average, 1*s.* per hundred. (Roger's *Agric. Prices.*)

Peas.—"They be very common and groweth in gardens." (Macer.) The Runcial variety is mentioned by Tusser as "a daintie."

Periwinkle.—"Groweth plenteously in the gardens of England." (Turner, 1551.)

Plums.—Macer mentions three varieties, white, black, and red. "They that be black and somewhat hard be the best, they be called damsons, and when they be rype gather them and slyt them." Macer further mentions that they were pickled. Tusser names several varieties: "grene and grass plums," "damsons, white, and red," "perare plums, white and yellow." Alexander Boorder (1547) recommends that "6 or 7 plums be taken before dinner" to prevent indigestion.

Pomegranites.—"There are certain in my Lordes gardin at Syon, but their fruit cometh never to perfection." (Turner, 1548.)

Pompions.—"Melons is that we call pompions." (*Grete Herbal.*) According to Tusser, they were to be planted in May.

Poppy.—"It groweth sowen in gardines." (Turner, 1548.)

Privet.—Mentioned by Tusser. It was chiefly used for planting in hedges:—

"Set Privie or prim,
Set Baie like him."—Tusser.

Quince.—Largely used for making marmalade, and often mentioned in contemporary accounts. In 1518, 220 Quinces were sold for 6*s.* 8*d.* (Brewer, vol. i., p. 1515.) The fruits were eaten either "roasted or rawe." (*Grete Herbal.*)

Radish.—Mentioned by Tusser. He recommends that the seed should be sown in March, and that the young plants should be afterwards removed and planted out.

Raspberry.—They are mentioned by Tusser among his fruits, and also among "herbes to styl." "Respyce wyne" is mentioned by Alexander Boorde (*Dyetary*, p. 254). Turner, who calls them "Raspeses or Hyndberries," says that they grow in certain gardines in England."

Rocket.—"Sowe in April." (Tusser.)

Roses.—Tusser recommends that they should be planted in September, and "trimmed and cut" in January. In 1533, trees were sold at 4*d.* the hundred. (*Hampton Court Accounts.*) The flowers were largely used for making confections, and receipts for making "sugre of Roses," "oyle of Roses," "syrop of Roses," "water of Roses;" and "playsters of Roses" are given in Macer's *Herbal* (1528).

Rosemary.—"Groweth plenteously in gardines in England." (Turner, 1548.) Tusser mentions that the spring was the usual time for planting the bushes. They were very commonly set around the walls of the gardens of this period. (See *Hampton Court Accounts*, 1533.)

Saffron.—Tusser mentions both the French and English varieties. "The flowers be goode for cookes to colour theyr potage." (Macer.)

Sage.—"Groweth in gardens." (Macer.)

Savine.—"Groweth in many gardines in England." (Turner, 1548.)

Service Trees.—Mentioned by Tusser. "Three trees were bought for planting in the Royal garden at Hampton Court in 1533. They cost 7*d.* (*Chapter House Accounts.*)

Smallage.—"Groweth in Gardines." (Macer, also Turner, 1548.)

Snapdragon.—Mentioned by Tusser, also by Turner: "I have some in my gardine whose seede come from Italy." "It may," adds Turner, "be called Brode calfe snout."

Spinage.—"Spinage or Spinech is an herb lately found and not long in use." Tusser says that it should be sown in March "for the somer."

Stock Gilleflowers "of all sorts." (Tusser.)

Strawberries.—The favourite fruit of early Tudor times. "Every man knoweth well enough where Strawberries growe." (Turner, 1548). Tusser writes the following quaint couplet:—

"Wife into thy garden and set me a plot,
With Strawberry roots the best to be got."

Plants were sold at 4*d.* the bushel in 1533 (*Chapter House Accounts*), and the Strawberries at 7*d.* the pottle. (Brewer, vol. i., p. cxiii.) "Strawberry water" was much esteemed. A. Boorde (1542), says, "Water is not wholesome by itself, but better it is to drynke with wyne or stylled waters,* especially water of Strawberries."

Sweet William.—Tusser mentions this plant among his "herbes for a garden," and some plants were bought for the Royal gardens at Hampton Court in 1533. (*Chapter House Accounts.*)

Tarragon.—"Well knowen in England." (Turner, 1548). Tusser says: "Set slippes in March."

Thyme.—"Groweth righte up in our gardines." (Turner, 1548.)

Turnip.—Macer gives directions for planting it, and Tusser says that the seed should be sown in March or April.

Wallflowers.—They were called "Wall-gile-flowers." (Tusser.) Tusser writes under September:

"Set Gileflowers all that grow on a wall."

Walnuts.—They were sold by women about the streets of London. (Skelton, *Poems*, vol. i., p. 109.) In 1532 they fetched 3*s.* 2*d.* a bushel. (Roger's *Agric. Prices.*)

Winter Cherries.—"Thys herbe groweth much in my Lordes gardine at Syon." (Turner, 1548.)

Wormwood.—Groweth nowhere in England, saving only in my Lordes gardine at Syon." (Turner, 1551.)

Violets.—Very commonly grown. (See Tusser.) In 1533, Violet roots sold for 3*d.* the bushel. (Brewer, vol. i., p. cxiii.) *P. E. N.*

(To be continued.)

* The manufacture of fruit and flower "waters" was a favourite occupation of the country housewives in Early Tudor times. Tusser writes:—

"The knowledge of stilling is one pretty feat,
The waters be wholesome, the charges not grete."
Five Hundred Points of Good Husbandry.

Orchid Notes and Gleanings.

ORCHIDS AT MESSRS. J. VEITCH & SONS.

The Cattleya-house at the Royal Exotic Nursery, Chelsea, is now beautified by a display of fine forms of C. Trianæ in bloom. Hundreds of their gorgeous flowers are arranged along the house, and not a bad one to be seen, while some among them, which are flowering for the first time, are of particular merit; notably, a fine variety as perfect in shape as the famous C. T. Schroderiana, but not so large, as it at present appears. Its broad labellum is of that rich velvety crimson seen in C. T. Osmani, a fine plant of which stands near by for comparison. The numerous orange-scarlet flowers of Lælia harpophylla and L. cinnabarina have an elegant appearance among the more massive flowers of the Cattleyas, and the well-sheathed exhibition plants of Lælia purpurata, for which Messrs. Veitch's collection is noted, forms no inconsiderable feature in the eyes of those who admire the perfection of growth. Perhaps the best examples of good culture are to be observed in the stock of Aërides, Vandas, Saccolabiums, Phalænopsis, &c., which are generally considered hard to manage, and are anything but creditable in many large establishments. Since the plants at Chelsea have been under the management of Mr. Canham, they—and, indeed, the whole of the Orchids—have made very satisfactory progress.

The Rockery-house always forms a centre of attraction for the best subjects then in flower; and at present its chief display is made by fine specimens of that old favourite, Dendrobium nobile, plants of which are arranged about the rocks and suspended overhead. Among them several fine forms appear, such as the nearly white D. n. pulcherrimum; the large-flowered and brightly-coloured D. n. roseum, and that best of all forms, D. n. nobilius. Some good specimens of D. Wardianum and D. crassinode are arranged about the house; and suspended, with their elegant flowers drooping around, are D. Schneiderianum×, D. Findlayanum, and others, including a plant in flower of that elegant recent introduction, D. Macfarlanei, with its flowers resembling a white Lælia anceps, of which Messrs. Veitch have succeeded in procuring a small stock. A central plant on the rockery is a very fine specimen of Cymbidium Lowianum, with a very richly coloured lip; and among handsome plants not usually seen are Paphinia Randii, Oncidium auriferum, Liparis cylindrostachys, some rare Lycastes, a grand specimen of Cœlogyne cristata Lemoniana, and Dendrobium amethystoglossum, all of which are in flower, together with a fine series of Dendrobium Ainsworthii× varieties, of which the last Chelsea introduction, D. splendidissimum grandiflorum×, is beyond doubt the best. The Phalænopsis, which are kept tolerably cool and drier than is usual at this time, have some examples in bloom. The Cypripediums have about twenty-five kinds in flower, some of them in many specimens. This is sufficient to make a good show, but it is perhaps the smallest number to be found in bloom at Chelsea at any period of the year. The fine hybrids, C. Lathamianum×, C. Germinyanum×, and C. calypso×, are prominent by their noble size and great beauty. Also, in the Cypripedium-house is a specimen of Cœlogyne cristata alba with nineteen spikes of pure white flowers. The cool-houses have a fair show of Odontoglossums, Lycastes, &c., and many treasures in the smaller-growing Orchids are to be found in the private houses formerly occupied by Mr. Seden with the hybrid Orchids, but which have now been removed from London, and their quarters handed over to the general stock.

Aspasia africana.

This attractive Orchid, which is a native of Sierra Leone, is now flowering very freely in the collection of the Rev. W. N. Ripley, Earlham Hall, Norwich. One large specimen has six spikes, and the number of flowers on each average from fifty to over 100. It presents a very fine sight, and indicates that Mr. Bartlett, the gardener, knows its requirements thoroughly. The sepals and petals are bright yellow, covered with irregularly-shaped blotches of rich shining brown; the three-lobed lip is also yellow with some reddish streaks on the sides. When this plant is grown well, and produces its spikes of flowers in such abundance as here noted, it forms one of the chief attractions in the Orchid-houses during January and February. *J. W.*

Orchids at Stonehouse Court.

There is at present a fine display of bloom in the Orchid-houses of Major Chapman, at Stonehouse Court, Gloucester. Phalænopsis are exceedingly well done by Mr. Elmer, the head gardener; they are grown in a small span-roofed house in Teak-wood baskets elevated on pots about 2 feet from the glass, and stand on a bed of coal ashes. They are kept moist, and at a temperature of 65°. P. Stuartiana nobilis, a fine variety, bears twenty-two flowers on one spike, P. amabilis, P. Schilleriana, and P. grandiflora are in robust health. Dendrobium Brymerianum, with its beautiful golden-yellow fringed flowers, is very handsome: D. nobile pendulum, D. Ainsworthi, and D. Wardianum Lowii, are also in flower. Several large pans of Cœlogyne cristata, one of the most useful and beautiful Orchids grown, is heavily laden with long racemes of flowers. Cattleya Trianæ, C. Percivaliana, Cypripedium Spicerianum, Masdevallia chimæra, and Oncidium papilio are also flowering freely. *W. Driver, Longford House, Minchinhampton.*

Cypripedium argus.

A native of the Philippine Islands, with oblong, lanceolate, acute marbled leaves; median sepal ovate-acute, white, with green and purple stripes of unequal lengths. Petals linear, oblong, ciliate, greenish-white, flushed with purple at the tips, and marked with dark purple warts or blotches. *Reichenbachia*, t. 83.

Odontoglossum luteo-purpureum var. prionopetalum.

This variety is characterised by its long spike of very large flowers, whose clear yellow ground colour is covered with rich purple-brown blotches, which, on the erose or irregularly serrulated petals, are very numerous and irregular in shape. The plant grows on the mountains of New Grenada, at elevations of from 6000—7000 feet, and does not require, therefore, a high temperature. When the season of growth sets in, in autumn, the temperature should be slightly increased to 60° or 65°, and the supply of water gradually increased. *Reichenbachia*, t. 84.

Epidendrum Wallisii.

This plant, now in flower, is the freest grower of all Epidendrums, and flourishes in pans of peat and sphagnum moss. It likes plenty of space for its roots to ramble in, as the roots are almost all found on the surface of the soil. It seems to require no season of rest, and makes new growths while flowering on that previously made. *A. G. C.*

Odontoglossum Humeanum.

The flowers of this species "may readily be distinguished by their deep cinnamon blotched sepals and creamy-white petals, at the bases of which is usually found a cluster of irregularly-shaped cinnamon blotches. The broadly cordate lip is of a spotless white, occasionally tinged with a suffusion of

pale rose, which presents a striking and agreeable contrast to the bright golden-purple spotted crest." O. Humeanum is now supposed to be a natural hybrid between O. cordatum and O. Rossi. It should be grown in pans near the glass. The plant is in growth nearly all the year, and may be found in flower at nearly all times except during summer. *Reichenbachia*, t. 82.

Cattleya Trianæ alba.

This is of dwarf, compact habit, "with large, handsome white flowers, and a bright orange-yellow stain round the throat of the labellum. The plants should be grown in pots not too large, in a layer of fibrous peat and sphagnum, spread over the drainage, which should fill the pots to within a couple of inches or so of the rim. Large quantities of water may be given in the growing season without fear of the soil becoming too saturated. At the same time, plenty of air and sufficient sunlight will help the growth to reach a state of maturity, and induce them to develop at the proper season a rich crop of well-formed and beautifully-coloured flowers." *Reichenbachia*, t. 81.

New or Noteworthy Plants.

Cypripedium œnone, *n. hyb.*

This hybrid, of which a leaf and flower have just been received from R. H. Measures, Esq., The Woodlands, Streatham, was raised by Messrs. F. Sander & Co., St. Albans, between C. Hookeræ and C. superbiens, the former being the seed-parent. Mr. Measures states that it is the second which flowered in the St. Albans Nurseries, and that one plant alone was saved from the cross, and which has now passed into the Streatham collection. The leaf is remarkably like that of C. Hookeræ, otherwise it is about as intermediate between the two parents as could well be. The dorsal sepal is ovate, acute, light green in the centre and the base; suffused with pale purple on either side, and nearly white on the margin; the nerves of a green colour, and about twenty-three in number. The petals are oblanceolate-oblong, of a light green colour below, passing into rosy-purple in the distal third, densely spotted with purple-brown, except at the extreme apex; the margin ciliate and a little crenulate. The lip is much like that of C. superbiens, and is brownish-purple in front, paler and greener behind; the side lobes with numerous small purple-brown warts; the staminode much like superbiens in shape, but a little more deeply notched in the front, the centre whitish-green with some dark green markings on each side, passing into a pale purplish tint towards the margin. The character of C. superbiens somewhat preponderates in the flower, especially in shape, but the influence of C. Hookeræ is also markedly apparent. *R. A. Rolfe.*

Species of Eriogonum.

Among the North American Eriogoneæ there are many very fine species, well worth cultivating in European gardens, where at present only a few varieties are known. The plants are annuals or perennials, some also are little shrubs a few inches high. The leaves of many species are cove with a silvery white down. The flowers are white, brilliant sulphur-yellow, or purple; small, but arranged in clusters, within a cup-shaped involucre, sometimes twenty, thirty, or even more of them together. The inflorescence is most varied in size or shape, you find some heads the size of a Hazel-nut, and some as large as a Peach; the large umbels are 6 inches or more in diameter, and the inflorescences resemble those of Statice and Gypsophila, but on the other hand some are long, white, twiggy forms, set with clusters of flowers along the whole length of the stalks, which are well adapted for arranging as cut flowers. I should like to draw the attention of gardeners to this lovely group. The cultivation is difficult, as most of the plants are found on dry sandy hills. Some grow at higher elevations, and by their dwarf habit are well adapted for rockeries. They grow in western North America, and as far down as California and Mexico; some also are found in Chili. The following varieties are most adapted for gardens:—



Fig. 38.—Eriogonum androsaceum: flowers yellow.

Eriogonum androsaceum.—A dwarf, much branched perennial, with lanceolate, white, downy leaves, about an inch long. Scape, 2 or 3 inches long. Flowers, yellow. Habitat, Rocky Mountains and British America.

E. Jamesii.—Perennial, similar to the former, but



Fig. 39.—E. ovalifolium: flowers rose-coloured.

leaves with long petioles, broader, ovate, lanceolate, and with sessile involucres. Found on high ledges or rocky hills near Chihuahua, Mexico.

E. cæspitosum.—A very nice dwarf perennial, of close habit, suitable for rockeries. Leaves ovate to oblong-spatulate, two to six lines long, tomentose on both sides. Flowers yellow; fruit, when ripe, red. One involucre, with numerous flowers on a bare stalk. Found in North-west Nevada to Wyoming territory, as high as 8000 feet.

E. Douglasii.—Perennial, very similar to the last species, but centre scape bearing a whorl of bracts. Habitat, North California, Oregon.

E. ovalifolium (fig. 39).—This charming perennial species it especially well adapted for rockeries. Leaves greyish-white to silver-white, tomentose on both sides. Flowers numerous, rose-coloured, white or yellow in a close head on a bare scape. Habitat, North California to Colorada and British America.

E. sphærocephalum.—This species is similar to E. Douglasi, from which it differs by the long, linear, spatulate leaves, and the more branched shoots. Whilst E. Douglasi resembles E. ovalifolium in habit, E. sphærocephalum is a much spreading, creeping shrub. The shoots are about 2 inches long, and bear at the ends a single head, with numerous yellow flowers on a 2 inch long bracteate scape. E. sphærocephalum is found in North California, and from Nevada to Washington Territory.

E. flavum.—A species allied to E. androsaceum, but the involucres bear more flowers, so that the whole inflorescence forms a large head. Flowers yellow, silky in texture externally. Washington Territory to the Saskatchewan, and South to Colorado.

E. villiflorum. — Perennial, densely tufted, and very shaggy throughout the crowded oblanceolate leaves, half an inch long, peduncles only an inch high, involucres few, in loose heads, bracteate at the base. Flowers silky within and without. South Utah.

E. umbellatum.—A highly decorative stoloniferous perennial plant, from 6 to 12 inches high. The long-stalked involucres form a simple umbel of from three to ten rays. Leaves long, toothed, ovate, lanceolate, somewhat downy. Flowers yellow. In habit similar to E. compositum. N. California and Oregon to Colorado.

E. ursinum. Perennial. Scape long, averaging 1 foot in height, umbel compound, but stalks of the involucres very short, so that the whole inflorescence forms a club-shaped head. Flowers whitish, leaves ovate, tomentose on the under-surface. California.

E. Lobbii.—Perennial. Scape about 1 foot high. Rays of the umbel few, usually very short and undivided. Flowers large, and very numerous in the involucres. Leaves oval or rounded; petioles about 4 inches long, tomentose on under-surface. From the Sierra Nevada.

E. compositum (fig. 40).—A large (perennial) plant, a foot or more in heigat. Umbels compound, rays elongated. Leaves oblong, ovate, cordate, white and downy on under-surface. A distinctive species, suitable for rockeries and borders. Washington Territory and Idaho to North California.

E. heracleoides.—Similar in habit to the former, but the leaves almost linear, lanceolate, the scape bracteate, and the peduncles of the involucres irregular. The flower-heads are small. Washington territory to Utah. *U. D.*

(To be continued.)

A Gardeners' Problem.

As a gardener who is fond of travel, and fancies he has learnt much therefrom, I cannot help entering a protest against some of Mr. Ewbank's remarks on the little value of information as to the natural habitat and growth of plants. What I venture to think Mr. Ewbank does mean is that such knowledge is generally insufficient, and what I think is least of all considered is, "What are the conditions of my garden?" The more perfectly we can imitate the conditions under which a delicate plant grows and thrives naturally, the more certain we must be of success. But the strength of a chain is no greater than that of the weakest link, and if we fail in one link we most probably fail in all. So then, what is needful is to consider not only the conditions of a plant at home, but its condition in your garden when

you have planted it there. For instance, Mr. Ewbank speaks of the futility of imitating the conditions under which alpine Primulas thrive at home, and says, "Death and destruction would have waited on them in my arid garden." Here we have the whole thing in a nutshell. Mr. Ewbank's garden is much hotter and drier in summer than the Alps; hence, with him these Primulas will thrive in wetter positions and more retentive soils than they would do at home. In the north and west of England they thrive under the very conditions of soil and situation that would kill them in Mr. Ewbank's dry and hot garden.

Clianthus Dampieri has no doubt been considered a very tiresome, as well as gorgeous plant, but then has any traveller who is also a gardener failed to remark that in its native country its collar is *not* wetted by daily or frequent waterings with cold and probably lime-laden water? The fact being, that in its home the dry season has set in before it flowers, and not a drop of rain does it get in a general way till long after every fat pod is full of seeds ready for another year. Thus a thoughtful Quedlinburg nurseryman by raising it on stilts, has done for it by art, what Nature provides at home.

Mutisia decurrens is another instance of a difficult plant to grow; but I differ from Mr. Ewbank in his remarks on it, for I (foolishly, no doubt), feel very confident that had I seen it growing in its native country I should have a far greater chance of growing it well; indeed, as it is, or rather was, I lost it through the marauding slug that ruthlessly ate off the shoots one spring, when I was absent from home, as is so often my misfortune.

Last May, on the Italian side of the Alps, I was enraptured with the magnificence of the crimson Polygala Chamæbuxus, growing in sheets under the Chestnut trees; perhaps Mr. Ewbank will be surprised to hear that the soil it so luxuriated in was pure leaf-mould, decayed Chestnut leaves, in which Erica carnea and Hepaticas seemed to revel equally.

In the north of Scotland, I have seen Tropæolum speciosum revelling on a south wall, while in hotter England it needs a cool aspect, we all know. Is not this merely want of knowledge as to the temperature and moisture it enjoys in Chili, when we say it requires one or the other? what it evidently likes is a mild and uniform climate, such as Chili is supposed to possess.

I am not sure that any one who has seen the swarms of mosquitos in Canadian swamps will be surprised to hear that Cypripedium spectabile enjoys liquid manure! Surely such a number of dead flies must count for something in the way of manure?

No: the thing we want is perfect knowledge; then we shall not attempt under circumstances where we must court failure; but more than half the battle is, "knowledge of the climate, soil, and temperature of your own garden." *E. H. Woodall.*

—— I find it hard to accept the doctrine that plants in a state of Nature are not found in positions that are best for them, but where they can exist. In the immense periods of time in which plant distribution has taken place, plants in my humble opinion have found the soils and places most congenial to them, and their continued existence is a proof of it; where the conditions have proved unfavourable, they have died out. That some plants will grow under varied conditions of soil I am prepared to admit, but that fact should not prevent us from following indications derived from observation of the natural circumstances that are found about a plant, and which have conduced to its healthy development. A collector failing to observe that Ericaceæ and kindred plants grow on peaty soils, and attempting to cultivate them on clay or limestone, would soon be convinced of his error (see page 265); here the plants have chosen congenial positions, as our barren moorlands testify, and even Gorse and Broom are happier on peaty wastes than on richer soils. Hippophae rhamnoides grows and develops its best characteristics on the deep sand banks found on the Lincolnshire coast; Psamma arenaria and Elymus arenarius thrive in similar positions, but are never found on the rich lands within the banks. That Hippophae delights in sand, and adopts it where the selection is possible, I have other evidence besides that of Lincolnshire. I have seen it flourishing on the sandy banks of the Isère in Savoy, and I have found Elymus on the sandy accumulations on the banks of the upper part of the Rauma River in Norway.

Mertensia maritima has been mentioned as showing an aversion to salt. I know one of the favoured habitats of this plant, it is growing freely in a little indentation on the N. E. coast, washed by high tides, and frequently sprinkled with spray. The soil in which it grows is saturated with sea water, so I cannot accept the opinion that salt is inimical to its nature. Some of your correspondents are writing from the partial experiences of the light loams and



Fig. 43.—Eremostachys laciniata. p. 263.

river drifts of the Thames valley, and from the Bagshot sand formation, which soils, like that at Kew, lightly enriched by humus, and having no marked or powerful mineral characteristics, provide the conditions required by many plants, but it is not a question of merely keeping a plant in existence, but of finding a soil that will encourage it to produce its best and most desirable qualities, both of flower and fruit. The distribution of some plants is in certain cases more a question of rainfall than soil; if a certain depth of decomposed vegetable matter exists on the surface, no matter on what soil it rests, and the condition of climate that prevails securing it adequate supplies of moisture, it will grow. The places in which I have found Gentiana verna to thrive are Teesdale, and the wet meadows between the lakes of Thun and Interlachen. It is not climate alone that gives Jersey its pre-eminence in a horticultural point of view, but its wonderfully fertile granitic soil. *William Ingram, Belvoir.*

Plant Notes.

RHODODENDRON ARBOREUM VAR. ROSEUM.

A plant of the above, from 2 to 3 feet high, has for several weeks been in full bloom at Kew, and is bearing twenty beautiful trusses of bloom, each measuring 6 inches across. The flowers are campanulate, 1½ inch across, and of a rich soft rose. In the typical arboreum the flowers are bright red, and the leaves are silvery underneath, it is therefore readily distinguished from this variety, which has the under surface of the leaves covered with reddish-brown down. It is unusual for plants of the size mentioned above to flower freely, but this may probably be due to its being grafted, and the scion obtained from a flowering plant.

A nearly allied form of arboreum—R. nilagiricum—is just beginning to flower, and which, in beauty, is not inferior to R. a. roseum, but it is some six or eight weeks later. The flowers are of a rich deep rose at first, and become paler with age. The flowers are much spotted with crimson, and this feature and the later flowering of the plant are the only noticeable distinctions between the two.

Agapetes buxifolia.

Considering the beauty and easy culture of several of the greenhouse species of Vaccinium and Agapetes, it is strange they are not more frequently grown. At Kew about a dozen of them are cultivated in the Temperate-house, and the most ornamental is the one above named, which is now in flower. It is a graceful shrub, with slender branches clothed with small leaves of a dark green colour; the flowers tubular, an inch in length, and of a bright red, and produced in abundance on the ripened portions of the shoots. It is stated to be an epiphyte in its natural habitat, and to possess a tuberous swelling at the base of the stem. Perhaps the plants at Kew are as yet too young, as they give no indications of the latter peculiarity. They are planted out in beds of peat, and grown also as pot plants, and thrive under both conditions. *W. B.*

Vegetables.

BRUSSELS SPROUTS.

The value of Brussels Sprouts can hardly be overrated, and it is not too much to say of them that they are the most useful vegetable grown, as not only are they delicious in flavour when cooked, but their season is a very long one, and being so exceedingly hardy, plants may always be relied on to stand the winter, and yield a supply for many weeks in succession. To have them in the autumn, and with big stout stems that will throw fine sprouts, it is necessary to sow early, and especially in northern counties and cold districts, where the first batch should be raised under glass, the plants pricked out and favoured with the same protection, so as to get them as strong as possible, and ready for planting out in the open as soon as warm weather sets in. In cases where only a few hundred are required, the best way is to sow in boxes and place them in gentle heat; but where a great number is wanted, it is advisable to make up a small hotbed, and place a frame on it, which should then be partly filled with leaves, and have a few inches of light soil put in and made firm and smooth, when the seed may be sown thinly, and only just covered with mould; and if the frame is kept close for a few days the plants will appear, when the frame must be ventilated regularly to prevent the young plants getting drawn and weak. Equally important as early sowing, are good depth of soil well manured and ample space from plant to plant. It is a good way to plant Brussels Sprouts at least 4 feet apart between the rows, and have Potatos between them, as by doing this both crops are benefited by the large amount of space afforded.

Although there are now many strains that are of much larger size than the old imported Sprouts, there are none in my opinion equal to a good select strain of the latter, which produces very close hard Sprouts, of mild flavour.

Leeks.

To have these really fine they require a long season of growth, and to be raised early. The best way to sow Leeks is in boxes, or on a gentle hotbed, so as to get the plants earlier than it could be done in the open air, and as soon as large enough to handle, they should be pricked out—still under glass, or potted singly, and nursed on till May, and then planted in prepared ground or in trenches. Although the latter method gives the most trouble, the plants will grow larger and with longer stems, as it is very easy, when they are in trenches, to water them, earthing up to blanch being done in the autumn. A suitable depth for a trench is 6 inches, and they should be prepared like Celery trenches. The Leeks may be put out in these trenches at 1 foot apart, and well watered to give them a start. Very good Leeks are grown by planting them in holes, and leaving just the tops of the plants standing out, but the ground for them must be deeply dug and of a light friable nature. The main point is to have fine strong plants with plenty of root, and a large dibble should be used to make the holes, which may be 1 foot apart, and into them the plants should be dropped, and a very little soil knocked in to steady them. The necessary hoeing of the land gradually fills up the holes, and Leeks elongate and become very large. *J. S.*

Colonial Notes.

SOUTH AUSTRALIA.

A Central Bureau of Agriculture has been established with the following objects:—

The Bureau will collect and publish by means of the Press, and with the aid of the district bureaus, information of every kind calculated to prove beneficial to the colonists engaged in agricultural, horticultural, pastoral, and other pursuits connected with the cultivation of the soil, such as—

1. The suitability of the various districts of the colony (in regard to soil, situation, elevation, aspect, &c.) for the growth or production of plants, animals, &c.

2. Information obtained respecting plants, animals, products, &c., likely to prove of value to cultivators.

3. The best methods of cultivating various kinds of crops, and of breeding and feeding domestic animals, and of improving the same.

4. The methods of preparing and preserving various products for market, and discovery of markets for the products of the soil.

5. The collection of agricultural statistics, particularly as affecting the area under cultivation in each district; the number and breeds of animals; the nature and condition of crops during each month; the times of sowing or planting and harvesting; the average yield per acre of fruits, cereals, &c.; the cost of cultivating each kind of crop; and all information that might serve to guide intending settlers.

6. The collection of information respecting all kinds of pests affecting the farm, forest, garden, orchard, and vineyard.

7. To ascertain and suggest the best means of eradicating poisonous plants, and of combating the effects of disease or the ailments of domestic animals.

8. To prevent as far as possible the introduction and spread of such pests, and to induce colonists to give the earliest information concerning the appearance of previously unknown plants, or parasites upon plants, or of diseases of animals, in order that the same may be at once identified and dealt with.

9. To publish, when necessary, bulletins, abstracts, and reports containing all such information as may be deemed desirable.

10. The district bureaus to be asked to give every assistance in their power in aid of the objects of the Agricultural Bureau.

The Apiary.

BEE-HOUSES.

Bee-houses are exercising a good many minds at the present time. Since the advent of the bar-framed hive they have been more or less run down—partly, no doubt, because of the completeness of modern hives; but they seem to be coming into favour again, and much may be said in their behalf. I know several people who have very handy lofts, and in all cases these bees turn out well. They winter well, are ready for swarming sooner than the bees kept out-of-doors, are ready for supering before any others, and yield a larger surplus. Lofts are, of course, of the nature of bee-houses. But now "house apiaries," as they are called, are being regularly built and used again.

When one is being constructed, it is better to build them too large than too small. Room ought to be left so that the manipulator can not only move about, but space should be left to keep articles for use, and even to extract. It is very convenient for a bee-keeper to have all his tools together. If care be taken with the extracting, no inconvenience ought to be experienced from robber bees. The best shape is a fairly long house, with one of the long sides facing the south.

All along the south side hives can be arranged. This would leave the opposite side and two ends free. There will, of course, be a door, and this ought to contain a revolving window. When manipulating, some bees are sure to escape, and would find their way at once to the window. This could be revolved, and all the bees would at once be outside, and would go to their hives. Though there would be an expense in setting up the house at first, much would afterwards be saved by possessing strong colonies of bees, and in the matter of covers, &c. Some people arrange their hives on shelves, and make the shelves act as floor-boards, thus saving floor-boards and covers as well. In this case the hives may consist simply of four pieces of wood nailed together. The matter is well worth consideration where a little outlay at the first is not a great obstacle. Very good houses can be obtained from most dealers in bee appliances, and at a cheaper rate even than they could be put up by the local carpenter. *Bee.*

The Bulb Garden.

THE CULTURE OF LILIES.

I advise amateurs who wish to grow Lilium auratum and other Lilies at the side of shrubberies or near trees, to sink below the level of the soil, casks with the bottoms out, to fill them with good Lily soil, and to plant the bulbs about 6 inches deep. In the *Gardeners' Chronicle* of September 28, 1889, p. 362, I mentioned having tried a paraffin cask. At the side of this were two Lily beds, from which the soil had been taken out about 5 feet deep, and Lily soil filled in. On lately examining these beds we found them, though the Lilies had only been planted nine months, filled with roots from the shrubs, sufficient to impoverish and dry the soil. I have now sunk a number more casks, principally old linseed-oil casks, which are of greater diameter than paraffin casks, and will report results. I think gardeners are sometimes blamed for Lilies failing, when it is the tree roots that are in fault. One of the oldest and highest of the hardy plant authorities, on seeing the cask plan, paid it the compliment of adopting it. *George F. Wilson.*

Plagiolirion Horsmanni.

Since its introduction to cultivation from Colombia, in 1883, by Messrs. F. Horsman & Co., of Colchester, this remarkable Amaryllid seems to have been greatly neglected in gardens. Why this should be so it is difficult to imagine, for it is certainly a very pretty plant, with its strong scapes of pure white flowers, which are produced in great abundance. It is interesting as forming the type of a new genus, established and described by Mr. J. G. Baker in the *Gardeners' Chronicle*, July 14, 1883, p. 38. A figure of it also appears in the same month and year at p. 105, which, although not representing the vigour and size of the plant now, nevertheless shows the shape and peculiarity of the flowers very correctly.

Plagiolirion Horsmanni has been in flower in Messrs. Sander & Co.'s nursery, St. Albans, since the middle of December last, and still seems to be quite vigorous and fresh. It is planted out in a border, growing in rich loam, with a little peat and leaf-mould mixed, and no special attention is given to it. Still it thrives. The bulbs are ovoid, and bear at the summit two or three broadly oblanceolate leaves, which measure about 2 feet long, slightly channelled in the centre on the upper surface, and having a prominent fleshy midrib beneath. The stout glaucous-green scape attains a height of over 2 feet, surmounted by an umbel of about thirty to forty pure white flowers, which expand centripetally. Their chief peculiarity is in having the segments in a semicircle, and radiating upwards, like the ribs of a fan; while the stamens, which are about half the length, radiate downwards. It is owing to these oblique, or one-sided characteristics of the flower, that the genus received the name of Plagiolirion. *John Weathers.*

Crocus Balansæ.

This charming little species, now in flower in many collections, is a bright gem even amongst spring Croci. It was first introduced and described by G. Maw, Esq., who received the corms from M. Balansa. In general appearance it is nearest to C. Susianus; the flowers, however, are smaller than those, and of a bright rich orange colour inside; the outer surface is coated purple-brown, and when seen in large masses, the flowers being half open, it makes a very striking picture. C. Sabini variety versicolor has a ground colour of lilac, and the tips of the segments marked dark purple, is also a striking Crocus, and one that should be grown largely for spring flowering. C. aërius, Billiotii, and a few of this class, should also be included in all collections, on account of their free flowering, as well as hardy constitutions. *D.*

Plants and Their Culture.

The Conservatory and its Supply Pits.—The conservatory at this date should be bright with Acacias in variety, and Camellias and forced plants, including bulbs. Primulas and Cinerarias will now be in good bloom, and these, and forced Indian Azaleas and other plants, will soon require to be shaded during the middle of the day, for which purpose the blinds should be got in readiness, and repairs to these done without delay. Azaleas soon lose their freshness, if exposed to the full glare of the sun. Any Camellia plant which has grown naked at the base may, as soon as the bloom is over, be shortened back, and allowed to break into new growth, giving it a light position, so that the growths may not be weak. Creepers should be regulated and thoroughly cleansed.

Cuttings of various species of climbing plants may be propagated at this season, taking them off with a heel wherever possible. Many of these plants are attacked by white scale, and the present is a favourable time to rid them of these insects. Any old plants of Aspidistra lurida which are in sour soil should be turned out, broken up and repotted, and the plants given a mild bottom-heat. Aspidistras, when large, require manure-water to keep the leaves in health, and with this intent soot-water once or twice a month is beneficial. Some corms of Gladiolus gandavensis should be potted up for early summer flowering. G. Brenchleyensis is also an effective plant; a cold frame will suit these. A sowing of Nicotiana affinis should be made now, and again at intervals of two months until July.

Mignonette may be sown in small pots, employing

a good compost. Mimulus, in variety, if not sown in the autumn, should be sown at once, and as soon as the seeds appear removed to a cold frame, and placed close to the light. A pan or two of Schizanthus in variety, if not sown earlier, will come in useful for the conservatory during the summer, if sown at once. Celosias should be sown in heat for summer decoration. This sowing need not be a large one, as another should be made in six weeks' time. It is best to grow these plants quickly, and to give them no check. A few dwarf Scabiose are effective in pots when grown early. A sowing of Browallia elata and B. alba should be made, these being charming decorative plants in the cool greenhouse or conservatory. Rhodanthes of sorts should be sown in gentle heat, transferring them to the frames when ready. Amaranthus of sorts need for a time treatment similar to the Celosias. Acroliniums of sorts are useful conservatory decorative plants, and are as pretty for this work as the Rhodanthes.

Herbaceous Calceolarias should get a shift again, if it be necessary, and they must be kept perfectly clean, using a larger quantity of loam at this shift. Liliums should get full exposure to light, as the bulbs should be growing freely at this date, being kept quite close to the glass. Any potting of bulbs should be completed as early as possible. Ixias, Sparaxis, and Babianas should get all the light possible to prevent drawing, and be kept in a cool place; cold pits are the most suitable for them if they are kept just free from frost.

East Lothian Stocks will be growing freely, and should be assisted with weak liquid manure. Succession plants of these Stocks should be shifted, if required; also the useful Primula obconica, for summer flowering, should be shifted into larger pots. Auriculas should be kept free from decayed leaves, and any top dressing done that may be necessary. An early sowing of the useful Campanula pyramidalis should be made, and when the seedlings are large enough they should get a cool place in which to grow. *Geo. Wythes, Syon House.*

The Orchid Houses.

East Indian House.—Thunia (Phaius) Marshalliana and T. Bausoniæ will now be breaking away with young growths, from the base of the pseudo-bulbs last made. They should now be repotted, and in doing this, I use a compost consisting of about three parts of good fibry peat, one of sphagnum moss, and a good supply of silver sand. The pots should be prepared in advance, *i.e.*, they should be filled three parts with potsherds, with a sprinkling of sphagnum over them, the whole should then be firmly packed, and sticks inserted to hold the plant firmly. Where there are several plants of the same variety, it is a good practice to take all the strongest growths out of a pot, but leaving the weaker growths to make another year's growth by themselves; and by doing this every plant in the pot will have its flower.

Spathoglottis Kimballiana is a beautiful Orchid now in flower, and was potted in a compost consisting of one half turfy loam, one part fibry peat chopped short, and one of sphagnum moss, with a little silver sand added. It is an exceedingly free flowering species, and makes abundance of growths.

Dendrobium Lowii, now finishing up its growths, must not be kept quite so very wet, still it must not be allowed to be very dry for a long time together, it being a great lover of moisture at the roots. The same remarks will apply to D. McCarthie, at this time of the year.

Cœlogyne Massangeana, now starting into growth, may be rebasketed if this be found necessary. I find that these plants are much more effective when they are of small size, say with three or four blooming growths; they may be then hung about to advantage. They do well in peat and sphagnum moss.

Temperatures for this house 65° at night, with a rise of 5° to 10° by day.

Cattleya House.—General attention may now be directed to this house, and, if it contain C. Harrisoni and C. Loddigessii these will now require repotting. Lælia lilacina now in flower is a very beautiful plant. Any plants of Vanda teres or V. Hookeriana, which have been resting in this house, should now be put back into the position they will occupy when growing. I grow them at the south end of a stove, close to the glass, where they are never shaded, but syringed three and four times a day. I am inclined to believe that V. Hookeriana is better when allowed to remain the year throughout in the stove. I have been experimenting with it, and will report progress at a later date. *A. G. Catt, Parkfield, Worcester.*

The Hardy Fruit Garden.

Protection for Fruit Trees.—The pruning and training of all fruits, Peach and Figs excepted, having been brought to a close, the most pressing matter is the due protection of the blossoms from injury by frost. The difficulties attendant on protecting fruit trees in the open ground are too great for it to be attempted except in the case of low-growing espalier and cordons. On walls, whatever is applied should be done at the right time, that is just before the flowers begin to expand; and the application of protecting materials is a question which each person must decide for himself. Whatever be used to screen trees from frost, it should be open enough to admit air and some amount of light, for to put on materials which are heavy and thick not unfrequently does more harm than good, as keeping the flower buds close and in semi-darkness renders them too weak to set well. A cheap and generally efficient protection will be found in tanned herring netting in two or three thicknesses; and where no good permanent wood or glass coping are put up, some 9-inch boards cut into long lengths and fixed close up to the brick coping of the wall will be found to keep off rain and sleet, and intercept radiation of heat from the wall. These board copings are of great service in keeping the blooms dry—an important point in obtaining a good set. Light Fir poles, Bamboo-rods, or the like, fixed in the ground at a distance of 6 feet apart, and 3 feet from the bottom of the wall, and sloping upwards to the board coping, and secured with a nail, will serve to keep the netting or other material from the walls, and give space for any one to pass underneath. Some lines of strong twine should run from pole to pole, and made fast to each, thus adding to the security and efficiency of the protection. Some years ago, I used to employ blinds of strong canvas, which were worked on iron rods at the top of the wall, and when in use were hooked to boards placed at a short distance from the wall, but when the south-west wind blew strongly it tore nearly everything away. *A. Evans, Lythe Hill, Haslemere.*

Fruits Under Glass.

The Pinery.—The details given in former Calendars may not be relaxed, especially with those plants dependent upon their bottom-heat from deep beds of tan or leaves, for oftentimes the fermentation increases during a fortnight after the new material is put in, and great injury inevitably follows if this be not noticed and remedied.

Fruiting-house.—Those fruiters which have shown fruit since October, may now be forced harder, and as the days lengthen, the moisture may also be increased. Carefully note the state of the soil, as greater activity of the roots will demand more water being afforded. When watering has become necessary, weak guano-water at a temperature of 90° may occasionally take the place of pure water, and remembering that driblet watering is to be avoided. Examine frequently the centres of probable fruiters, and as soon as the bloom-spike is observed, the plants should receive liquid-manure water, being careful at the same time not to wet these plants overhead when syringing the house, until the period of flowering is passed. All walls, paths, and surfaces of beds should be thoroughly damped at closing time, and oftener, when the atmosphere is dry and arid. Maximum night temperature, 70°; of the day, 80° to 90°. Bottom-heat maximum, 90°.

Succession-houses may be kept less close, by more ventilation being afforded, but avoiding cold draughts and checks of any kind. The bottom-heat may stand at 70° to 75°; the day warmth may not exceed 65°. Suckers that have been kept close till rooted may be gradually inured to less humidity. The maximum night temperature, 60°; maximum day temperature, 80°, with sunshine; and do not omit to moisten all dry surfaces at closing time.

Vineries.—In houses where the Grapes have been thinned, the Vines will be benefited by a sprinkling of manure, Thomson's or other, which may be washed in with water at 90°, that is, when the borders are inside the houses, some spent Mushroom bed dung being spread over them afterwards. If strong farmyard dung be used as a mulch, the ammonia arising therefrom must be allowed to escape through the top ventilators in the early morning, or the first strong sunshine will cause the tender foliage to "scald." Keep a look-out for the appearance of red-spider, especially in hot dry corners over the pipes, and on the appearance of yellow-speckled foliage, at once sponge it with soapy water. The foliage of the Vines may have an occasional syringing of clear soot-water at closing time. To make this, a one peck bag of soot should be stood in 20 gallons of water for twelve hours, and the water made in this way will be found quite safe to use with the syringe. The floors, walls, and those portions of borders dried up by the pipes, should be occasionally damped down with liquid manure at closing time, and alternately with soot water. Afford a chink of night air by the front ventilators if it is passed over the warm pipes. "Hit or miss" ventilators are the best, but perforated zinc and hinged wooden shutters are nearly equal to them; the zinc ventilator prevents the ingress of mice, &c., and serves to break up cold currents of air. Maintain a night temperature of 60°, and if the thermometer falls still lower on cold nights, the rest obtained in that way during the hours of darkness will not be without benefit to the Vines. The day temperature should be about 80°, more or less, according to the state of the weather.

Fruiting Pot Vines.—Continue to give liberal supplies of liquid manure, and top-dressings of turfy loam to cover the roots as they appear on the surface. Maintain a high humid temperature by day, so long as the berries are swelling, giving partial rest at night. The stoning period is at hand, when little apparent progress will be made, but do not neglect previously mentioned details. *W. Crump, Madresfield Court, Malvern.*

The Kitchen Garden.

Seakale for Forcing and Planting.—In getting up a stock of this vegetable, cuttings of the roots, 6 inches in length, will be found to be more certain in results than seed, and plants will make good crowns from these by the month of October, good enough for forcing or planting. The ground should be well tilled and manured. The sets may be put out at 1 foot apart in the rows, and 18 inches between the rows. The top of the set may be an inch or so beneath the surface, and the hole filled up with coal-ash or fine soil. Before planting, tread the ground, if light, to a moderate degree of firmness, and give it a light rake over. There is no necessity of planting pieces with a crown bud, and pieces without a bud seldom flower the first season. If plantations are to be made for forcing under pots, dibble in six or eight sets in clumps, according to the size of pots, 3 feet apart. Seakale, although it delights in a moderately firm soil, requires good drainage, and free exposure to the sun, to assist the maturing of the foliage.

Potatos.—In mild weather, a few of Myatt's or some other early variety may be set on a sheltered border, and some may be put at the base of a south wall and between the rows of early Peas. Plant the sets rather deeper and closer together than is usual for later plantings.

Cauliflowers in Frames.—If hand-lights in good numbers are available, some of the plants wintered in frames may be planted out, taking the plants where standing thickly together. Outside planting should be deferred to the last weeks in March. Good soil, deeply trenched and manured, is best for Cauliflowers; and for hand-lights four plants should be used to each, affording full ventilation during the day, and when it is bright weather removing the tops till evening.

Parsnips may now be sown on well-trenched ground free of rank manure, allowing a distance of 14 inches between the rows. Sow the seed rather sparingly in drills an inch deep, or the seed may be dropped in threes at eight inches apart, to save labour of thinning later on. Lift and store the remainder of the last year's crop in a cool place, trimming off the crown somewhat closely.

General Directions.—If frosty weather should set in, get manure wheeled to quarters where it is required; trench and dig all vacant plots. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	MAR. 3	Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MAR. 4	Roses, and other Plants, at the City Auction Rooms, by Protheroe & Morris.
WEDNESDAY,	MAR. 5	Roses, Fruit Trees, Border Plants, Shrubs, Conifers, Liliums, Dahlias, &c., at Stevens' Rooms. Lilies, Palm Seeds, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY,	MAR. 6	Imported and Established Orchids, 10,000 Lilium auratum and other Lilies from Japan, at Stevens' Rooms. Nursery Stock from Sample, at Protheroe & Morris' Rooms.
FRIDAY,	MAR. 7	Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—41°.

The Proposed Horticultural Hall.

It is quite natural that those who are familiar with the difficulties and entanglements experienced by the Royal Horticultural Society at South Kensington—difficulties from which the Society has even now barely emerged—should feel some alarm at the proposal to incur a large outlay in bricks and mortar. The proceedings at the annual meeting were not fully reported, nor was any definite programme in black and white laid before the meeting. This was unfortunate, for had a bare outline of the scheme been committed to print, with an accompanying estimate of the cost and of the means of obtaining the requisite funds, been circulated beforehand, much misapprehension would have been avoided. Fellows, both old and new, who were not at the meeting, and some who were, have written to us expressing in no measured terms what they consider the wanton folly of the proposal. Such opinions are, however, based upon an entire misconception. The Society, as a society, is in no way committed to do anything more than pay the rent for the premises it is proposed it should occupy in lieu of those now made use of.

To prevent, so far as possible, the further spread of misunderstanding, we applied to Baron SCHRODER for a brief statement of his views, which he has been kind enough to give us in the following terms:—

"In reply to your letter of yesterday's date, I beg to state that the gentleman, whose letter you inclose, and which I now return, entirely misunderstands my proposal for the building of a horticultural hall The money which I propose to collect will not go into the hands of the Royal Horticultural Society, but is to be invested in the names of three trustees, who will be responsible to the lenders for the proper investment of the funds; they will have to invest the greater part of it in first-class securities, bearing interest; the minor part they will have to invest in building a hall of horticulture and offices attached to it.

"The Horticultural Society will have to pay interest in lieu of rent for the building they occupy, and the total interest derived from the investment and payment from the Royal Horticultural Society in lieu of rent will go to the payment of the ground rent by the trustees. I calculate that the total thus received will cover the ground rent, and the trustees will ask no payment from those that give the money until £30,000 to £40,000 have been promised, to secure the due payment of the ground rent.

"You will thus see that the Royal Horticultural Society will not be made responsible for more than the rent due for the building they occupy. *J. H. W. Schroder.*"

Since this note was written, we have received from the Royal Horticultural Society a circular which it is purposed to send to all the Fellows, and which, as showing exactly what is intended, we here append:—

"When, at the end of the year 1887, our Society was compelled to vacate the premises at South Kensington, and, failing better accommodation, the Council made an arrangement with the officers of the London Scottish Volunteers for the use of their Drill Hall for the Society's fortnightly meetings, this step was regarded as being of a distinctly temporary nature, and desirable only as affording the Society time to recover itself before making provision for a permanent home.

"During 1888 and 1889, the Society has devoted itself energetically to its true and legitimate work, viz., the improvement, both in quantity and quality of the food and floral productions of our country, and the circulation of such information and knowledge, gained by experience and trial, as may tend to the practical advancement of gardening, orcharding, and such like. The policy pursued by the Council has met with such general and widespread approval, that a very large number of new Fellows have joined the Society, and the Council feel that the time has now come to take the first step towards bringing the temporary arrangements mentioned above to a conclusion, and for providing the Society with suitable premises of its own.

"There has at the same time arisen amongst the general public a desire, which has found expression in the gardening press, for a central Hall for Horticulture—a desire, in fact, for the centralisation of all horticultural associations, benevolent institutions, &c., round the Royal Horticultural Society as a centre. The Council of the Society have, therefore, determined to proceed at once in this matter, for which, if only the command of a sufficient sum of money can be obtained, all things seem ripe.

"In looking out for a site for the proposed buildings, three things are essential:—(1.) It must be in a central position in London. (2.) It must be easy of access by road and by rail. (3.) It must possess abundance of light. Unfortunately these three essentials are exactly those which give to any site which possess them the greatest monetary value, but, being of such absolute necessity for the purposes of the Society, the Council feel that they must grapple with the fact of a very high ground-rent if the result is to be in any real sense satisfactory or worthy of our ancient Society and its thoroughly national objects. One or two such sites have been suggested, but, as was anticipated, the ground-rent is in each case very large, and constitutes the only grave difficulty to be surmounted. The Council do not, however, despair of success, if all the Fellows of the Society will join with them in making a united effort to overcome it. For this purpose the ollowing scheme has been proposed by Baron HENRY SCHRODER, and was explained by him at the general meeting of the Society, held on February 11, 1890.

"It is proposed to invite all friends of horticulture to join together in placing in the hands of three Trustees (of whom Baron SCHRÖDER is willing to be one), a sum of £40,000, to be held by the Trustees free of interest, for the benefit of the Society, and to be gradually returned to the lenders by annual drawings of the bonds which they will receive from the Trustees — the drawings to commence, it is hoped, two years after the opening of the new buildings.

"Of this sum of £40,000, the greater part would be invested by the Trustees in first-class securities yielding interest, and the remainder would be invested in the buildings to be erected, the Society paying rent for them, and the total of interest and rent thus received by the Trustees would suffice for the payment of the ground rent. It is hoped that a considerable sum would be annually obtained for the purpose of redemption of bonds by letting the basement and the great hall itself for various purposes at times when it was not required by the Society.

"Thus the lenders will see that the sum invested by the Trustees, together with the value of the buildings erected, would form ample security for their money, and the only loss to themselves would be that of the interest during the period between their placing the money in the hands of the Trustees and the date of the drawing of the bonds they will hold in its stead. That the matter can be carried to a successful conclusion the Council are amply assured if all lovers of horticulture will join together to lend the money required.

"Hoping that we may receive your hearty sympathy and active support, W. WILES, *Secretary, R.H.S.*"

CYPRIPEDIUMS SPICERIANUM AND C. MORGANÆ×.—Our Supplementary Sheet gives illustrations of two fine examples of the favourite genus Cypripedium—C. Spicerianum and C. Morganæ—the former from Mr. T. Coomber, The Hendre Gardens, Monmouth, and which may probably be considered the finest specimen of C. Spicerianum ever grown in a 60-size pot; and the latter from a photograph of a specimen of C. Morganæ× in the collection of Norman C. Cookson, Esq., Wylam-on-Tyne, and which for beauty and profusion of flower it would be difficult to excel. C. Spicerianum appeared with Mr. Herbert Spicer at Godalming some twelve years ago, and its native habitat was for a long time unknown; but a few years ago this was discovered, and large quantities were imported, so that at the present time it is very plentiful in collections, and a general favourite. C. Morganæ× affords an illustration of the energy displayed by Orchidists in making use of the material at hand to produce by cross fertilisation new varieties. Originally raised in the nurseries of Messrs. JAS. VEITCH & SON, by crossing C. superbiens (Veitchii) with C. Stonei, its inflorescence of natural size was illustrated in our columns, August 21, 1886, from a plant grown in Baron Schröder's collection. Since that time it has been raised independently by others, and has flowered with Sir TREVOR LAWRENCE, at Burford, and now again with NORMAN C. COOKSON, Esq., whose plant, affording a good idea of the floriferous character of the variety, we now illustrate. It will be seen that the flowers of Cypripedium Morganæ have a curious resemblance to those of the famous C. Stonei platytænium, which appeared among some imported plants of C. Stonei; but the leaves, exhibiting traces of the darker veining of C. superbiens, are very different from the plain green ones of C. Stonei.

THE MINISTER OF AGRICULTURE.—It is as well to remember that the Minister of Agriculture is Minister for Horticulture and for Forestry also. The gardeners and fruit growers may exercise some influence in case of need, either independently or by putting pressure on the Royal Horticultural or Royal Agricultural Societies as the accredited representatives of their several arts. In a recent debate in the House of Commons, we note that Mr. PICTON called attention to the large importations of Apples from foreign countries. The new Minister,



CYPRIPEDIUM SPICERIANUM.



CYPRIPEDIUM MORGANÆ ×

ful to protect

Mr. Chaplin in reply, said:—"I do not, perhaps, attach so much importance to the cultivation of fruit as the hon. gentleman appears to do; undoubtedly all those matters are entitled to and are, in fact, at the present time engaging the careful consideration of the Board of Agriculture. Fruit cultivation is a matter which we are now considering in connection with the question of agricultural education, but let me give one word of caution on this subject. It must be remembered that the cultivation of fruit depends perhaps more upon climate than upon anything else, and there we stand unquestionably, with the exception of some favoured districts, at a disadvantage as compared with many other countries of the world." We are afraid that neither the questioner, nor the Minister fully appreciate the bearings of the case. The weather is not the only thing to be considered, indeed, in some cases, bad weather may be beneficial to the growers by ensuring higher prices.

Linnean Society.—At the meeting held on Thursday, February 20, W. Carruthers, F.R.S., President, in the chair, Messrs. W. Eagle, Clarke, and J. H. Veitch were admitted, and Mr. James Jack elected Fellows of the Society. Mr. G. C. Druce exhibited specimens of Agrostis canina var. scotica, and a small collection of flowering plants, dried after treatment with sulphurous acid and alcohol, and showing a partial preservation of the natural colours of the flowers. Mr. F. P. Pascoe exhibited a series of Coleopterous and Lepidopherous insects, to show the great diversity between insects of the same family. The Right Hon. Sir John Lubbock, Bart., M.P., P.C., then gave an abstract of four memoirs which he had prepared—(1.) On the Fruit and Seed of the Juglandiæ; (2.) On the Shape of the Oak leaf; (3.) On the Leaves of Viburnum; and (4.) On the Presence and Functions of stipules. An interesting discussion followed, in which Mr. J. G. Baker, Mr. John Fraser, Mr. D. Morris, and Professor Marshall Ward took part.

—— An evening meeting will be held on March 6, at 8 P.M., when the following papers will be read:—1. On the production of seed in some varieties of the common Sugar Cane, Saccharum officinarum, by D. Morris, F.L.S. 2. An investigation into the true nature of callus.—Part I. The Vegetable Marrow, and Ballia callitricha, by Spencer Moore, F.L.S.

Dr. Gilbert, who, in connection with Sir John Lawes, has devoted a life-time to the elucidation of the principles on which agriculture is based, is to be honoured, or rather the University of Edinburgh is going to confer honour on itself, by the conference of the degree of Doctor of Laws on the celebrated agricultural chemist of Rothamsted. The Right Hon. H. Chaplin, who has only just put the harness on as Minister of Agriculture, is to receive the same degree.

A Gigantic Orchid.—A paragraph relating to a large plant of some Orchid has lately been "going the rounds" of the press. In relation to it C. Keyser, Esq., Warren House, Great Stanmore, Middlesex, sends us the following letter, which is written by his nephew, Mr. A. Keyser, Resident Magistrate at Selangor:—

"It may interest some of your readers to hear of one of the largest Orchids that has ever been seen in this country. I noticed it on a very high tree (Durian tree), while riding some 14 miles from my house. It formed a complete circle round the tree. The Durian fruit being much valued by the Malays, I was not inclined to purchase the entire tree for the sake of the Orchid, and therefore, perhaps, did not obtain it in as good condition as I otherwise could have done. I ordered the plant to be scraped off and brought to the house. It took fifteen men to move it. The Orchid is now in my garden. It is 7ft. 2in. high, and 13½ft. across. It has seven spikes of flowers, the longest 8ft. 6in. The blossoms are a dark brown, spotted yellow. As it is very seldom that any European visits this part of the State the Orchid does not get as much admiration as it deserves, the Malays thinking my appropriation of it rather an insane proceeding, as the blossoms are not good to eat.—Yours, &c. Arthur Keyser.

"Kwala Kubu, Ulu Selangor, Selangor,
"Straits Settlements, January 5."

It would appear to refer to a species of Grammatophyllum, which agrees better with the description [illegible] Orchid we can think of, but the species necessarily remains doubtful. Will Mr. Keyser kindly dry a specimen of the plant and forward it, so as to enable us to satisfactorily determine the species? The same gentleman mentions a somewhat remarkable proliferous Pine-apple. He describes it as "about 1½ft. long, and from its base stand out at right angles ten perfect Pines of 8 inches each."

The Royal Horticultural Society.—The Society has been of late years, from one cause or another, signally unfortunate in its Assistant-secretaries; we are, of course, not alluding to its honorary officers, but to the paid officials. There seems now a chance that the post and the man will be better suited the one to the other than heretofore. Mr. John Weathers, who has been appointed to the post, has manifested energy and perseverance to a remarkable extent; he has a sound knowledge of practical horticulture and botany, and of their requirements; he is a linguist, and a capable draughtsman. He was formerly at Kew, but lately he has been with Messrs. Sander & Co., of St. Albans, and has been, since the death of Professor Reichenbach, largely concerned in the editing of the *Reichenbachia*.

Malformed Cattleyas.—A correspondent at Beckenham obligingly sends us fine flowers of Cattleya Trianæ, all similarly malformed. In all the ovary and ovules were absolutely wanting, the cavity of the ovary being replaced by a tube prolonged downward from the style, and lined with a purple lining. The three sepals were normal, but in every case the lateral petals were adherent to the column. In some cases the petals bore traces of anthers on their edge. The lip and column were mostly normal, except in size. Our correspondent asks, "Can you account for it in any way?" Well, yes; we can. The appearances are the consequence of a check to growth or arrest of development. Further than that we cannot go. How, why, when the check came is more than we can say. The plants are reported to be quite healthy.

Royal Horticultural Society of Aberdeen.—The prize schedule of this Society has just been issued for the grand floral *fête* of 1890 and spring show of 1891. It is much bulkier than usual, and contains a lot of new matter. The patron is H.R.H. the Prince of Wales. The honorary President the Lord Provost of Aberdeen, and the Chairman of the Acting Directors, Mr. James Murray Gordon, Advocate, Aberdeen. There are four divisions for competition at the *fête*—(1.) Professional gardeners; (2.) Nurserymen and florists; (3.) Amateurs; and (4.) Working men. There are 722 prizes offered at the *fête*, which is fixed for August 21, 22, and 23. The spring show will be in April, 1891, on a date to be afterwards fixed.

The Heather.—Every one knows how common a plant the Ling Calluna vulgaris is in this country in suitable situations from John o' Groats to Penzance. The plant is, however, extremely rare on the North American continent, where it has only been found in a few localities, and then under circumstances which, for the most part, forbid it being considered as wild. "Here and there," says Professor Goodale, in *Garden and Forest*, "it has been found in small amount, but it has had only a precarious hold on the soil, with no assurance that at any place as yet unvisited our botanists will find it well established. . . . We have in such a study of Heather in a New England pasture a capital illustration of the paucity of simple facts at one's command. What we do know is the following:—A common plant, wild in a soil and climate much like our own, refuses under the ordinary conditions of the struggle for existence to make even a pretence of holding its ground when it comes here. What no one knows is the following:—Whether the conditions here of heat and cold, dryness and moisture, insect visitants, competing shrubs and herbs, grazing animals, and the like, are so nearly favourable that, with a trifling change one way or the other, they might serve the plant well, and give it here an open welcome." Dr. Goodale does not tell us if the plant is found to be difficult to cultivate in American botanic gardens or nurseries. [We have grown a patch of it for the last twenty years on the London clay with no peat but with a little road-sand, intermixed. Ed.]

Coprosma Baueriana.—Has any one tried this handsome evergreen shrub by the sea coast in the south-west of England or Ireland? It seems likely that it might succeed in such localities, as it is said, in Kirk's *Forest Flora of New Zealand*, to resist the force of the fiercest gales, and to develop its beautiful foliage in situations where it is often washed by the spray. Variegated forms are known. In this country we have only seen it in conservatories, but it must surely be as hardy as Grislinia littoralis.

The American Florists' Company's Directory.—We have received a copy of this new Directory, which contains a list of florists, nurserymen, and seedsmen of the United States and Canada, classified according to the States. We have no doubt but that it will prove of service to those having trade relations across the Atlantic. The American Florists' Company's address is 54, La Salle Street, Chicago, U.S.A.

Show Fixtures.—We have received a schedule of prizes offered at shows to be held by the Royal Aquarium Co. during this year. The dates are March 12 and 13, April 29 and 30, May 21 and 22, June 27 and 28, July 29 and 30, September 10 and 11, October 15, 16, and 17. There are, in addition, the already announced exhibition of the National Chrysanthemum Society. Mr. W. Holmes, Frampton Park Nurseries, Hackney, is managing the series.

Latent Life in Ferns.—M. Bureau, in the last number of the *Comptes Rendus*, cites an instance of reviviscence (coming to life again) in a Fern, Polypodium incanum. This is not a case simply of absorption of water to such an extent as to restore the form shrivelled by drought, as in the so-called Rose of Jericho, but an actual awakening from a dormant to an active state, such as happens when a seed germinates. The drying and shrivelling of the frond in these cases does not necessarily imply death, for, if vitality be only arrested and not destroyed, the fronds literally come to life again when placed under favourable conditions. The other plants thus known literally to revive, excepting those in which the change of form is due to mere turgescence, are Selaginella lepidophylla, Ceterach officinarum, Asplenium Ruta-muraria, Polypodium vulgare, Cheilanthes odora, Asplenium lanceolatum, Adiantum capillus-veneris. The late Mr. Daniel Hanbury exposed some of these plants to a temperature of 66° C.= 150° F. without injury. No flowering plant has been known to revive in this remarkable manner.

The Good-Luck Lily.—The introduction of this bulb from China has been a distinct boon to amateurs. Its extremely rapid growth is watched with great interest; the foliage alone is vigorous and handsome, and the flowers by no means unattractive. We are so much accustomed to think of Narcissus Tazetta as a South European plant, that its appearance in China has suggested that it was taken to that country, perhaps, by the Portuguese. But the fact that the legends have grown up around the plant, and that it has native Japanese names, go to show that it cannot be of recent introduction; indeed, Savatier, in Franchet et Savatier's work

on the *Flora of Japan*, distinctly states that it is assuredly wild in Japan. Mr. Baker, moreover, has kindly called our attention to a figure in the Japanese work entitled *Mokou Zoussets*. From Japan it might readily pass into China. Dr. Regel, moreover, says a form of N. Tazetta is found wild in Turkestan, so that the distribution of the plant is much wider than is generally known.

Proposed Wildsmith Memorial.—We learn that the Reading Gardeners' Association, of which body the late Mr. Wildsmith was a member, have appointed a special committee for the purpose of promoting the proposed memorial to Mr. Wildsmith. This it is desired to accomplish by placing a child on the Gardeners' Orphan Fund by the subscribers to the memorial. The memorial would thus be of a terminable nature, and the sum required will not exceed £130. W. J. Palmer, Esq., the President of the Gardeners' Association, has consented to act as chairman; Arthur J. Sutton, Esq., to be the Reading treasurer; and H. J. Veitch, Esq., the London treasurer; and Mr. Turton, of Maiden Erleigh Gardens, is the secretary. It is earnestly hoped that there will be a ready response to this appeal by all the gardening friends and admirers of the late Mr. Wildsmith throughout the United Kingdom; and the committee have ventured to suggest that as Mr. Wildsmith had promised his friend Mrs. Hyde that he would aid to the utmost in placing a second child of hers on the Fund (one having been already placed thereon through his instrumentality), they cannot do better than endeavour to carry out his wishes, and they trust that a promise made under such touching circumstances will commend itself as the most fitting form of memorial that can be adopted.

Chiswick Horticultural Society.—The annual summer show has been fixed to take place in the Royal Horticultural Society's Gardens on Thursday, July 10 next.

"**What to Eat, and How to Cook It,**" is the title of a useful little pamphlet published annually in connection with the "Apple-Tree" Vegetarian Restaurants. The copy before us contains many most appetising receipts, while some of the substitutes for the forbidden suet or dripping are very ingenious. We are told that, instead of the former, vegetarians can sop bread-crumbs in butter or oil, or add a "little crushed and soaked Tapioca to the paste used for boiled puddings." Is it prejudice alone which makes us disinclined to change our own tried receipt for a Christmas pudding for one, in which, although the ingredients altogether weigh rather less than 6 lb., is yet to contain 1 lb. of mashed Potatos, or 8 oz. of mashed Carrots? How do vegetarians reconcile the eating of eggs with their resolution to destroy no animal life for food? In spite of all we have said, we can only repeat at the end of this notice the words we said at the beginning—many of the recipes are excellent, and likely to be useful to many besides those for whom they are more especially intended.

National Chrysanthemum Society: Centenary Festival.—His Grace, the Duke of Westminster, has sent a donation of £5 to the Special Prize Fund, and given permission for his name to be announced as a patron of the same. The publication of this fact, and of the circumstance that the committee would place at the disposal of every society affiliated to it a special centenary medal, free of cost, is having the effect of inducing horticultural societies to become allied to the National. Since the last meeting of the Committee, applications to affiliate have been received from the Bacup, Batley, Market Harborough, and Hartlepool societies.

New Garden for H.H. the Gaekwar of Baroda.—We take from the *Times of India* the following particulars of the work in course of execution under the superintendence of Mr. Goldring:—A new palace is in course of construction, and it is the Gaekwar's wish to provide this jewel of architecture with a proper setting, and to this end he has secured the aid of Mr. Goldring, of the Royal Horticultural Society of England, who is now hard at work turning the formerly jungly grounds into what is to be the finest garden in India. There are at the Moti Bagh many groups of fine trees, and Mr. Goldring has been careful to protect every one of these from harm. The approaches to the house are being cleared of all excrescences, such as servants' quarters, and the hundred-and-one offices and shanties which grow up like Mushrooms round Indian houses. The levels are being mostly sloped away from the palace, so as to throw it up and give it greater height. Too straight lines are broken up into undulations, and where trees are wanted they are introduced, full-grown forest trees being boldly transplanted and brought here from a distance.

Outside, Mr. Goldring has thrown up a great bank at one end of the garden, which blocks out a public road, and in another part he is planting out an ugly mass of stable building, which can go nowhere else, but which must be hidden. Nothing seems impossible to Mr. Goldring. Everything comes in useful. A jutting rock becomes the centre point for a cool grotto, where trickling streams drip over Fern covered walls, and find their way through one rocky chamber after another cut into the sunshine. Give him a dry nullah, and, by the end of a week, you will find it changed into a river, whose rocky banks are covered with creepers and waving grasses; and if, attracted by the noise of a waterfall, you go up the stream, you will find the water tumbling over great piled-up boulders, where a few days before there was nothing but a crumbling earthbank. By the end of a few more seasons, Makarpura will be hardy recognisable. The gardens are already so far planned out that one can see their scope. In a very short time the Bagh will look like an English park, and where now there is nothing but bare maidan, there will be fair gardens and fountains, ornamental waters bordered with Palms and Bamboos, lawn and shrubberies. One garden is to be so terraced and sunk, that her Highness the Maharani will be able to walk and rest there unseen by the outer passing world.

Orchids.—The eighth and ninth parts of *Orchids, their Culture and Management*, by Mr. Watson of Kew, assisted by Mr. Bean, have been published. The arrangement is alphabetical, and the work has now advanced as far as Promenæa, and is in course of translation into Russian. Under Pleione, we observe that Mr. Watson who rather prides himself on his empiricism in matters of cultivation, begins by telling his readers that the species have fleshy pseudobulbs, of annual duration and deciduous leaves, that they are natives of the mountains of India, and may be termed distinctly alpine, some of them growing where snow and frost sometimes occur. They are found in great abundance clothing the trunks of trees, and clinging to moist rocks in positions exposed to full sunlight. Surely, here, Mr. Watson has supplied most valuable hints for the cultivator, derived, not from empirical experience, but from the structure and habit of the plants themselves and the conditions under which they grow. The consequence of a disregard of these plain teachings is, as Mr. Watson, says that "many growers fail with them, through giving them tropical treatment and excessive coddling." Growers in possession of the knowledge that Mr. Watson indicates above, must be very empirical indeed, if they adopt such practices, the only excuse for which would be sheer ignorance.

Biographical Index of British and Irish Botanists (*continued from p.* 203):—

"Mathews, Andrew (d. 1841): d. Chachapoyas, Peru, 24th Nov., 1841. A.L.S., 1825. Gardener at Chiswick. Collector in Peru and Chili, 1833—1841: drew many of the plants he collected. Proc. Linn. Soc., i., 173; Lasègue, 255; R. S. C. iv., 282; Comp. Bot. Mag., i., 17, 305; Journ. Bot., 1834, 176; 1842, 392. *Mathewsia* Hook. & Arn.

"Maton, William George (1774—1835): b. Salisbury, 31st Jan., 1774; d. Spring Gardens, London, 30th March, 1835; bur. St. Martin's-in-the-Fields. B.A., Oxon, 1794. M.A., 1797. M.D., 1801. F.R.C.P., 1802. F.L.S., 1794. F.R.S. "Uses of Pinus,' in Lambert's 'Pinus,' pp. 65—82. 'Natural Hist. . . . of Western Counties,' 1797. 'Animals and Plants Round . . . . Salisbury,' in Hoare's 'South Wiltshire,' p. 654. 'Nat. Hist. Wilts' (posth.), 1843. Jacks., 259; R. S. C., iv., 285; Biog. Sketch, by Dr. Paris, 1838; Smith Lett. ii., 121; Munk, iii., 6; Nich. Illust. viii., p. xlv.; Gent. Mag., 1837, i., 173. Monument, Salisbury Cathedral. Bust at Linn. Soc. Portr. at Kew and at Royal Coll. Physicians. *Matonia* Br.

"Matthew, Patrick (fl. 1831). Of Errol, Scotland. 'Naval Timber and Arboriculture,' 1831. Jacks. 207; R. S. C. iv. 294.

"Maund, Benjamin (1790—1863): b. 1790; d. Sandown, I. of Wight, 21st April, 1863. F.L.S., 1827. Druggist and bookseller at Bromsgrove, Warwicksh. Contributed to Phytol. i., 45. 'The Botanist' [with J. S. Henslow], 1837. Proc. Linn. Soc., 1863—64, xxx.; Pritz. 210; Jacks. 579; 'Botanic Garden,' 1825 (original drawings in Bot. Dept., Brit. Mus.).

"[Mawe, Thomas. Gardener to Duke of Leeds. 'Universal Gardener and Botanist,' published in his name, but written by John Abercrombie, 1778. Johns. Gard. Dict. 220, 222.]

"Maxwell, G. (1805?—1880): b. 1805?; d. King George's Sound, 1880. Collector of plants and insects in Australia for thirty years; Gard. Chron. 1880, i. 433. Fl. Austral. i. 14. *Eriostemon Maxwelli* F. v. M.

"Meen, Margaret (fl. 1790). Botanical artist. 'Exotic plants from Royal Gardens at Kew,' 1790.

"Meller, Charles James (1836?—1869): b. 1836; d. Berrima, Sydney, 26th Feb. 1869. M.R.C.S., 1857. F.L.S., 1867. Travelled in Africa with Livingstone, and in Madagascar. Superintendent, Bot. Gardens, Mauritius. Plants at Kew. Journ. Bot. 1869, 212; R. S. C. iv. 330; Proc. Linn. Soc. 1869—70, cii. *Mellera* S. Moore.

Flora of Paraguay.—M. Marc Micheli has published in the memoirs of the "Société de Physique et d'Histoire Naturelle," of Geneva, a further account of the Leguminosæ collected by Balansa in Paraguay, and Dr. Chodat a similar account of the Polygalaceæ. Both memoirs are accompanied with lithographic illustrations.

Camellias at Messrs. C. Lee and Sons' Nurseries.—There are few nurseries now in which a collection of these beautiful hardy, or nearly hardy, evergreen shrubs is grown. They are evidently not a fashionable flower! and yet with proper attention as to management, a regular succession of flowers may be obtained from October until July. Perhaps bud-dropping may be taken into the reckoning to account for this comparative neglect of such a useful decorative subject, the remedies for which evil have been so well placed before readers in these columns recently. At the Isleworth nurseries most of the best of the older varieties, and also the newest, are grown. Amongst the former may be mentioned Mathotiana alba, large flowers, finely imbricated to the centre. Another good, pure white is Lavinia Maggi, a flower of fine form and substance. Leeana superba, flowers salmon red, very fine. Valtevaredo, a bright rose-coloured flower, of fine form; a flower of excellent form is Wilderi, colour soft rose; Reine des Fleurs, colour vermilion-red, striped with white; imbricata, deep carmine, sometimes variegated; fimbriata alba, a variety much in request, and somewhat resembling alba pleno; Reticulata flore-pleno, fine large double flowers, bright rose; Princess Clotilde, a beautifully striped flower. Of new ones, mention may be made of Napoleon III. a beautiful variety; flowers rose, veined with deep rose, and edged with pure white, a flower of good substance,

Foreign Correspondence.

CYPRIPEDIUM CALLOSUM AND ITS WARTS.

I have not understood the notice which appeared in your number for February 15, under heading "Cypripediums from Liverpool," at p. 198. The writer says:—"The bearing warts on the upper side only of the petals of C. callosum make a feature which distinguishes it from C. barbatum." My experience is the exact reverse. I have a very fine form of C. callosum, which attracted the universal admiration of the connoisseurs at the last meeting of the Royal Tuscan Horticultural Society, and which has the large black warts scattered over the whole surface of the sepals, which gives it a very striking appearance. An inferior plant was exhibited at the same time, in which the warts were confined to the upper edge of the sepal.

I have, on the other hand, remarkably fine varieties of C. barbatum—so fine that they have been bought and taken to England by leading orchidists for the purpose of hybridisation. In these the warts are only on the upper side of the petals, and never on the lower. To me the two plants C. callosum and C. barbatum are so entirely different, that I should have thought no especial feature was necessary to distinguish them from one another at a glance; at all events mine are utterly different. *W. J. Ross, Poggio Gherardo 23, Via Settignanese, Firenze.*

Berlin.

At the last meeting of the Horticultural Society, Mr. Choné exhibited a dozen of Amaryllis and also of Freesia refracta alba. The Amaryllis were of a remarkable culture. Flowers, as many as five upon one scape, very large, of fine colour. Most of the bulbs two-scaped. Leaves very healthy and strong. As to the cultivation, the exhibitor remarked that the bulbs are cultivated in pots and kept dry until the flower-scape appears, and has reached a length of about 2 inches in a hothouse, where the Lilies of the Valley (Convallaria majalis) are placed. Here the leaves, as well as the flowers, are very well developed. It is curious to see how low the price is for really first-class flowers, viz., 50 pfennige a flower sixpence!).

Another curious fact is, that it is very difficult for Berlin gardeners to bring novelties into the market. As an illustration, take the Freesia. A nurseryman last year cultivated some thousands of them, but as he could not find buyers for them, he gave up the cultivation. The exhibitor in the horticultural society said the same thing. He could not advise the cultivation of the plant, though it gives no trouble, and the single flowers, as well as the whole inflorescences, might be used with much effect in arrangements.

Of great interest was the debate on the question, How may peat moss litter be used in gardening? The price of straw is so high here that many stable-keepers make use of turf, or better, peat, instead of straw. It is much cheaper, and gives some other advantages, as the horses remain always clean, the stable odour vanishes, &c. This peat-moss cannot be used for hot-beds, as it gives a very high warmth, which is soon dissipated; but it is most useful as manure, as it soon condenses the ammonia. Both in pot culture, where it is mixed with the same quantity of earth, as well as in the open air, it is of the highest value. It was especially recommended for Asparagus culture—one year peat, the next kainit. It was also recommended for heavy soils, as it makes them looser. For sandy soils, opinions differed. Some of the members said that it dries the soil; others said the contrary. It was also remarked that from the peat the sandy soil receives organic substances.

Another question discussed was the question, How the Asparagus beetle may be expelled from the Asparagus plantations? These plantations, which occupy a large area in the neighbourhood of Berlin, suffer very much from that insect. The best remedies are, to put Willow twigs smeared with a viscous fatty material upon the beds, about 6 feet apart, in April and May, when the insect flies, and to cut every shoot of Asparagus during that time which appears; secondly, to burn all the Asparagus plants in autumn. The flying insects are caught by the viscous Willows in enormous quantities, so that it is often necessary to replace them. The remaining insects find no plant upon which they can lay their eggs. *Our Berlin Correspondent.*

Nursery Notes.

MESSRS. F. SANDER & CO., ST. ALBANS.

The early part of the month of February is not the best time of year for seeing flowering Orchids, though in large collections objects of interest may be found even at that dullest season. Accordingly, the other morning found me *en route* for the now famous St. Albans nurseries, where may be seen the largest collection in existence of these plants. In looking through the different houses one can hardly help wondering where the plants all go to. But they do go, and this alone affords some idea of the extent and importance of the industry of Orchid importing and growing. The plants, for the most part, are in robust health, with fine plump pseudo-bulbs, and dark green leaves, which tell their own tale; and there can be little doubt that the clear air and absence of fog are valuable aids to the high cultivation carried on there. It was a somewhat novel sight to see Odontoglossums planted out in beds and thriving under the treatment—pseudo-bulbs and foliage leaving nothing to be desired. Many plants were in flower of the charming little O. mevium, O. gloriosum, O. Sanderianum, and various forms of O. sceptrum, or some very closely allied species. O. Harryanum was also observed, and a very pretty little natural hybrid which seemed to be intermediate between O. Sanderianum and O. odoratum, or some close ally, but which did not appear to have any special name. Plants of many other well-known kinds were also out, and there was ample evidence that in a few weeks' time there will be a magnificent display of bloom.

Cattleya amethystoglossa is a valuable winter flowerer, and there were many plants of the species in fine condition, and bore large trusses of flowers, the light rosy-spotted segments of which formed a charming contrast to the bright amethyst-coloured lip. Oncidium splendidum was observed in quantity and in fine condition. Close by was one of the finest Lycaste Barringtoniæ grandiflora or L. costata that I ever remember to have seen. The plant had thrown up a dense mass of ivory-white flowers of large size, the lip beautifully fimbriated. Several plants of the pleasing L. Skinneri alba were also in flower. Many large specimens of Cœlogyne cristata and of the beautiful varjety Lemoniana were complete masses of bloom, while equally floriferous was a somewhat intermediate variety with very straggling growth—or, perhaps, it would be better described as a form with much elongated rhizomes and distant pseudobulbs, for the term straggling, as generally understood, could not well be applied to the plant. In size and colour it partakes much of the character of the variety Lemoniana, but at the base of the lip is a deep yellow spot, just as in the typical form. It appears to be a constant and well-marked variety, for there were several large plants, and each had precisely the same character. In one of the houses was a healthy batch of plants of the pretty little Phaius Humblotii, just throwing up their flower-spikes. It is often reported to be a somewhat miffy grower, although there was little evidence of this in the plants observed. Several hybrid Cypripediums were in flower, of which C. × Godseffianum and one named C. × Harrisianum picturatum were worthy of note. The former is a very handsome little plant, whose descent from C. hirsutissimum and Boxallii could not be more plainly written on its face; while the latter is a highly curious variety, in which the markings are arranged in longitudinal streaks and splashes. It did not strike me as being much of an improvement, although it might possibly lead to something finer if it were taken in hand.

Several fine plants of Dendrobium Wardianum were flowering most profusely, and among numerous plants of the welcome D. nobile was a very fine form of the singular variety D. n. Cooksonianum, in which the two petals are more or less metamorphosed into lips. The above are some of the notes taken during a somewhat hurried visit, but the place is one to be seen rather than written about, so extensive is it. The seedling Orchids are a very interesting department of this nursery, and amongst them are many crosses of great promise, which will probably be heard of in the near future; but this department, however, interesting as it is, must be left over for a future visit. *X.*

Primulas at Woodside.

Mr. James, whose name once more appears on the list of the Floral Committee of the Royal Horticultural Society, has not been a prominent exhibitor at the meetings of late, but away in the elevated corner of Bucks on Farnham Royal Common, and near the famous Burnham Beeches, he has erected some 500 feet of capital 12-feet span roof-houses, and there, in a delightful atmosphere, pure and sweet, he cultivates his favourite old florists' flowers—Primulas, Cinerarias, Cyclamens, and Calceolarias, to a large extent. Primulas, to the extent of some 1200 fine plants, are in bloom now; Cinerarias, to the number of 2700, will make a beautiful show some two months hence; and Calceolarias, looking this year wonderfully well, a month later. Cyclamens will be in full bloom a month hence, as these are not pushed on early. Of Chinese Primroses, the whites the Farnham is very fine indeed. There are three specially striking kinds: White Perfection, one of the Swanley strain, on dark fern foliage; Purity, a beautiful white on semi-coloured leafage; and Snowflake, one of the latest certificated at South Kensington, on light green foliage; all these have flowers of the purest white. The old market white, still largely grown, is very floriferous, but lacks size and purity, as compared with the blooms found in later strains. As evidence of the progress being made in development of size in bloom, was a seedling in dark fern leafage, the flowers pure white in colour, which, whilst very stout, were of great size—indeed, finer I have never seen. The plant will probably develop a progeny of giants, and it has been named Woodside Giant; while very pretty indeed at Woodside is the Blue Primula. Seen in the bright sunlight, it has the hue of the Plumbago capensis, and shows that we are much nearer to blue in the Primula than is usually admitted to be the case; we always need bright, light to show the full beauty of some colours in flowers, and blues especially suffer in dull light. A batch of seedlings from one cross shows several shades of rose, and carmine on light and dark foliage, both of thick form and Fern-leaved; when the fertilisation is restricted to sort, the product is almost always very true to character; crosses, however, produce new forms, and exceedingly interesting is it to watch these opening. Carmines of the old style, fade or turn both in damp air and in bright sunshine, but newer carmines not only show more body of colour, but retain their colours without blemish to the last. That is specially the case with Woodside Rose, a rich carmine form; Ruby King, a deep magenta-hued form of flower borne in clusters on small foliage, seems almost to belong to a diverse family from that of the ordinary Chinese Primrose, and yet it is very beautiful. Very rich are the blood-red selections from the Chiswick red strain. These seem to need only enlarged size to render them perfect, more brilliant self colours it seems impossible to obtain. Specially deep coloured is the Double Crimson, really a semi-double form, wonderfully free and striking, and beautiful is its pure white semi-double compeer. Both these give first-class flowers for bouquet making in the winter, and comes perfectly true from seed. A very fine white-edged variety of the singles

is Mary James, the ground colour being of a reddish lilac. Primulas at Woodside grow very robust and compact habited, the product of plenty of light and air. The Cinerarias later will make a very fine show. More than three-fourths are seedlings, but still coming true to character from seed, ample evidence that in seed production the greatest care is exercised to secure trueness to colour. *A. D.*

THE GIANT SNOWDROPS.

One of the minor miseries of my life is having to live in a garden containing thirty distinct kinds of Snowdrops, and not being able to boast of possessing Galanthus Fosteri, the "giantest," and, so far, the most to be desired of them all. Still, I live in hopes, since we are told that "all things come to those who know how to wait."

Herewith I send specimens, flowers and leaf, of the following kinds:—The Shaylock variety of G. Nivalis, with two green leaves on the flower-stalk (fig. 43), G. Elwesi, B, in fig. 41, the real original stock from Smyrna, and one of the Snowdrops to grow and admire. Its slight constitutional delicacy is its only drawback, but as seen at its best, it is a big and noble thing.

G. Imperati (fig. 42, p. 269), from Straffan, co. Kildare, is another noble variety, and the tradition is that roots of it were originally brought to Ireland by Lord Clarina on his return from the Crimea in 1856. It would be interesting to hear the breadth of distribution as enjoyed by G. Imperati, as it seems most generally imported from Naples, although under the name of G. umbricus, a form of G. Imperati has recently come to us from the Umbrian Mountains in Central Italy.

One of the handsomest of all our Snowdrops is G. plicatus elegans, a seedling raised at Shepton Mallett, and presented to us by Mr. Jas. Allen, who is the best English authority on these delightful flowers of the autumn and the spring. I mention the autumnal kinds, as they are less well known. They are:—G. octobriensis, G. Olgæ, G. Rachelæ, G. Elsæ, and one or two others, all of which bloom from October to December. But to return to G. plicatus elegans, it is a real beauty, and very distinct from the typical Crimean Snowdrop, in its deep green markings extending to the full length of its inner perianth divisions.

One of the rarest of all the spring Snowdrops is G. lutescens, but it is good news to hear that Mr. Boyd, another lover of these flowers, has found a finer yellow kind, which has a better "constitution," and is to be called G. flavescens, I believe. Then another friend writes that he is on the track of a pink or rose-flushed form of G. nivalis, and I hope some day to see its bloom, for a rosy Snowdrop will be a novelty, even if not more beautiful than the white type. It will be an analogue of the rosy Lily of the Valley. In conclusion, I hope all the readers of these few notes who have distinct Snowdrops in their collections, whether native variations or garden seedlings, will be so good as to tell us of them, since there are now a good many of us deeply and seriously interested in these pearls of the opening year. *F. W. Burbidge.*

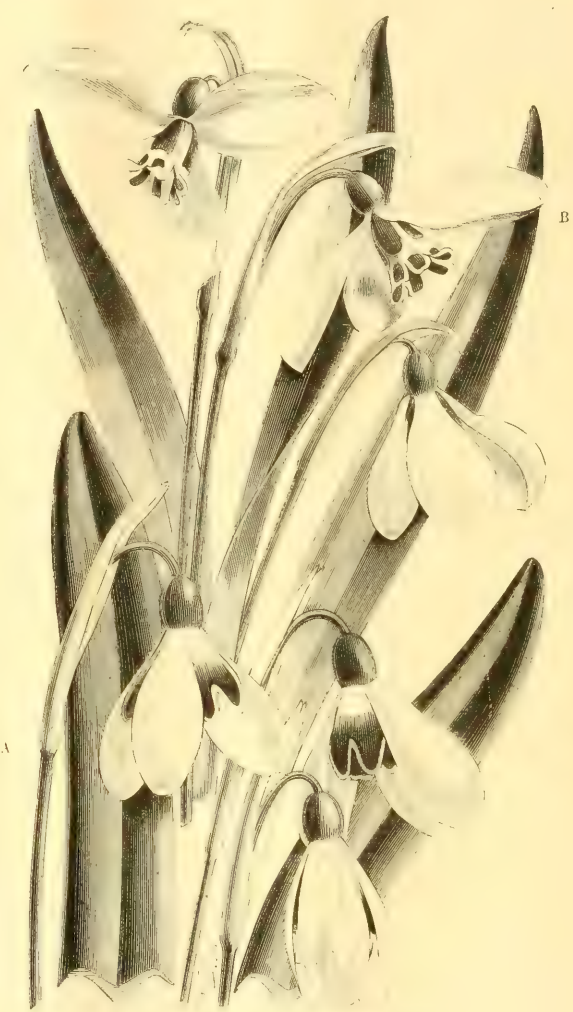


Fig. 41.—A, galanthus plicatus; B, G. elwesii.

THE GREAT FERN-HOUSE IN THE BOTANIC GARDEN AT BRUSSELS.

This great building is composed of two sections in the shape of a T, the two portions having been built at different times. The part first built is more than 85 feet long, by 44 feet wide, and 31 feet in height; the other portion measures nearly 79 feet long, 33 feet wide, 43 feet high, the entire surface being more than 6000 square feet.

This glass palace is warmed by two tubular boilers, one of which is only to be used in case of any accident happening to the first. Six stout pipes (about 5½ inches) are carried round the building to the place where a fourfold battery of pipes is arranged where the two sections of the house meet. More than this, to avoid the inconvenience caused by too great condensation, a double row of pipes has been placed in the upper part of the house about 30 feet from the ground. The number of pipes is more than sufficient; it is never necessary to overheat, and overdryness of the atmosphere is thus avoided.

The shading of the Fern-house is a most important point. It is managed by an arrangement of movable wooden blinds. Ventilation is also especially studied; even in winter the air can be renewed through apertures made in the walls behind the pipes; this air is warmed by contact with them, before it reaches the plants. Combined with the dampness produced by constant waterings, the atmosphere is such that the health and growth of the plants are good.

Although the Ferns from Brazil contributed chiefly by M. Binot, form the nucleus of this splendid collection, it contains also many others, some from Mexico, and some from Australia. We will specify a few.

Cyathea medullaris, from New Zealand, is certainly one of the handsomest of Tree Ferns known. The Botanic Garden possesses several specimens, measuring from nearly 30 to 33 feet in height. Until it has attained a certain age, this species only puts forth one frond at a time; but when it is fully grown, the fronds are arranged in crowns. The effect produced is exceedingly imposing, and the blackness of the leaf-stalks is most handsome against the green background of fronds.

Specially noteworthy is Cyathea princeps from Mexico, several specimens of which measure about 30 feet in height; also Cyathea Schanschin (*sic*), a rarer species about 12 feet high; the trunk of this latter still bears very visible traces of the scars made occasionally by the fall of the fronds, the arrangement of which reminds one of the marks on the skin of a boa-constrictor.

These gigantic Ferns standing up near the entrance of the house, and forming a canopy of verdure,

make a great impression on the visitor, which is increased by the sight of the majestic Palms.

A fine specimen of Anthurium ellipticum, noticeable on account of its good foliage, towers above an ornamental support of cork; growing in a pot the roots were constricted, and have spread all about, perforating the cork on all sides, and looking like ropes ready to moor in the flotilla of gigantic leaves, some of which measure more than 4 feet. Looking round, it is at once seen that these roots, which support the plant so well must seek nourishment, which appears to consist chiefly of manured sphagnum moss. A very effective group is composed of a sturdy specimen of Monstera deliciosa, bearing flowers and fruit. It is known that when fertilised, the spadix of Monstera gives out heat; the fruits have the scent of Melon or Pine, and are edible. The clump measures nearly 15 feet in diameter at the base, and is nearly 17 feet high. It is quite a labyrinth of leaves of diverse shapes, much cut and perforated; and the adventitious roots, which spring from the branches, are matted and twisted about in all directions.

Near this group is an Alsophila hirta. The base of the rachis of this Fern is very spiny, and the fronds are of more than usual size. One of the most remarkable plants in this rich collection is the Cibotium regale, from Mexico, introduced in 1863, by Ghiesbreght. The down which covers the base of the rachis is reddish-gold; in the sunlight it shines brightly, and gives the Fern a charming and distinguished appearance.

This down is used in surgery to stop bleeding from wounds. A neighbouring species, Cibotium Schiedei, has a small trunk, but is one of the most graceful, light, and elegant of species. A superb variety is Alsophila elegans. The magnificent crown of fronds, with more or less dentate and undulate pinnules of a shining green colour, forms an immense parasol. The trunk is well proportioned, equally graduated, and forms an elegant support to the splendid crown which surmounts it. Alsophila elegans is a rare species, of which there are very few specimens in cultivation.

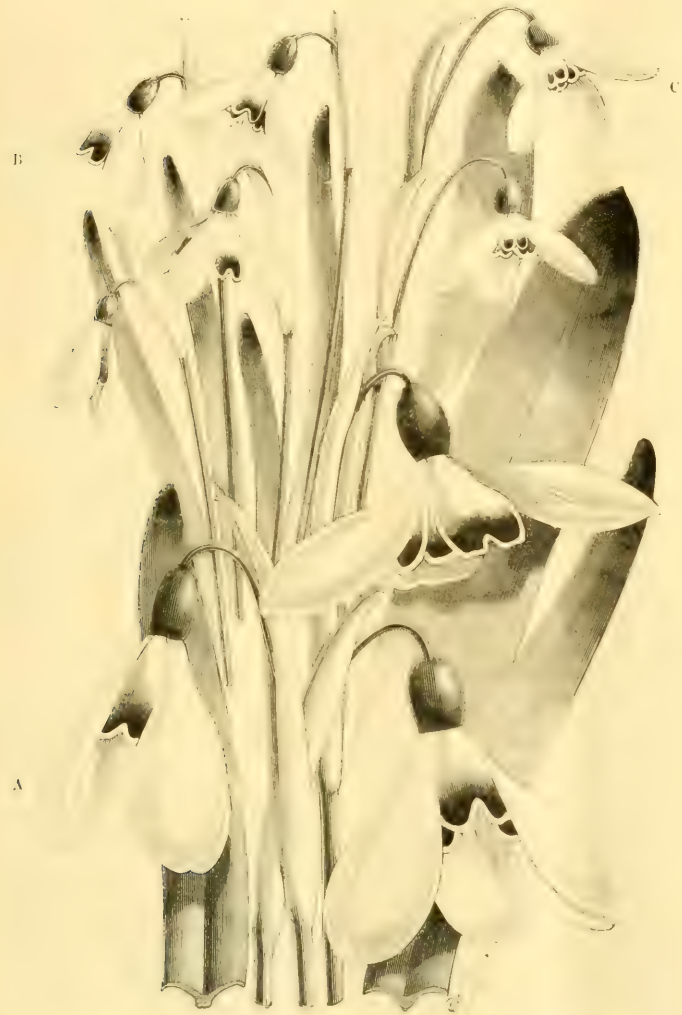


Fig. 42.—A, galanthus imperati; B, G. nivalis; C, G. latifolius. (see p. 268.)

On the right hand side of the house is a rockery, which also contains many varieties, an Areca sapida rising from a clump of striped and spotted-leaved Begonias is very effective. Close by, over an arrangement of virgin cork, climbs a Margravia with small foliage, the adult leaves are green, and the young leaves red; it is similar in habit to Ficus repens and to macrophylla. The base of this is ornamented with Ferns, Begonias, Lycopods, and even Orchids. We noticed one Begonia, named after the Director of the Botanic Garden, M. Fr. Crépin. A collection, unique on account of the number and size of the specimens, is that of the Angiopteris and Marattia, which form an imposing group. Specially noticeable is a Marattia Moorei, with black petioles, and much cut leaves; in general effect the plant is most distinctive.

The Marattia sorbifolia is one of the largest known species; another very fine species is Marattia Verschaffelti. The most remarkable Angiopteris in this collection are pruinosa, hypoleuca, erecta, macrophylla, Willincki, and the finest of all, A. Teysmanniana, with twenty to twenty-five leaves, covering a surface more than 300 feet square. Microlepia platyphylla, with glaucous leaves, about 6 to 9 feet long, is a remarkable species, which attracts much attention. The very rare Dicksonia chrysotricha, from Java, of which perhaps there are only three specimens in the country, is represented by a fine example of medium size, and with abundant leaves. Although reminding us at first sight of D. squarrosa, it differs from that species by the very dense reddish-brown down, and by the larger and less rigid fronds.

Passing to the recently constructed portion, we admire an Alsophila armata, which has a double very slender trunk nearly 40 feet high, supporting immense crowns. What a contrast to the Dicksonia antarctica of New Zealand, and D. Sellowiana of Brazil, the trunks of which form massive and thick columns. We also notice Cyathea Gardneri, a native of Brazil; C. dealbata, from New Zealand, with silvery fronds; the rare C. Sternbergiana, the leaf-stems of which are more than 22 feet high; Cyathea princeps and medullaris, Balantiums, and particularly an Hemitelia setosa, the base of whose leaves is ornamental, with filaments resembling somewhat certain Hymenophyllum.

Among other plants which contribute to the ornamentation of this glasshouse, I must notice Kentia Forsteriana and K. Belmoreana of large size; Livistona australis, and many tall Aroids. The Bamboos are of great size, and have grown up since 1880 to the top of the house: the development of the young shoots of these Gramineæ has been so rapid that it could almost be seen with the naked eye. Pandanus furcatus and Philodendron macrophyllum form, with Anthurium cucullatum, Musa, and Heliconia, a worthy finish to this collection, which is one of the greatest features of the Botanic Garden of Brussels. In addition to the Tree Ferns, there is a fine collection of herbaceous species arranged along the rock-work borders of the house. We have mentioned that a damp atmosphere is indispensable in Fern-houses; but it is remarkable that many species of Ferns do not bear syringing, which injures the foliage, which becomes covered with spots, spoiling the fronds, and ultimately destroying them. In any case it is advisable, especially during the growing season, to moisten the trunks from time to time, especially those forming radical fibres. Thanks to these precautions, and to the care bestowed upon them, it is not rare in the Botanic Garden to see Fern fronds which have lasted two or even three years. We must close this note by expressing our thanks to the capable and talented Curator, M. L. Lubbers, to whom the plants under his care owe their healthy and well-arranged appearance.

Notes on Belgian Horticulture.

When Araucaria excelsa is propagated in a green-

house, all know that thrips cause great havoc among the young plants, and that it is difficult, when one of these is attacked, to save those which are near it. In order to prevent the spread of the mischief which these insects do, and at the same time to ensure the cuttings striking, one of the principal nurserymen of Ghent places the cuttings under a bell-glass, so that each one is completely isolated. If thrips attack subjects found under a bell-glass with others, the evil can be localised. We have seen a house containing many thousands of bell-glasses sheltering cuttings which had struck. When the cuttings are taken into a house, it is necessary to admit air frequently, so as to avoid the ravages of thrips which develop rapidly in a close atmosphere. The use of hand-glasses prevents this inconvenience and saves much trouble.

In the same establishment we saw thousands of seeds of Araucaria excelsa and Areca sapida germinating very satisfactorily. This is perhaps the first time that seedlings of this species have been so successfully raised on the Continent.

I must draw the attention of those interested in the subject to the vast and remarkable glasshouses recently constructed at Ledeberg, near Ghent, and devoted to the culture of Araucaria excelsa.

In the same establishment there is now being built a shelter for the Araucarias in summer. This is formed by iron arches, the bases of which are about 15 feet apart, fixed on stones sunk in the earth. These arches are sustained on each side, and a third of the way up from the ground by oblique bars of iron, the bases of which define the limits of the centre path. All the arches are tied one to another at the upper part by long iron rods. This light and elegant building will be covered with little wooden lath blinds made of deal, and very cheap. This shelter will be about 500 feet long. Next season, when it is filled with Araucarias, it will be quite one of the horticultural curiosities of Ghent.

An important question to be considered by nurserymen who have to combat against the ravages of insects, is that of fumigating with tobacco-smoke. Many systems have been devised and recommended; all are inconvenient when the fumigator has to be lighted in the greenhouse. When this is done, usually the plants placed in the immediate vicinity of the recipient of the smoke suffer much. MM. De Smet Frères remedy this inconvenience by placing the fumigating apparatus outside, and introducing the smoke through the lights by means of a pipe passing through an opening made in a square of zinc, which is inserted instead of one of the squares of glass. The opening usually remains closed. This is simple and practical, and overcomes a serious difficulty.

On the occasion of the Paris Exhibition, his Majesty King Leopold promoted one of our leading nurserymen, M. Alex. Dallière, to the rank of an officer of his Order. On the same occasion the French Government nominated the famous Orchid grower, M. A. A. Peeters, of Brussels, a Chevalier of the Legion of Honour.

Patriotism, so rooted in the Belgian people, has shown itself lately among our nurserymen in a different way from that in which it is usually displayed by the horticultural societies. In addition to the "Chambre Syndicale des Horticulteurs Belges," which played a prominent part in the important question of the Phylloxera Convention of Berne, we have had for some time in the capital, the "Chambre du Commerce Horticole Bruxellois." Some little time ago the nurserymen and gardeners of Antwerp held a meeting for the protection of their local interests. The number of nurserymen has considerably increased lately in the commercial metropolis of Belgium. M. Ch. van Geert, jun., was elected, by unanimous consent, President of the Antwerp Syndical Chamber.

Our horticultural literature has been enriched by a valuable little work, *Les Orchidées, leur structure, leur histoire, et leur culture*, by Lewis Castle. The translation into French has been done by M. O. de Meulenaère, Secretary to the Belgian "Orchidophiles." There is no doubt but that these useful pages will have with us as much success as attended their appearance in England.

The oldest iron house on the Continent—it has been built more than half a century—was constructed for M. Jean van Geert, and has for some time past been in great disrepair. At last it has been taken down. It was in the establishment of the son-in-law of the founder of the nursery in the outskirts of Brussels, at Ghent, M. Ed. Pynaert van Geert, who has replaced it by a magnificent glass-house of great size. Yet one more historical relic gone.

M. A. Gravis, Professor of Botany at the University of Liège, has just published in the *Annals of the Belgian Microscopical Society*, an interesting work on the anatomy and physiology of the conducting tissues in vascular plants. This paper forms a pamphlet of thirty pages, and has two lithographic plates. It is well worth the attention of botanists. *Ch. D. B.*

HOME CORRESPONDENCE.

THE HALL FOR HORTICULTURE.—That this can be anything but a trading concern in a sense is impossible, if it is to be expected to pay working expenses, and refund the guarantors. Surely, there will be basements that can be let for storing and warehousing; offices where merchants and traders in horticultural things may have rooms; a restaurant, under the control—if not a license held, by the directors; permanent chambers for the various horticultural clubs, meetings, &c.; a central office always open, and under the joint control of the directors and the Royal Horticultural Society—a kind of Horticultural Mark Lane, in fact, where country people and brokers may meet; auction sales, such as Stevens' and Protheroe's be held; and from whence, in short, British horticulture will be in touch with all the horticultural world. Baron Schröder touched the right key when he ridiculed the idea of the Royal Horticultural Society being kennelled much longer in the Drill Hall. Meetings and shows that would interest all the world should be so centrally held that all the world can get at them, without going into such remote out-of-the-way places. What an inducement to the city man when he finds his business calls him into or near the Strand or Fleet Street, the proximity of the Hall for Horticulture and its fixed meetings, lectures, shows, auctions, and other organisations, would be! And what a splendid chance there would be of establishing an Horticultural Institute with its evening classes and lectures open to and within reach of every young gardener or student, be he from North, South, East, or West! There are two facts to keep sight of in fixing on the best site for the Hall. If on or near the Embankment, there will be scope for the laying out of grounds and for the more extensive ramification of the structure. If nearer to Covent Garden—say north side of the Strand, or adjoining the Law Courts (if ground can be had)—the commercial element would be much more benefited. Depend on it, it is well worth while attracting the commercial section of horticulture. It is strictly a commercial question, the supporting and promoting of the Hall for Horticulture. Not a merchant or trader in business but will look at it in that aspect. How will it benefit business? How will it cause more money to be spent over horticulture? That is the plain way of putting it. Commercially speaking, such an establishment for the interests of horticulture ought to be an assured success. Baron Schröder is too sound a man of business to forget that it is "money makes the mare to go;" and those gentlemen who are with the Baron—strictly men of business, will also make it their duty to feel their way commercially in the matter. Horticulture is a practical business, and if it can carry sentiment along with it, all the better for all parties interested. *R. Beale.*

ARDISIA CRENULATA.—Grown and berried as plants of this are at Orwell Park, Suffolk, nothing could be more useful, especially for table decorations, these being all aglow with colour, and show up in most pleasing contrast with the white cloth and the accessories on it. The plants referred to are of heights ranging from 6 inches to 1½ foot. On inquiring of Mr. Wallis how he managed to have them so good, I was told that he raised them from seed—seeds being sown every year—and these are saved from the best fruited plants only, and doubtless this practice of selection has helped to improve the strain; but if he will tell the readers of the *Gardeners' Chronicle* more about them, and let the Editor see one of his plants, he will assist many who may have failed in growing and fruiting Ardisias. *J. Sheppard.*

LAMINGTON AND ITS LATE LORD.—I do not think I was ever more impressed with an example of well-directed human intelligence overcoming the several disadvantages presented by climate and a barren and sterile soil, than in visiting Lamington, in Lanarkshire, a few years ago. The history of the creation of this place, for it may be called so, related by the late lamented peer, and the story of its gradual regeneration, may not be without interest to owners and others connected with the work of reclaiming uncultivated land and the improvement of estates. Upwards of half a century since the late lord, then Mr. Baillie Cochrane, on succeeding to the Lanarkshire property, made his way with some difficulty to the village of Lamington. The tracks-ways for roads, in the sense we understand them, hardly existed; he found a rude lodge, tenanted by the keeper, on the spot now occupied by the house; some scattered hovels formed the village; their occupants were a wild, half-savage community, whose curiosity was greatly excited as they gathered about the carriage, examining with wondering eyes the vehicle and its equipments, and marvelling as they passed their hands over its smooth panels, at its finished workmanship. The country around was a wide expanse of Heather-covered hill, unrelieved by trees; its rugged, bare, and desolate aspect was enough to discourage any but one of a very hopeful nature. The work of improvement was commenced, and year by year it advanced, not with great or extravagant expenditure, but by a judicious investment of capital devoted to drainage, the erection of cottages, and additions to the residence; and what seemed at first hopeless became more and more possible under the force of resolution, and bent to the work; with additions to the house, the garden boundary was amplified, bright lawns replaced the dark lurid Heather; shrubs and flowers were introduced, and sheltering plantations of pine and Fir sprang up along the hill sides—but the village became the feature of the estate, once so forlorn and comfortless. Immediately adjoining the pleasure ground, it seemed a continuation of the house garden from its floral character; it was in itself a garden, each cottage a picture of neatness and comfort, covered with gay creepers, and with abundant ground around it carefully tended, and the people, well clad and healthy, looked removed by centuries from their rude forefathers of the proprietor's early experience. A village church and parsonage added to the ideal picture, and a chapel and manse gave all the people opportunities of worship according to conscience. If, as has been said, that the man who makes two blades of grass grow where only one grew before, is deserving well of his country, the man in whose power it lay, and whose benevolent energy was directed to an improvement that exemplified possibilities of a better state of things in a neglected district, who brightened the lives of hundreds, who brought wholesome literature to their doors, and gave examples of taste, and brought to their view the riches of horticulture, is surely deserving the respect and gratitude of posterity. *W. I.*

TREES AND SHRUBS SUITABLE FOR PLANTING ON CHALKY SOILS.—The following list of trees and shrubs will be found suitable for planting on chalky soil: Berberis aquifolia, Buddlea globosa, Buxus in variety, Cerasus Laurocerasus caucasica, C. L. rotundifolia, Cornus in variety, Coronilla Emerus, Cotoneaster Simonsii, Cratægus in variety, Daphne pontica, Fagus sylvatica, F. purpurea, and all other varieties; Hibiscus syriacus and Hypericums, Hollies, Leycesteria formosa, Privets, Philadelphus coronarius and other varieties; Pinus austriaca, P. nobilis, Populus in variety, Prunus Pissardi, Pyrus aria, Ribes, Sambucus nigra, S. racemosa, S. variegata, Symphoricarpus racemosus, Taxus baccata, T. baccata aurea, and other varieties; Viburnum opulus flore pleno, Vincas, and Veronica Traversii. The above mentioned varieties are planted here where the subsoil is pure chalk, and are all doing

well. Before planting, the ground was thoroughly trenched, and at the time of planting some peat-moss manure was mixed in with the soil. The varieties which make the strongest growths are the Buddleas, Leycesterias, Ligustrums, Ribes, Sambucus, and Veronica Traversii; small plants of the last named that were planted four years ago, now measure 4 feet through. *R. Edwards, The Gardens, Beechy Lees, Otford, Sevenoaks.*

EUCHARIS AMAZONICA.—The plant figured in your issue for February 15 last, shows a plant in a high state of cultivation. I would make mention of another which is deserving of notice. It is to be found at Smeaton, Haddingtonshire, Sir T. B. Hepburn's residence. This plant has, however, only thirty-three spikes, but it is fully 5 feet in diameter. It flowered during October last, but not so well as at present. *D. F.*

TRAINED SPECIMEN CHRYSANTHEMUMS.—The glorious "mum," that indispensable and justly popular flower that enlivens the close of the year, seems to arouse rancorous feelings in the breasts of some —they tell us that we are driving too much at "big 'uns," that the show boards will have to be made larger, and disqualifications have taken place through using blooms—well, perhaps distinct without a difference. Judges, who are, or have been, extensive exhibitors, and who are supposed to know all about "mums," are getting railed at, and your correspondent, Mr. Jenkins, p. 699, vol. vi., objected to both grower and judges of trained specimens at the Kingston show. I had not the opportunity of seeing these plants, but I have seen good ones there, those which Messrs. King, Beckett, &c., turned out some few years ago. Specimen Chrysanthemums form an attractive feature to many shows, and I am pleased to think the Kingston judges were more liberally inclined than Mr. Jenkins would seem to appreciate in awarding the first prize; probably next season there will be greater competition, which the withholding of prizes would not encourage. Magistrates are wont to tell dissatisfied litigants that they sit to administer the law as they find it, and not to make it. Judges at flower shows adjudicate on what is placed before them, and do not attempt to define what the exhibits ought or ought not to be. A specimen "mum," well handled, with flowers erect, like soldiers at drill, is a plant to be admired. It is not much trouble to the grower of such varieties as "Fair Maid of Guernsey" and "Peter the Great" to attain to that degree of excellence. If Mr. Jenkins can tell us how to make the blooms of heavy incurved varieties stand erect, and properly face the audience, without staking, he will oblige. *A South-eastern Flat Trainer.*

PRIMULA AMŒNA.—I saw Mr. Wolley Dod's note concerning this Primula, which I do not think is lost to English cultivators, for I believe my father has in his possession some six or eight plants of it. It is about three years ago since I saw them, and they were then in bloom. I took particular notice of them, as I thought they were much like P. cortusoides v. amœna, but I found flowers of the latter were of a deep rose, whilst those of the former are of an intense purple. When the plants are in bloom I will forward you a few of the flowers. *C. H. Snook.*

PLANTING PERENNIALS.—I quite agree with "Mr. J. Paddock," see p. 759, vol. vi., that "borders" for perennials cannot in all cases be dispensed with, yet there are instances where these hardy perennials may be disposed to far greater advantage than now. And the one object I had in my note at p. 685 in dismissing the idea of the border altogether, was if possible to create a desire for change from the too frequent monotony of herbaceous borders, to the more effective grouping of them, and to bring them if possible within the limits of the flower garden proper. Why should not hardy perennials figure more conspicuously in a series of bold beds on the lawn than they do? Surely there is abundant material, decorative, free flowering, and valuable beyond doubt to admit of this being done; or why cannot a piece of ground in a good position be set aside for these plants in those establishments where they are cared for, on an equal footing with the summer bedding arrangements or the rosery? I know of some few places where this style of gardening has been carried out with excellent results, and it is always satisfying, and strangers who have never before seen its adoption invariably seemed surprised at the results. In this, however, as in all else, we must adapt ourselves and our tastes to surrounding circumstances. At the same time, I plead that hardy herbaceous perennials are of sufficient importance in the majority to justify their use in the most select parts of the garden, instead of almost solely in the kitchen garden, as we are wont to see them. Borders must and will always exist of these plants undoubtedly, and I am pleased to see Mr. Paddock is so interested in these plants, also that his border is not one of those continuous straight ones, and the grouping carried out as described by your correspondent cannot fail to produce good results; it is infinitely more satisfactory than dotting with single plants throughout. If your correspondent would give the position of the border, which is described as 30 yards long and 10 yards wide, also the trees which shade it, I may be able to give him a selection of plants to suit his purpose, as he says he is "at a loss how to arrange the rest of the border," which seems to offer facilities for some effective grouping, unless the roots of the overhanging trees prevent this. At any rate, I shall have pleasure in rendering what assistance is in my power. *J.*



Fig. 43.—Galanthus nivalis, Shaylock's variety, with spathe represented by two leaves. (See p. 268.)

COLCHICUM PROCURRENS, *Baker.*—In reference to this new species, published in your last issue, it is but right to state that it was first introduced by Mr. T. S. Ware, of Hale Farm Nurseries, Tottenham, where I saw it in flower two years ago. It was received by that firm under the name of Merendera sobolifera, but at the time I saw it in flower it was simply labeled Colchicum sp. *D.*

Societies.

EDINBURGH BOTANICAL.

February 13.—The Society met this evening in 5, St. Andrew Square, Mr. Lindsay, President, in the chair. The following communications were read:—

1. "Notice of the Occurrence of Arenaria gothica, Fries, in Great Britain, with Exhibition of Specimen." By Arthur Bennett, F.L.S.

2. "Observations on the Glands and Secretions of Galium Aparine." With Microscopic Demonstration. By Thomas Berwick, St. Andrews. Communicated by Dr. Wilson.

3. "Note on the Formation of Adventitious Buds on the Leaf of Gnetum gnemon." By Professor F. O. Bower, M.A., D.Sc., F.L.S.

4. "Exhibition of Embryo-sacs of Gnetum gnemon." By Professor F. O. Bower, M.A., D.Sc., F.L.S.

5. "Exhibition of a Preparation of Count Solms, showing the Archegonium of Cycas." By Professor F. O. Bower, M.A., D.Sc., F.L.S.

6. "Obituary Notice of Dr. Grierson, Thornhill." By J. Shaw Tynron. Communicated by Rev. W. M. M'Donald.

7. "On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

8. "On Temperature and Vegetation at the Botanic Institute, Glasgow." By R. Bullen, Curator.

9. Exhibition of Specimens:—

Fruit of a Dipladenia from Demerara, from P. Neill Fraser, Esq.

Flowers of Brownea coccinea, Seedlings of Helleborus niger and H. orientalis, having various coloured flowers.

Leucoium vernum, twin-flowered, &c., from the garden.

Report on the Open-air Vegetation in the Edinburgh Botanic Garden, January, 1890.—The past month has again been unusually mild. Vegetation is considerably in advance of what it was at the same date last year. Hardy spring flowers are not only earlier, but are more vigorous, and flowering more profusely than they have done for some years back. The various species and varieties of Helleborus have rarely been seen in such fine condition. Hazel, Alder, and Garrya are perfectly covered with flowers this season.

During the month the thermometer was at or below the freezing point on twelve mornings, indicating collectively 45° of frost, as against 57° for the corresponding month last year. The lowest readings occurred on the 3rd, 24°; 23rd, 23°; 24th, 23°; 28th, 27°; 29th, 26°. The lowest day temperature was 35°, on the 23rd of the month; and the highest 57°, on the 16th.

On the rock garden, thirty-seven species and varieties came into flower, amongst which were Crocus annulatus and Imperati, Colchicum crociflorum, Galanthus Elwesii and Imperati, Cyclamen Atkinsii, Hepatica angulosa, Leucoium carpaticum, Primula denticula, Hyacinthus azureus, Polygala Chamæbuxus, Ranunculus anemonoides, Saxifraga Burseriana, &c.

Of the forty plants whose dates of flowering are annually recorded, the following eighteen came into flower during the month, viz., Dondia Epipactis, on January 6, Scilla præcox, 6th; S. sibirica, 7th; Galanthus nivalis, 13th; Eranthis hyemalis, 15th; Corylus Avellana, 15th; Leucoium vernum, 16th; Galanthus plicatus, 17th; Rhododendron atrovirens, 18th; Tussilago alba, 19th; Rhododendron Nobleanum, 20th; Daphne Mezereum, 24th; Crocus susianus, 26th; Bulbocodium vernum, 29th; Crocus vernus, 30th; Tussilago nivea, 30th; Sisyrinchium grandiflorum, 31st; Symplocarpus fœtidus, 31st. These are on an average three weeks earlier than last year.

Record of the Temperature and Vegetation in the Botanic Garden, Glasgow, January, 1890.—The mean temperature was unusually high for the month, and, with the exception of January, 1884, less frost was registered than on any January for many years. The lowest reading was 23° (9° of frost) on the night of the 22nd. Total frost, only 35°.

Last year's total frost for January was 51°. The year previous 48°. So that we are experiencing a succession of mild winters. After the first day or two of the month, the weather became very variable, and continued so throughout. Rainfall was both frequent and heavy, with just sufficient sleet at times to remind us of winter. On the 14th, 18th, and 25th, storms of considerable severity and duration were experienced, the last one exceeding in severity and velocity either of the others. Professor Grant reports that a pressure of 28 lb. to the square foot was registered at the Glasgow Observatory. These storms extended far beyond our shores, great damage being done. Vegetation is in a very advanced state, common Elder, Japan Quince, scarlet Ribes, &c., have young shoots from 1 to 3 inches in length.

Date of Flowering of Selected Plants in Rock Garden, Royal Botanic Garden, Edinburgh, by Robert Lindsay, Curator:—

	1890.	1889.
Doudia Epipactis	January 6	January 3
Scilla præcox	,, 6	February 1
,, sibirica	,, 7	,, 3
Galanthus nivalis	,, 13	January 31
Eranthis hyemalis	,, 15	February 3
Corylus Avellana	,, 15	,, 22
Leucoium vernum	,, 16	January 30
Galanthus plicatus	,, 17	,, 26
Rhododendron atrovirens ...	,, 18	,, 17
Tussilago alba	,, 19	February 14
Rhododendron Nobleanum ...	,, 20	,, 6
Daphne Mezereum	,, 24	January 26
Crocus susianus...	,, 26	February 14
Bulbocodium vernum	,, 29	,, 18
Crocus vernus	,, 30	,, 23
Tussilago nivea	,, 30	,, 27
Sisyrinchium grandiflorum ...	,, 31	,, 20
Symplocarpus fœtidus ...	,, 31	,, 22

BRITISH FRUIT GROWERS' ASSOCIATION.

A meeting of the General Committee was held in the Horticultural Club room, Hotel Windsor, Victoria Street, S.W., on Wednesday, February 19, Mr. T. Francis Rivers in the chair. Thirteen members were elected, and some additions were made to the Executive Committee. The place of meeting for the Committee during the year next came under consideration; the Rev. H. H. D'Ombrain had been written to with the object of making some arrangements for holding the meetings at the Horticultural Club, and a reply was now read in which it was stated that "the Committee gladly accedes to the proposal," with regard to the Conferences of 1890, and it was resolved that the Association should hold the following meetings to deal with the subjects named:—Friday, June 27, Royal Aquarium, Westminster, Strawberries, and bush fruits; Tuesday, August 5, Leicester, general fruit culture for profit; Friday, September 5, Crystal Palace, Plums and stone fruits; Thursday, September 11, Brighton, general fruit culture, Grapes and Tomatos; Wednesday, October 15, Royal Aquarium, Apples. Offers of papers upon several subjects had already been received from members and friends of the Association, and the full programme will be announced later on.

It was resolved that the General and Executive Committee meetings be held in the Horticultural Club room at 5 p.m. on Thursdays, March 6, April 3, May 1, June 5, July 24, August 21, October 2, November 27, and December 18.

Communications were read from provincial societies with regard to providing lectures at their meetings, and the Secretary was directed to communicate with several experienced fruit growers on the subject.

Mr. T. W. Beach, Brentford, exhibited a lamp which he had employed for suspending amongst his fruit trees, to catch the winter moth and other pests. We have before had occasion to refer to this lamp, which, as has been pointed out, is of comparatively little use as a preventive against the winter moth, as the females of that insect are wingless.

Mr. T. F. Rivers referred to the loss the Association and the fruit interest had sustained by the death of Mr. Wildsmith, and it was resolved that a letter of condolence be sent to Mrs. Wildsmith.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending February 22nd	Accumulated Temperature. Above 42° for the Week.	Accumulated Temperature. Below 42° for the Week.	Accumulated Temperature. Above 42°, difference from Mean since Jan. 1, 1890.	Accumulated Temperature. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1 +	4	23	+ 35	— 54	3 —	39	9.1	12	16
2	1 —	0	33	+ 23	— 51	4 —	31	5.6	11	20
3	2 —	0	27	+ 19	— 69	2 —	26	2.9	10	19
4	2 —	1	28	+ 15	— 40	1 —	30	3.1	21	27
5	2 —	5	30	+ 19	— 26	3 —	29	3.9	12	21
6	1 —	11	20	+ 44	— 60	5	29	4.0	22	22
7	1 —	0	24	+ 23	— 62	6 —	37	9.2	3	15
8	2 —	4	25	+ 29	— 56	4 —	35	5.4	13	19
9	1	24	9	+ 31	0	2	35	6.8	26	24
10	1 +	12	22	+ 13	— 28	3 —	39	5.9	12	22
11	1 +	28	8	+ 25	— 17	0 av.	40	8.9	16	25
12	2 +	43	0	+ 91	— 26	2 +	39	6.6	26	28

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending February 22nd, is furnished from the Meteorological Office:—

"The *weather* has been dull or gloomy in nearly all parts of the kingdom, with a good deal of mist or fog; very little rain has fallen over England, but in Ireland, Scotland, and the south-west of England, the falls, though slight, were somewhat frequent.

"The *temperature* has been a little above the mean in 'Scotland, N.,' Ireland, 'England, S.W.,' and the 'Channel Islands,' but in all other districts a deficit of 1° or 2° is shown. The highest of the maxima, which were recorded on very irregular dates, ranged from 56° in 'Ireland, S.,' to 47° in 'England, N.E., and 49° in 'Scotland, W.' The lowest of the minima were registered in most instances on the 16th, and varied from 22° to 30° in Scotland, from 24° to 25° over Ireland, from 27° to 30° over England. In the 'Channel Islands' the thermometer did not fall below 42°.

"The *rainfall* has just equalled the mean in 'Ireland, S.,' and slightly exceeded it in the 'Channel Islands;' in the other districts it has been less than the normal.

"*Bright sunshine* shows a very decided decrease at nearly all stations, the percentage of the possible duration having ranged from 3 to 12 in Scotland, from 12 to 16 in Ireland, and from 10 to 26 over England."

Obituary.

Maurice Young.—It is with great pain that we have to record the death of Mr. Maurice Young, aged 56 years. He had been in ill-health for some time past, and his misfortunes, no doubt, prevented him from resisting the effects of disease, as he might otherwise have done. An attack of influenza followed by a relapse and inflammation of the lungs, caused his death on the 24th inst. For many years, like his father before him, he occupied a nursery at Milford, near Godalming, the father being a tenant of the celebrated botanist, Philip Barker Webb. Maurice Young had a thorough knowledge of his business, and of landscape gardening and planting. He was interested in plants for their own sake, as well as from a business point of view, and we had frequent occasion to consult him, and avail ourselves of his experience and knowledge. He was a straightforward, honourable man, who was liked and respected by all who knew him, and one with whose misfortunes everyone sympathised. May the knowledge of these circumstances enable the widow and family the better to bear their bereavement.

William Humphreys.—We regret to record the death of William Humphreys, on the 22nd ult., at the age of sixty-eight years. The deceased, who was head gardener to the late and present Earls of Hardwicke, at Wimpole Hall, Cambridgeshire, had held the post for twenty-six years, and was greatly respected by his employers and neighbours. He was one of the most successful cultivators of choice fruits. The flower and kitchen gardens at Wimpole are models of admirable keeping and arrangement, and were formed under his superintendence.

E. Maggs.—We also regret to announce the death of Mr. E. Maggs, gardener at the Manor House, Aylesbury, Bucks, which took place, from typhoid fever, on Sunday last. The deceased had held the post of head gardener at the Manor House for the past fourteen years. He took an active share in the management of the local floral and horticultural and Chrysanthemum societies, and was greatly respected. Much sympathy is felt for Mrs. Maggs, who has now lost within a brief period her husband and eldest daughter, both from typhoid fever, and has at the present time lying dangerously ill of the same malady an only son, she having lost her eldest son, some three or four years ago, from diphtheria.

MARKETS.

COVENT GARDEN, February 27.

No alteration. Business very quiet. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Ericas, various, doz.	8 0–24 0
Aspidistria, doz.	18 0–42 0	Ferns, in var., doz.	4 0–18 0
— specimen plants, each	7 6–10 6	Ficus elastica, each	1 6– 7 0
Azaleas, various, each	2 0– 3 0	Foliage plants, various, each	2 0–10 0
Christmas trees, doz.	4 0–24 0	Genista, per doz.	8 0–12 0
Cyclamen, dozen	9 0–24 0	Hyacinths, p. doz.	6 0– 9 0
Cyperus, per dozen	4 0–12 0	Lily of the Valley, p. doz. pots	18 0 24–0
Daffodils, doz. pots	8 0–12 0	Marguerites, doz.	6 0–12 0
Dracæna terminalis, per dozen	30 0–60 0	Palms in var., each	2 6–21 0
— viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen	6 0– 8 0
Epiphyllum, per doz.	12 0–18 0	Roman Hyacinths, per dozen pots	9 0–12 0
Euonymus, in var., per dozen	6 0–18 0	Solanums, per dozen	6 0–12 0
Evergreens, in var., per dozen	6 0–24 0	Tulips, doz. pots	6 0– 9 0

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun.	2 0– 4 0	Narcissus, various, doz. bun.	1 6– 6 0
Acacia (French) bun.	0 6– 1 0	Pelargoniums, scarlet, 12 spr.	0 9– 1 0
Azaleas, doz. sprays	0 6– 1 0	— dozen sprays	1 0– 2 0
Bouvardias, per bun.	0 8– 1 0	Primroses, 12 bun.	1 0– 2 0
Callæthiopica, 12 bl.	3 0– 5 0	Primulas, double, 12 sprays	1 0– 1 6
Camellias, white, doz.	2 0– 4 0	Roman Hyacinths, Eng., doz. sprays	0 6– 1 0
— various, per doz.	1 0– 2 0	— (French), 12 bun.	1 0– 2 0
Carnations, 12 blms.	1 0– 2 0	Roses, Tea, per doz.	1 0– 3 0
Chrysanth., 12 bun.	4 0–12 0	— coloured, dozen	2 0– 4 0
Cyclamens., 12 blms.	0 4– 0 9	— French, dozen	1 0– 2 0
Daffodils, doz. blooms	0 4– 1 0	— red, per dozen	1 0– 8 0
Eucharis, per dozen	3 0– 5 0	— Safrano, dozen	1 6– 2 6
Gardenias, 12 blooms	1 0–24 0	Spirea, doz. sprays	1 0– 1 6
Heliotropes, 12 spr.	0 6– 1 0	Stephanotis, 12 spr.	9 0–12 0
Lilac, white, Fr., bun.	4 0– 6 0	Tuberoses, 12 blms.	1 6– 2 0
Lilium, var., 12 bl.	2 0– 6 0	Tulips, doz. blooms	0 6– 1 0
Lily of the Valley, doz. sprays	0 6– 1 0	Violets, 12 bun.	1 0– 2 0
Maiden Hair Fern, 12 bun.	4 0– 9 0	— French, bunch	1 0– 2 0
Mignonette, 12 bun.	2 0– 4 0	— Parma, bunch	3 0– 4 0
— French, per bun.	1 6– 2 0		
Marguerites, 12 bun.	3 0– 6 0		

Orchid-bloom in variety.

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 0– 7 0	Lemons, per case	12 0–20 0
— Nova Scotia, brl.	12 0–25 0	Pine-apples, Eng., lb.	1 0– 1 6
Cobs, per 100 lb.	140 0– ...	— St. Michael, each	2 0– 8 0
Grapes, per lb.	2 0– 5 0	Strawberries, oz.	0 9– 1 6

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per bdl.	0 12	Mustard and Cress, punnet ...	0 4- ...
Beans, French, lb.	2 0- ...	Onions, per bunch	0 5- ...
Beet, red, per dozen	1 0- 2 0	Parsley, per bunch	0 6- ...
Carrots, per bunch	0 6- ...	Rhubarb, per bundle	0 6- ...
Cauliflowers, each	0 3- ...	Seakale, punnet ...	2 0- ...
Celery, per bundle	1 6- 2 0	Shallots, per lb. ...	0 6- ...
Cucumbers, each	1 0- 1 6	Spinach, per bushel	4 0- ...
Endive, per dozen	2 0- ...	Sprue, per bundle ...	1 6- ...
Herbs, per bunch	0 4- ...	Brussel Sprouts, per lb.	0 3- ...
Leeks, per bunch	0 3- ...	Tomatos, per lb. ...	1 0- ...
Lettuces, per dozen	1 6- ...	Turnips, per bunch, new ...	0 4- ...
Mushrooms, punnet	1 6- ...		

POTATOS:—Supply of old Potatos continue plentiful, and market has tendency to fall. Fresh arrival of Canary new potatos; price from 16s. to 22s. cwt. Market quiet. Inferior samples difficult to sell except at lower figures. New Potatos—best samples quickly cleared at 20s. to 24s. cwt. *J. B. Thomas.*

SEEDS.

LONDON: *Feb.* 26.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market thinly attended. Business in seeds still continues in narrow limits. However, when country buyers finally make up their minds to begin to operate, they will find prices all along the line temptingly low. There is no change in Red Clover Seed. Alsike, white and Trefoil keep firm. In Trefoil there is a hardening tendency. French and Perennial Rye-grasses continue exceedingly cheap. Some new English Spring Tares are now offering. More money is asked for Rape and Millet seeds. Blue Peas are steady.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure (quarter), during the week ending February 22:—Wheat, 29*s.* 9*d.*; Barley, 31*s.* 2*d.*; Oats, 18*s.* 6*d.* For the corresponding period in 1889:—Wheat, 29*s.* 5*d.*; Barley, 26*s.* 5*d.*; Oats, 16*s.* 8*d.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *Feb.* 26.—Good supplies of fresh vegetables and fruit. Abundant supplies of Potatos. Demand good for vegetables and fruit, but very slow for Potatos. Prices:—English Apples, 5*s.* to 8*s.* per bushel; American do., 16*s.* to 24*s.* per barrel; Savoys, 1*s.* 6*d.* to 3*s.* 6*d.* per tally; Cauliflowers, 4*s.* to 9*s.* do.; Curley Kale, 4*d.* to 9*d.* per bushel; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Spinach, 6*d.* to 1*s.* per bushel; Brussels Sprouts, 9*d.* to 1*s.* per half-sieve; Turnip-tops, 1*s.* to 2*s.* per sack; Sprouting Broccoli, 1*s.* 6*d.* to 1*s.* 9*d.* do.; do., 5*d.* to 7*d.* per sieve; Greens, 1*s.* to 2*s.* 6*d.* per dozen bunches; Turnips, 2*s.* 6*d.* to 3*s.* do.; Carrots, 1*s.* 6*d.* to 2*s.* 6*d.* do.; do., 10*s.* to 24*s.* per ton; Parsley, 2*s.* to 3*s.* per dozen bunches; Parsnips, 4*d.* to 9*d.* per score; Beetroots, 4*d.* to 6*d.* per dozen; Horse-radish, 1*s.* to 1*s.* 4*d.* per bundle; Celery, 4*s.* to 12*s.* per dozen bundles; Endive, 1*s.* 6*d.* to 2*s.* per dozen; Leeks, 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; English Onions, 10*s.* to 11*s.* per cwt.; Spanish do., 10*s.* to 11*s.* 6*d.* per case; Bordeaux do., 7*s.* to 8*s.* do.; Dutch and Belgian do., 7*s.* to 8*s.* per bag of 110 lb.

STRATFORD: *Feb.* 25.—Supply has been good during the past week, and a fair trade was done at the following prices:—Savoys, 3*s.* to 3*s.* per tally; Cauliflowers (Guernsey), 2*s.* to 3*s.* per barrel; do. (Cornish), 5*s.* to 10*s.* per crate; Turnips, 25*s.* to 35*s.* per ton; Carrots (household), 35*s.* to 40*s.* do.; do. (cattle feeding), 20*s.* to 22*s.* do.; Parsnips, 40*s.* to 50*s.* do.; Mangels, 14*s.* to 18*s.* do.; Swedes, 13*s.* to 18*s.* do; Onions, English, 10*s.* to 11*s.* 6*d.* per bag; do., Dutch, 6*s.* to 7*s.* 6*d.* do.; Apples, English, 3*s.* to 9*s.* per bushel; do., American, 18*s.* to 28*s.* per barrel; Celery, 3*s.* to 9*s.* per dozen rolls; Rhubarb, 1*s.* 9*d.* to 2*s.* per dozen bundles.

POTATOS.

BOROUGH AND SPITALFIELDS: *Feb.* 26.—Quotations:—Regents, 40*s.* to 90*s.*; Hebrons, 40*s.* to 90*s.*; Magnums, black, 40*s.* to 50*s.*; Bedfords, 40*s.* to 55*s.*; Lincolns, 45*s.* to 60*s.*; Yorks, 50*s.* to 70*s.*; Scotch, 50*s.* to 100*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *Feb.* 26.—Quotations:—Magnums, 35*s.* to 50*s.*; Regents, 50*s.* to 60*s.*; Champions, 40*s.* to 50*s.*; Imperators, 40*s.* to 65*s.*; Hebrons, 40*s.* to 60*s.* per ton.

STRATFORD: *Feb.* 25.—Quotations:—Scotch Magnums, 50*s.* to 80*s.*; Regents, 58*s.* to 68*s.*; English do., 50*s.* to 60*s.*; light English Magnums, 45*s.* to 65*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 78*s.* to 92*s.*; inferior, do., 46*s.* to 75*s.*; hay, best, 60*s.* to 87*s.*; inferior, do., 26*s.* to 50*s.*; and straw, 26*s.* to 48*s.* per load.

ENQUIRIES.

"*He that questioneth much shall learn much.*"—BACON.

STEAM HEATING OF GLASS-HOUSES.—Will any of our readers kindly inform "J. P. & Sons" of any garden where steam is used for the warming of glass-houses, and what its advantages are, if any? [It was used and well thought of by the late Peter Henderson, of New York, but has not gained ground here.]

ZELU POTATOS.—Can anyone say what these are? *J. C.*

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

APPLES NEAR BANGOR: *J. F.* We should think you could grow these fruits anywhere in your locality if shelter can be procured, and especially on walls facing east and north. The south wall would be too warm for most English varieties, and the west aspect would suffer, probably from the heavy winds you will get from that quarter, and these being heavily salt-laden, cause much damage to blossoms and foliage. Dwarf Apples on the Paradise stock would give better results than pot trees under glass, especially if they are planted in properly prepared loamy soil, enclosed in parallelograme of 15 to 20 yards long and wide, sheltered by hedges of Whitethorn, Thuia sibirica (Warreana), Maple, Hornbeam, Beech, or the like hedge plants, to protect them from the wind. If trees must be grown under glass, it should be done in pots, and the glass shelter made use of only during the setting period, and till mild weather makes it safe to plunge the pots to half their depth out-of-doors. Apple trees grown always in a glass-house, have beautiful but usually flavourless mealy fruits, that ripen out of season. Very late ripening varieties may be brought into the house early in October if the weather be boisterous. Employ pots just large enough to accommodate the roots, drain them moderately, use heavy loamy soil without much admixture of manure; pot very firmly, and give top-dressings of manure if the trees bear heavily. Shift the trees annually, and pinch the shoots once only and that in July.

AMARYLLIS: *F. A. W.* A nice tint of crimson, but the flower in the matter of form is not to be compared with some strains now in the field.

BOOKS.—BAKER'S "AMARYLLIDEÆ:" *C. W. D.* Published by Bell & Son, York Street, Covent Garden.—*F. J. C.* There is no separate Flora of Palestine, but all are contained in Boissier's *Flora Orientalis.* There is, however, a book by Mrs. Zeller, called *Wild Flowers of the Holy Land,* containing about fifty-four coloured plates of a very coarse description, and unaccompanied by text. There are also *Plants of the Holy Land,* by H. T. Osborne, Philadelphia, 1861; and *Flowers from the Holy Land,* by R. Tyas, London, 1851. We have not seen either of the latter.—*Manual of the Coniferæ,* J. Veitch & Sons, 544, King's Road, Chelsea, S.W.

BOTANICAL NAMES: *H. C. C.* Get Nicholson's *Dictionary of Gardening,* the Supplement, sold separately, we believe, will give you what you want. (Upcott, Gill & Co., 170, Strand, London.)

CLOVER: *H. C. C.* Cow grass has a less hairy stem, narrower leaves, and a stronger, less branching root, and flowers later than the common Red Clover.

DAHLIAS: *R. G. G.* Pack the roots closely in boxes or flat hampers, with leaf-mould, placing them under stages, or anywhere in a house with a maximum day warmth of 70°. Keep the roots in a damp state only—not wet; in a fortnight the shoots will have grown to a length of 2 to 3 inches. These may be broken off not cut—close to the root, and struck singly, or two or three in a pot, of sandy leaf-mould, on a bottom-heat of 75° to 80°, in a close frame or propagating-case. When rooted, pot off and keep in a warmth of 60° till April; afterwards a greenhouse temperature will be sufficient for them. Put out-of-doors at the beginning of May, and plant in June. Cut them down half way if they should get tall before being planted out.

DENDROBIUM WARDIANUM: *T. C.* The variety of Dendrobium Wardianum is a very pretty one, but not better than many others which have appeared among the numerous large importations of that plant. The box in which your specimens were enclosed was smashed in the post, and the flowers greatly bruised.

GRAFTING: *H. C. C.* Yes, there is a certain amount of reciprocal influence of stock on scion, and *vice versâ,* but an influence more apparent in the habit and growth than in actual form. The notion that Blood Oranges are produced by grafting on Pomegranates is sheer nonsense.

LAWN TENNIS: *Gladstonian.* Write for the particulars required to some journal devoted to sports.

NAME OF FRUIT: *W. C. & S.* The Apple is probably Derbyshire Crab.

NAMES OF PLANTS: *J. W.* 1, crested variety of Pteris serrulata; 2, Polypodium aureum; 3, Chamærops humilis.—*C. H. Perkins.* Muehlenbeckia complexa.—*F. J. C.* 1, Andropogon distachyon; 2, specimen insufficient; 3, Celtis australis; 4, Ankyropetalum gypsophiloides; 5, Carthamus leucocaulos; 6, Frankenia pulverulenta; 7, Zizyphus spina-Christi (Christ's Thorn).—*H. R.* Cœlogyne flaccida.—*J. Smith.* Rhododendron dauricum.—*Uxbridge.* So far as we can determine them from small specimens, they are as follows:—1, Cupressus Lawsoniana; 2, Juniperus sinensis; 3, a form of Cupressus Lawsoniana; 4, Thuia Sieboldi; 5, Tsuga canadensis; 6, Juniperus virginiana.

NECTARINE LEAVES DISEASED: *G. M.* Your tree is suffering from an attack of what is called the Silver-leaf disease, which also affects Plums, Laurels, &c., in the open air. There is no ascertained cause, or known remedy, although it is thought by some cultivators that dryness at the root during the autumn and winter is a cause. It is commonly met with in light and gravelly soils, and less so in heavy ones. Cut off the affected branches.

CATALOGUES RECEIVED.

WILLIAM WATT, Cupar and Perth—Tar Seeds.

JOHN SHARPE & SON, Bardney, Lincolnshire—Vegetable and Flower Seeds.

V. H. HALLOCK & SON, Queen's, New York, U.S.A.—Seeds.

PITCHER & MANDA, United States Nurseries, Short Hills, New Jersey, U.S.A.—Orchids; Hardy Perennials and Ferns; Chrysanthemums, and Dahlias.

R. R. DAVIS, Yeovil Nurseries, Hendford Hill, Yeovil, Somerset—Begonias.

D. LANDRETH & SONS, Philadelphia, U.S.A.—Garden Seeds.

JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.—Grass and Farm Seeds.

DICKSONS (Limited), Chester—Farm Seeds.

CLARK & Co., 85, Bedford Street, North Shields—Vegetable and Flower Seeds.

T. S. WARE, Hale Farm Nurseries, Tottenham—Hardy Perennials, Florists' Flowers, Pæonies, and Hardy Climbers.

COMMUNICATIONS RECEIVED.—Screno Watson, Cambridge, U.S.A.—W. and N.—H. W.—P. S. Ventimiglia.—C. H. H.—Prof. Wittmack, Berlin.—J. S., Islay.—F. R., many thanks.—F. W. B.—R. Edwards.—H. J. Veitch.—H. B.—J. D.—E. S.—J. C. & Co. John Colebrook (no specimens sent).—H.—J. O'B.—G. A. R.—D. D.—A. E. G.—B.—R. A. R.—C. T. D.—H. W. W.—E. M.—F. R.—C. J. Ogleby.—Business (next week).

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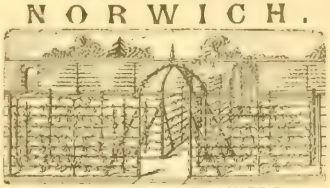
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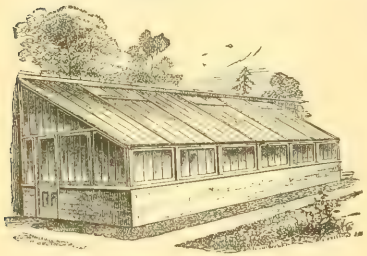
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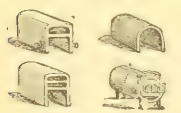
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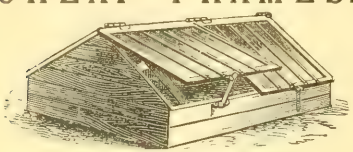


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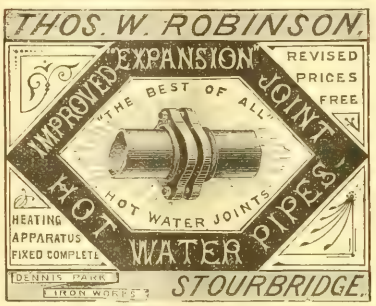


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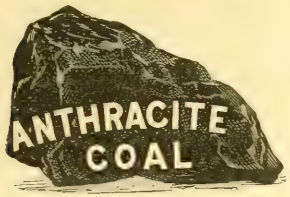
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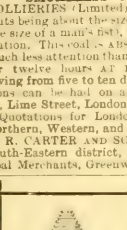
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10	,,	..	0	6	0	21	,,	..	0	11	6
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GARDENING APPOINTMENTS.

MR. JAMES HAMILTON, Gardener for seventeen years at Needwood, Burton-on-Trent, is appointed by his employer, HAMER BASS, Esq., M.P., to the new gardens at Byrkley, Burton-on-Trent.

Mr. W. H. YOUNG, late of Kew Gardens, has been appointed Orchid grower to J. WIGAN, Esq., Clare Lawn, East Sheen, Surrey.

Mr. A. MUNT, late of Broadwater Down, Tunbridge Wells, has been engaged to succeed Mr. HOLMES, as Gardener to Earl of ASHBURNHAM, Ashburnham Place, Battle, Sussex.

Mr. JAMES PRIDDLE, late of Crimple House Gardens, Cheadle, Cheshire, has been appointed Head Gardener to F. WILLMOTT, Esq., Warley Place, Great Warley, Essex.

Mr. NELSON GREGORY, has been appointed Gardener to Colonel BRUCE, Testwood Park, Southampton.

Mr. F. J. DEBNAM, formerly Head Gardener at Dissington Hall Gardens, Newcastle-on-Tyne, as Head Gardener to A. PEARS, Esq., Spring Grove Gardens, Isleworth, Middlesex.

Mr. T. PRICE, late Foreman at Drakstone Park, Bury St. Edmunds, as Head Gardener to H. J. HARRIS, Esq., Bowden Hill House, Chippenham.

Mr. SAMUEL TODD, late of Winstade Gardens, Exeter, as Gardener to W. GRIEVES, Esq., The Hermitage, East Grinstead.

Mr. WM. BOWELL, for over twenty years at Stawell House Gardens, Richmond, Surrey, to take charge of the Gardens at Shiplake Court, Oxfordshire, near Twyford, Berks.

WANTED AT ONCE, a thorough good all-round GARDENER, for Jobbing Work; age about 30. Must be active, trustworthy, and obliging. Permanent.—C. ELLIOTT, Florist, &c., Lansdowne Road, Croydon.

REQUIRED, at Haworth Park, Hadleigh, Suffolk, thoroughly practical SINGLE HANDED GARDENER, understanding Stove and Greenhouse Plants, Vines, Melons, Cucumbers, Flower and Kitchen Gardens. Age about 30; married (children over 12 no objection). Wages £1 per week, and cottage in grounds rent free.

WANTED, a thoroughly respectable Man, as SECOND GARDENER. Must be well up in Vegetable Culture; age between 24 and 30. Must be clean and active. If married, a comfortable home found. State wages, &c.—C. A. HANLEY, The Mount, Oxford.

WANTED, UNDER GARDENER, married man without family, to live in Lodge, must have a thorough knowledge of Flower and Kitchen Gardening. Wages, 18s. per week.—Write particulars to J. M. OWEN, Gardener, Bramhope Hall, near Leeds.

WANTED, single Man as UNDER GARDENER to live on place. Must understand Cows, also well up in Flower and Kitchen Garden. £1 per week and milk.—HEAD GARDENER, Mount Mascal, Herne Hill, S.E.

WANTED, near Guildford, a Young man as UNDER GARDENER, well up in Stove and Greenhouse work.—Wages, £1, nothing found.—Only those with good characters need apply, by letter to H. E. W., Thatched House Club, St. James' Street, W.

WANTED, a FOREMAN, for Cucumber and Tomato Houses. Also THREE or FOUR ASSISTANTS, permanent for useful men.—H. DICKINSON, Shardlow, near Derby.

WANTED, as FOREMAN, an energetic Man, about 30 to 35, well up in Forcing and Growing General Nursery Stock.—Apply by letter, in own handwriting, stating previous experience, &c., to W. MILES, 16 and 18, Church Road, Hove, Brighton, Sussex.

WANTED, a young Man, 25 to 30 years of age, as FOREMAN in a Private Place; must be experienced under Glass, and well up in Growing Florist Flowers. £1 per week with Bothy.—Apply, stating past experience and references, to WILLS AND SEGAR, Royal Exotic Nursery, South Kensington, S.W.

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WANTED, a FIRST JOURNEYMAN in the Orchid Department, to take charge of Cattleyas under Foreman. Wages, 18s. and bothy. Must state experience. None need apply but those that have had considerable experience in Orchids.—F. WHILLANS, Blenheim, Woodstock.

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WANTED, a young MAN, who has had experience in a Market Nursery in Growing Soft wooded Plants.—Reply by letter, stating age, reference, and wages required, to D. S. THOMSON AND SONS, The Nurseries, Wimbledon.

WANTED, a young MAN, for Market Nursery, with a good knowledge of Soft-wooded Plants and Tomato Growing. State age and wages asked.—MARSHALL BROS. AND CO., Burnham, Bognor.

WANTED, TWO young MEN, one for Out-door Rose Department, one for Fruit Trees, to take the lead under the Foreman. State experience and wages expected to GEO. COOLING AND SONS, The Nurseries, Bath.

WANTED IMMEDIATELY, an active and intelligent young Man as IMPROVER, quick at Potting, Tying, and Watering, also General Nursery Work. State age, wages, and where last employed. Preference given to one who has been accustomed to the wiring of flowers.—FREDERICK A. WHITE, for Executors, Royal Nurseries, Bournemouth.

WANTED, a young MAN to Assist in General Work in Small London Nursery, Soft wooded Stuff, Chrysanthemums, and Tomatos. Wages, 18s. WILLIAM HOLMES, Frampton Park Nurseries, Hackney.

To Gardeners.

A. BARLAS, Gardener to H. Michell, Esq., J.P., Undermount, Bonchurch, Isle of Wight, will be pleased to HEAR FROM ANY GARDENER who can recommend a married couple, age about 35, without family, live at lodge; man to Work in Garden and make himself useful, wife to look after Gate, and Mansion house in absence of family.

WANTED, THREE young MEN, experienced in Tomato and Cucumber Growing.—ARTHUR MATTHEWS, Nurseries, Waltham Cross.

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MESSRS. JAMES VEITCH AND SONS are REQUIRING for their Fruit Tree Nursery at Fulham, TWO young MEN to Assist in General Work, including Pruning and Training.—Apply by letter, stating wages required, to Royal Exotic Nursery, Chelsea, S.W.

WANTED, a young MAN, quick at Potting and Tying, &c. Wages, 18s. per week.—PERKINS AND SONS, Warwick Road Nurseries, Coventry.

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GARDENER (HEAD); age 38.—Mr. F. H. NORMAN desires to recommend his late Head Gardener. Understands Flowers, Fruit, and Vegetables; also Land and Stock. Eighteen years' experience.—Address, 68, Lombard Street, E.C.

GARDENER (HEAD); age 29.—J. TRIGGER, The Gardens, Milton Park, Peterborough, can very highly recommend James Upex, who has been with him seven years, as General Foreman, to any Nobleman or Gentleman requiring the services of a good and reliable man.

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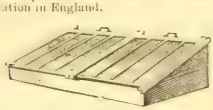
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POTATOS and GARDEN SEEDS.—All the best kinds, in large or small quantities. Also an immense stock of Garden Seeds at very Low Prices. All Seedsmen and Market Growers will do well to consult our Price LIST, to be had free of
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CHOICE FLOWERS—CHOICE FRUIT.—Highest Market Prices guaranteed. Prompt cash.
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WANTED, DRACÆNAS, for propagating. Varieties, length of stem, and price to
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EXTRA LARGE PALMS for Winter Gardens, &c.
25 SEAFORTHIA ELEGANS,
10 ARECA LUTEA and A. BAUERII,
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10 ,, FOSTERIANA,
30 COCOS PLUMOSA and PLUMOSA, &c.
From 12 to 20 feet high, with many leaves.
Also a very fine selection of the above varieties from 6 to 12 feet high in the most perfect condition for decorative purposes. W. ICETON, Putney Park Lane, S.W.

BARR'S Descriptive LIST of VEGETABLE and FLOWER SEEDS, free.—Full of useful information. SELECTIONS of VEGETABLE SEEDS, 12s. 6d., 21s., 30s. 6d., 42s., 63s. and upwards.
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GLADIOLI, TUBEROSES, HYACINTHUS CANDICANS, TIGRIDIAS, ANEMONE FULGENS, &c., for Spring Planting. Descriptive LIST free on application.
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PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.
J. J. CLARK, Goldstone Farm, Brighton.

100 Strong Flowering Hardy HERBACEOUS PLANTS in fifty distinct sorts, free for 12s. 6d., purchaser's selection, 1000 in 100 sorts, 90s. Descriptive LIST free. True to name. Carriage paid.
H. DOBBIE, Florist, Brettingham, Norwich.

To the Trade.

WHOLESALE SEED CATALOGUE for 1890.—We have now published our Catalogue of Vegetable and Flower Seeds, containing also all the best Novelties of the season. May be had on application. Any of our customers not having received one by post will oblige by letting us know, when another shall at once be posted.
WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, London, W.C.

STRAWBERRIES.—Leading kinds, in 3½-inch pots, for immediate Planting or Potting on for Forcing. Send for LIST.
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To Market Growers.

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B. L. COLEMAN, Seed Merchant, Sandwich, Kent.

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SALES BY AUCTION.

Wednesday Next.

ROSES, HARDY PLANTS, FANCY FLOWER POTS, &c.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 12, at half-past 12 o'Clock precisely, Pyramid, Standard and Dwarf-trained FRUIT TREES, 1400 choice named Standard, Half-standard and Dwarf ROSES, including many of the newest and best sorts of Hybrid Perpetuals, Teas and others from French and English Growers; SHRUBS and CONIFERS, CARNATIONS, PINKS, HOLLYHOCKS, and many other BORDER PLANTS, PEARL TUBEROSES, LILIUM AURATUM; also about 20 pairs of Fancy VASES and FLOWER POTS, suitable for Conservatories, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 13, at half-past 12 o'Clock precisely, a fine COLLECTION of ORCHIDS in Flower and Bud, comprising choice Cypripediums, Cœlogyne cristata maxima and cristata Chatsworth variety; Dendrobium Amesworthii, Wardianum, Jamesianum, grand varieties, and nobile nobilis; Aërides, Epidendrums, &c.

On view morning of Sale, and Catalogues had.

Thursday next.

10,000 GRAND BULBS of LILIUM AURATUM from Japan, PEARL TUBEROSES, TIGRIDIAS, and scarce LILIES from America, LILY OF THE VALLEY CROWNS, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 13.

On view morning of Sale, and Catalogues had.

Monday Next.

2000 LILIUM AURATUM, including several lots of immense Bulbs; also LILIUM KRAMERI, SPECIOSUM, and others, from Japan; a large assortment of English-grown LILIES and Hardy BULBS, TUBEROSES, GLADIOLUS, TIGRIDIAS, BEGONIAS, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, March 10, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Romford.—Expiration of Lease.

ABSOLUTE CLEARANCE SALE, by order of Mr. F. H. Spackman.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION on the Premises, the Nurseries, Romford, Essex, about ten minutes' walk from the station, on MONDAY, March 10, the whole of the NURSERY STOCK, including 9000 Standard and Dwarf Roses, 1000 Red and Black Currants, 500 Poplars and Thorns, &c., the whole of the Greenhouse Plants, Roses in pots, Ferns, Azaleas, Camellias, the erections of four Greenhouses and Pits, Hot-water Piping, Boilers, and other effects.

May be viewed one week prior to the Sale. Catalogues had on the premises, at the *Essex Times* Office, Romford, and of the Auctioneers, 67 and 68 Cheapside, London, E.C.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 11, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

10,000 Baskets and Hampers.

Absolute Sale Important to Florists and Others.

The Entire Stock of BASKETS, manufactured by Messrs. R. & J. Pullman (of Greek Street, Soho Square), at their Paris Factory, the Lease of which is Expiring.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, March 11, at half-past 12 o'Clock, positively without the slightest reserve, about 10,000 BASKETS and HAMPERS, in various sizes, made in white and brown Osier. A great portion will be found useful for packing purposes.

Samples will be on view the day prior and morning of Sale. Catalogues of the Auctioneers on application.

Wednesday Next.

2000 LILIUM AURATUM, 500 LILIUM KRAMERI, 600 LILIUM ALBUM KRŒZERI, and 500 SPECIOSUM RUBRUM, from Japan; 1500 American Pearl TUBEROSES, 1000 BEGONIAS, 2000 choice mixed Hybrid GLADIOLI, a large assortment of various LILIES, Japanese Tree PŒONIES and IRIS, from Mr. Gordon; Standard Roses, about 300 named CARNATIONS from a best-class grower, Greenhouse and Stove FERNS, PALMS and other DECORATIVE PLANTS, 150 AZALEA MOLLIS, 45,000 COCOS WEDDELLIANA, Seeds just received, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 12, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

45,000 COCOS WEDDELLIANA SEEDS, just received.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on WEDNESDAY NEXT, March 12.

On view morning of Sale, and Catalogues had.

Friday Next.—Established Orchids.

MESSRS PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 14, at half-past 12 o'clock precisely, about 500 lots of various Established ORCHIDS, different PROPERTIES. Also several fine specimen LAPAGERIAS.

On view morning of Sale, and Catalogues had.

Thursday, March 20.

Sale of NURSERY STOCK and GREENHOUSE PLANTS from Sample.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE will take place as above, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS EARLY AS POSSIBLE.

Friday, March 21.

From Messrs. F. Sander & Co., St. Albans.

CATTLEYA IMPERIALIS and others.

Specially fine Importation, enormous masses.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, March 21, at half-past 12 o'Clock, a specially grand importation from Roezl's old locality, the Atrato River, whence came the superb varieties of years ago. The present consignment has been sent by one of our oldest collectors, Mr. Bartholemus, and the plants have arrived in superb order, with grand leaves and bulbs, and fine dormant eyes. CATTLEYA IMPERIALIS is absolutely one of the finest of the whole genus. In the lot now offered there are masses with 300 pseudobulbs, and many well-leaved, handsome, modest specimens, that have the appearance of splendid established plants. There is altogether a distinctiveness about the plants now offered which should induce Orchid lovers to speculate, as something new will certainly turn up among them, and we recommend buyers to carefully inspect the plants offered, as we believe many of the specimens are aureas, or a type of that magnificent Cattleya. We have now imported Roezlii for nearly 7 years, but have seldom seen such pictures of plants as many now offered. We spent a large sum of money in getting the consignment of this the finest Cattleya in the section. It is absolutely a fact that the white Gigas came from the same locality. (See last number of *Reichenbachia*.)

On view morning of Sale, and Catalogues had.

Frog Hall Nursery, Enfield Road, Southgate.

Within a short distance of New Barnet and Oakleigh Park Stations, G.N.R.

MESSRS. HARLAND AND SON will SELL by AUCTION, upon the Premises as above, on TUESDAY, March 18, 1890, at 1 for 2 o'Clock, 1000 well-grown NAMED ROSES, in pots; 500 healthy WINDOW PLANTS, consisting of the best varieties for market purposes; 10,000 Strong MANETTA STOCKS, 1000 Red and White CURRANT TREES.

Good plants of the very best sorts.

May be viewed by applying to Mr. GRAY, upon the Premises, of whom Catalogues may be had.

Catalogues also at the usual Inns in the neighbourhood; and of the Auctioneers, Barnet, N.

To Nurserymen and Florists.

BUSINESSES FOR DISPOSAL in all parts. Choice position, Kent; Incoming by valuation. Freehold Nursery, Sussex, price £350. Midland Counties, rare opportunity, price £500. Several others. Particulars sent on application to A. W. WARREN, Horticultural Valuer and Business Transfer Agent, 59, West Street, Brighton.

FOR SALE.

ABOUT 3 ACRES of FREEHOLD LAND,

SUITABLE FOR A NURSERY,

With about 16,000 super. feet of Glasshouses recently erected thereon. Also two Blocks containing four Cottages.

Situated 20 Miles south of London.

For particulars apply to PROTHEROE AND MORRIS, Cheapside, London, E.C.

TO BE SOLD, FREEHOLD NURSERY and SEED BUSINESS, 6 acres of Land, splendid Stock, good Trade, Country. For particulars, apply by letter to WARREN, 2, Lyncombe Place, Bath.

To Market Gardeners and Others.

TO BE SOLD, with Present Possession, a ROOT CROP of 2 Acres 5 Perches of RHUBARB, adjoining the Holborn Estate Almshouses, at Tooting.

Tenders for the same to be sent, on or before MONDAY, March 24th instant, to the CLERK of the HOLBORN ESTATE CHARITY, 16, Houghton Street, Strand, W.C.

FLORIST BUSINESS for SALE. Excellent connection and position in the West End. Low Terms. Apply, BURN AND GALLOWAY, Solicitors, 50, Gresham Street, London, E.C.

The Ivies, Winchmore Hill.

Situated on the northern heights of London.

COMPLETE and COMMODIOUS DETACHED RESIDENCE for small family. On two floors, comprising six Bed-rooms, two Dressing-rooms, Bath-room, heated Linen-room, Box-rooms, Drawing-room with Verandah, large Dining-room, Library, Pantries, Kitchens, Larders, Wine Cellars, &c. Double Stabling, Coach-house, Harness-room, Wash-house, and Sheds, with Coachman's or Gardener's Cottage, and well-paved Yard. Hot and Cold Water, and Gas and Electric Bells throughout. TO BE DISPOSED OF, Rent £120; 9 acres, £20 per annum. Reasonable premium required.

Photos at 80, Cheapside (Messrs. DEBENHAM), and at 8, Pall Mall east, S.W. (Messrs. LAMPTON).

TO BE LET or SOLD, Aylestone, near Leicester, a valuable and most eligible FREEHOLD and FLORIST'S NURSERY, consisting of a well-built Bay-windowed Villa Residence, 7 large Greenhouses, and a good Garden well-stocked with Fruit Trees, having a river frontage, and situated 2 miles from Leicester on the main road to Lutterworth, known as Aylestone Park. Rent £60 per annum. No stock. Trams pass the door every 10 minutes.

Apply to S. WALKER, Aylestone Park; or HARRISON AND SONS, Seed Merchants, Leicester.

London, S.E.

TO BE LET, or Freehold SOLD, an old established (22 years) NURSERY BUSINESS near Putney. About an acre of Ground, capital frontage Dwelling House, Stabling, Coach House, Sheds, &c., and about 12000 feet of Glass. The whole is in substantial repair and forms one of the most compact properties which can be found near London. Apply to PROTHEROE AND MORRIS, 67, Cheapside, London, E.C.; TANSLEY WITT, 40, Chancery Lane, London, W.C.

TO LET, 6 VINERIES, containing 310 Vines, 2 Cucumber houses, planted; comfortable Dwelling House. Useful stock of Plants for Cut Flowers. Incoming moderate.

POMONA, 41, Wellington Street, Strand, W.C.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease, for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

TO BE LET, the Old-established NURSERY BUSINESS, carried on by Riders' for over sixty years. Well stocked with saleable Nursery Stuff. Illness cause of leaving. For price and particulars apply to RIDER BROS., Heath Nurseries, Moortown, Leeds.

AGENTS WANTED, for the SALE of NATIVE GUANO. The Best and Cheapest Manure for Garden use.—Address, THE NATIVE GUANO COMPANY (Limited), 29, New Bridge Street, Blackfriars, London, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Are offering a fine lot of newly imported Dendrobium Wardianum Lowii, D. Brymerianum (true long-bulbed variety), and many other fine Dendrobes and Orchids, also an immense stock of Established Orchids. LISTS with Prices and particulars post-free on application to the Company,

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

NEW ZEALAND SEEDS.—In collections, 12 species in each:—

No. 1, Tree and Dwarf FERNS, 5s.
No. 2, ALPINE PLANTS, 5s.
No. 3, TREES and SHRUBS, 5s.
No. 4, Filmy FERNS and LYCOPODS, 5s.
No. 5, ORCHIDS and CARNIVOROUS PLANTS, 5s.
No. 6, VERONICAS, 5s.
No. 7, NORTH ISLAND PLANTS (tender), 5s.
No. 8, CONIFERS and TAXADS, 5s.

Dried FERNS, LYCOPODS, and ALPINE MOSSES, 6d. each.
Living Native PLANTS and FERNS, 30s. per dozen.
Free by Parcel Post.
Detailed CATALOGUES, price 6d.

ADAMS AND SONS, Native Seed and Plant Merchants, Victoria Nursery, Christchurch, Canterbury, N.Z.

LARCH FOR SALE.—A grand lot of stuff, 2 to 4 feet, twice transplanted, and well rooted, at a great reduction in price to clear, this offers an opportunity to planters seldom met with. Price 24s. per 1000.

J. HARRIS, Nurseryman, Chittlehampton, Devon.

ODONTOGLOSSUM ROSSII MAJUS, in 4-inch pots, 2s. each, 6 for 10s., 12 for 18s.; few in 5 inch pots, 3s. each, 6 for 15s.; ODONTOGLOSSUM ALEXANDRÆ, small plants, fine type, 12s. per dozen; O. PESCATOREI, 18s. per dozen. Compulsory sale—less than half value.

W. H. HUDSON, Tottenham, London.

SEED POTATOS, Reduced.—A few tons of Myatt's and Rivers' Kidney Potatos, £3 per ton, good quality. GARLIES MITCHELL, Nurseryman, Stranraer.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE are prepared to make very low offers of all the principal kinds of Seed POTATOS, grown expressly for Seed purposes from the finest selected stocks. The samples are very good, and free from coarse and diseased tubers.

Seed-growing Establishment, Wisbech.

THE "STANLEY" KIDNEY POTATO is the best of the Early Ashleaf section, an enormous cropper, grand quality, both when young and matured. Grown on red soil. Price 3s. 6d. per stone, cash with order.

H. HAVELOCK, Hexham.

Special selection, 1 stone Stanley, 1 stone Bruce, 1 stone Imperator, the best Potatos grown, true to name, 7s., bags free, cash with order.

H. HAVELOCK, Hexham.



HARDY FLOWERS. — All lovely named kinds. 12 Delphiniums, 8s.; 12 Herbaceous Pœonies, 9s.; 12 Potentillas, 6s.; 12 Pyrethrums, 5s. CATALOGUE, 150 pages, three stamps.

CLIBRAN, Oldfield Nursery, Altrincham and Manchester.

RED CURRANTS, Raby Castle and Red Dutch. COB NUTS, strong well-rooted plants. APPLES, Pyramid, good sorts, 5 to 7 feet. Scarlet CHESTNUTS, fine trees, 6 to 9 feet. STRAWBERRY PLANTS. Vicomtesse Hericart de Thury, Stirling Castle.—TODDINGTON ORCHARD CO., Winchcombe, Gloucestershire.

ANDRE LEROY'S Nurseries at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris, 1878.
Orders must be addressed to Messrs. WATSON AND SCULL, 99, Lower Thames Street, London, E.C.

SMALL SHRUBS, &c., Reduced.—Araucaria imbricata, 10 inches, 40s. per 100; Sweet Bays, 2 yr., 25s. per 1000; Cupressus macrocarpa, 9 to 10-inch pots, 8s. per 100; C. erecta viridis, 6 inches, 50s. per 1000; C. Allumii, 9 inches, 7s. 6d. per 100; C. stricta, 1 foot, 10s. per 100; C. Lawsoniana, 12 inches, 40s. per 1000; Laurustinus, 8 inches, 7s. per 100; Evergreen Oaks, 1 year, 50s. per 1000; Pampas Grass, 50s. per 1000; Rhododendron ponticum, 1 yr. transplanted, 22s. per 1000; Pinus Cembra, 3 yr., 16s. per 1000; P. insignis, 1-yr. 2s. 6d. per 100; P. excelsa, 1-yr., 4s. per 100; Picea pinsapo, 1-yr., 4s. per 100; P. Nordmanniana, 1-yr., transplanted, 40s. per 1000; English Yews, 1-yr., 2-yr. transplanted, 30s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

Trade Offer.

ARECA LUTESCENS, 60's, 24 inches, five and six leaves, 75s. per 100.
COCOS WEDDELIANA, 60's, 75s. and 100s. per 100; ditto, 9 inches, 20s. per 100.
CORYPHA GEBUNGA, three leaves, 50s. per 100.
KENTIA, thumbs, two and three leaves, 15s. per 100.
LATANIA, 60's, 30s. per 100; ditto thumbs, 20s. per 100.
PHŒNIX RUPICOLA, two and three leaves, 45s. per 100; ditto, SANDERI, 60's, six leaves, 75s. per 100, good stuff.
SEAFORTHIA ELEGANS, 60's, six leaves, 18 inches, 75s. per 100; ditto, thumbs, three leaves, 12 inches, 20s. per 100.
Quotations given on application for larger sized Palms.
WILLIAM ICETON, Nurseryman and Florist, Putney Park Lane, Putney, S.W. Telegrams—Roehampton.

GEORGE COOPER, SEEDSMAN, Bedford.
Special offer. Terms, cash.
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A. F. BARRON, Hon. Sec.
Royal Horticultural Society's Gardens, Chiswick, S.W.

THE BRITISH FRUIT GROWERS' ASSOCIATION, PRESIDENT—LORD BROOKE, M.P.
Conferences have been arranged to be held during 1890 at Leicester, Brighton, the Crystal Palace, and the Royal Aquarium. Committee meetings will be held monthly in the Horticultural Club Room, Hotel Windsor, Victoria Street, S.W. Programmes and all particulars can be had, post-free, from the Hon. Secretary, Mr. LEWIS CASTLE, HOTHAM HOUSE, Merton, Surrey.

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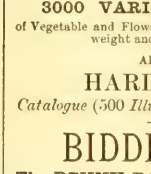
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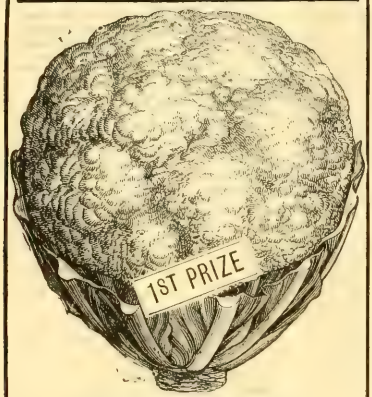


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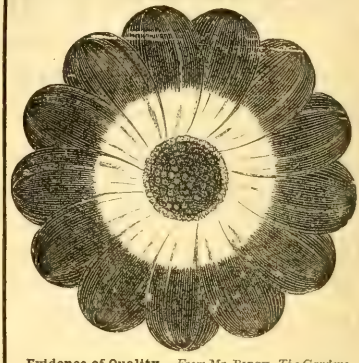
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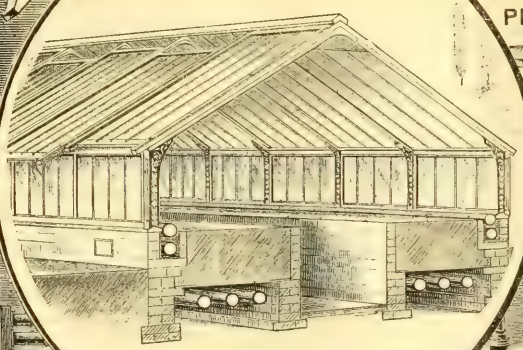
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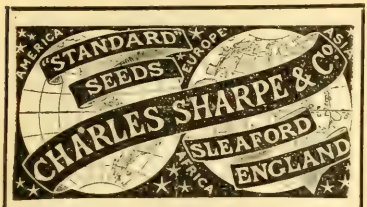
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TO THE

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FOR

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THE

Gardeners' Chronicle.

SATURDAY, MARCH 8, 1890.

GIGANTIC ORCHIDS; NATURE *VERSUS* CULTURE.

WE are told by the poet that bulk is not everything, or, in other words, that—

> "To grow in size just like a tree
> Doth not make things better be,"

and yet there is, other things being equal, a certain charm about size after all. We all remember the enormous plant of Cattleya Skinneri which Mr. Sander imported from South America, of which the illustration is reproduced (fig. 44). Certainly it was to some extent a cultivated specimen, having been grown in a tree near the dwelling-house of a peon, or labourer, as I believe was stated at the time. Then long ago there was at Chiswick a phenomenal plant of the then new and highly valued Lælia superbiens, and again a plant of very large Phalænopsis (was it not P. Schilleriana?), which the Royal Horticultural Society's collector, the great Robert Fortune, had bought for a dollar from some natives who brought it to him in the Philippines suspended on a pole between two of them in much the same way as the Grapes of Eschol were brought from the Promised Land to the leader of the Israelites, when near the close of their wanderings. Every traveller—at least, every plant collector—must now and then in the course of his wanderings have come across remarkable specimens of the plants in which he was particularly interested; and often, even if not pretty generally, it will be found that man has had at least some influence so far as their ultra-extraordinary dimensions are concerned. This was so in the case of Mr. Sander's great Cattleya Skinneri, and it was so in the case of Mr. A. Keyser's big plant of the Grammatophyllum (? speciosum), which he found in the collar of a great Durian tree; and I should suspect that the great Lælia and the remarkable Phalænopsis above alluded to had also grown on isolated trees or in open sunny positions.

When I was wandering about the main island

of the Sooloo Archipelago, about mid-way between Borneo and the Philippines, a few years ago, I was very much impressed by the enormous specimens of Grammatophyllum speciosum which there also grow in the collars of the Durian trees. The fruit of the Durian is so highly valued by the Malays and their neighbours, the Chinese settlers, that, on no account, are the trees cut down when the forests are being cleared for cultivation. It is quite common to come upon isolated Durian trees, enormous specimens, or groups of smaller ones, with here and there little groves of Mango, or Mangosteen, Langsat, or Tarippe (a form of Jack-fruit), and other edible fruit-bearing trees miles and miles away from the little farmhouses or villages. The unsophisticated traveller has now and then concluded that these trees, being far away from habitations, had no owners; but if he should gather the fruit, or otherwise injure or molest them, he will soon hear to the contrary, and be obliged to redress the injury done, which is, as a rule, an easy matter to do.

In Borneo one is continually coming upon fruit trees, either singly or in groups, in the forest clearings, and also on or near the sites of old deserted villages, for it is a rule that, on the death of a headman, or chief, the old residences are deserted, and new ones made on another site. For sanitary reasons this is a very good practical rule; but although the old atap-houses, or Palm-thatched, pile-dwellings are often burned to the ground, the fruit trees still remain and continue the property of their former owners or their successors. Then new orchards spring up around the new village, which in its turn is again deserted, and so on, and now and then I have seen very fine plants of Phalænopsis grandiflora, Grammatophyllum, and Platycerium grande, growing in the collars of these fruit trees.

As a rule, it is on isolated trees only that the ordinary traveller has a chance of observing Orchids, for in the dense forest-primeval everything is high up in the leafy roof over his head, and hidden to all but the boldest of native climbers by a multitude of leaves of all and every kind. Even with a good field-glass, or binocular, but little can be seen on account of the dense shade. Now and then, however, a fallen giant of the forest reveals somewhat of the epiphytal plant-life that is really there. Above you in the tropic forest is a world of light, air, and sunshine, which beasts, and birds, and insects (and snakes!), and beautiful flowers alike enjoy. Thus "high up overhead" the most lovely of Orchids hold their regal court in the sunshine, and are really "at home" to their numerous and especially invited winged guests. But now and then the fall of an enormous tree sapped to the core by huge parasitic fungus it may be, or caught by a tornado, lets light into the forest dimness below, and on or among its ruins lie revealed the beautiful burden it has supported for years. At p. 55 of my *Gardens of the Sun*, is the following passage which I quote here, *àpropos* of Mr. Keyser's discovery. The words were pencilled down as I stood before the prostrate trunk and riven branches of a mighty species of Dryobalanops, or 'Camphor Tree,' which we had heard fall the night before when more than half-a-dozen miles away. "Here, right in the collar of the tree, is a plant of the Grammatophyllum Orchid, big enough to fill a Pickford's van, and just opening its golden-brown spotted flowers, on stout spikes 2 yards long. There, on the topmost branch, is a mass of the Moth Orchid, or Phalænopsis, bearing a hundred snowy flowers at least; and in such healthy vigour is it, that lovers of Orchids at home—supposing it could be flashed direct to 'Stevens'' in its present state—would outbid each other for such a glorious prize, until the hammer would fall at a price near on a hundred guineas, as it has done before for exceptional specimens of these lovely flowers. There, gleaming in the sunlight, like a scarlet jewel, beneath those great leathery aroid leaves, is a cluster of tubular Æschynanthus flowers; and here is another wee Orchid—a tink pink-blossomed Cirrhopetalum, whose flowers and leaves scarcely rise above the bright carpet of velvety moss among which it grows. But what is that attractive gleam of gold and green swaying to and fro in the sunshine? Ah! that is a beauty of another kind! And a native to whom it is pointed out ejaculates, 'Chalaka! ular Tuan!'—a wicked snake, sir; and we are content to move on, and leave him alone in his glory. We tramp on for an hour longer without even the glimpse of a flower being visible, except here and there a few fragments on the ground, the remnant spolia of the flower world which exists on the roof of this grand cathedral of trees."

There are three or four species of Grammatophyllum known from Malacca and the Malay Archipelago, the most usually met with being G. speciosum, a plant rarely met with in British hothouses, because, as Mr. Williams says in his *Orchid Growers' Manual*, it requires "considerable space to grow it to perfection." The plant has been figured many times thus in *Bot. Mag.*, t. 5157; *Flore des Serres*, t. 1386; Bateman's *Second Century of Orchids*, t. 181; and also by Paxton, Lemaire, Blume, and Rumphius; as also in *Gard. Chron.*, n.s., vol. x., p. 181, *cum xylog.?*, here reproduced (fig. 46).

It is probable, from the dimensions given by Mr. H. Keyser, that his plant is G. speciosum, which, so far as I know, is the Anak of its race; but he has only to send a spray of its flowers and a stem to Mr. H. N. Ridley, the Director of the neighbouring Singapore Botanic Garden, to have all his doubts removed as to its specific identity.

The giant Orchids are not at present popular as a class, and it is not every one who, like our friend, Mr. Sander, can build special houses for a solitary specimen, as we were told he did, in anticipation of the arrival of his great Cattleya Skinneri; but the day may come when these gigantic species may be valued, and someone may build for them the biggest and warmest of glass houses, so as to enjoy them as one sees them abroad, growing on or in the collars of Orange, Mango, Jack, Tarippe, Mangosteen, and other fruit trees, with groves of the golden clusters of Bananas hanging here and there, and Bamboo and Palms luxuriating near them in something like tropical luxuriance. No doubt the tropic fruit trees, and the giant Orchids have been neglected in our gardens; but, given capital and intelligent arrangements, and cultural attention, and there is no reason why we should not obtain a taste of both, even under the murky skies of our northern climate. Before I conclude this paper, I should like to add a word in reference to a remark recently made in these columns, viz., that plants do not always grow naturally in the places best fitted for them. This axiom, as propounded by Herbert fifty years ago, and repeated but the other day is partially true; but the great essential fact remains that Nature, that is to say, wild plants of all kinds, as seen at their best, are far ahead of the same plants as cultivated in our gardens here at home. But there is another phase of culture, viz., culture in the native habitats of the plants themselves, and here it is possible to improve on Nature even at her best and highest level. Of course, I am now merely speaking of best from the cultivator's point of view, and not from the much wider biological standpoint.

Then there can be no question of some plants thriving better in other open air climates than their own. In Jamaica, for example, the Mango has naturalised itself, and bears fruits, I am told, superior to those wild in India or the Malay Archipelago. There also Phaius grandifolius of China has naturalised itself, even if it does not thrive better there than in its native Hong Kong.

The behaviour of the Scotch Thistle and the rabbit as introductions to Australia may also be cited, as also those cultivated weeds which follow the white man wherever he goes. A plant or an animal in its native country is often (but not always) surrounded by natural checks to its luxuriance or to its fertility, and culture consists, to a great extent, in the suppression of these natural checks to vegetative life and vigour. *F. W. Burbidge.*

New or Noteworthy Plants.

Fritillaria (Amblirion) canaliculata.*

This new Fritillary most resembles F. pyrenaica in habit and general appearance, but it belongs to the small section of the genus in which the styles are connate up to the very apex. From F. tulipifolia and the other Amblirions it differs by its campanulate perianth. It was found by Sintenis in Kurdistan at Senâr, and a specimen has just been sent to me in a living state by Herr Max Leichtlin, with whom it has flowered for the first time at Baden-Baden this present February.

Bulb depresso-globose, nearly 2 in. diameter. Stem about a foot long, bearing ten to twelve alternate linear deeply channelled ascending glaucous leaves, the longest 3 to 4 in. long. Flowers 3—5, on short, drooping pedicels, bracteated at the base by six to eight crowded reduced leaves. Perianth campanulate, an inch long, outside glaucous vinose-purple, without any trace of tesselations; inside greenish-yellow; segments oblong, ⅓ in. broad, falcate only in the upper third when expanded, bearing a small green oblong nectary, just above the base. Stamens ⅔ in. long; filaments lanceolate, as long as the yellow linear anthers. Ovary green, cylindrical, ⅓ in. long; style as long, forming a triangular column, connate up to the top. *J. G. Baker.*

Xylobium Colleyi, *Rolfe.*

Maxillaria Colleyi (Batem. ex Lindl., *Bot. Reg.*, xxiv., *Misc.*, p. 87) was described as long ago as 1838 from an imperfect specimen of unknown origin. The raceme, with an excellent water-colour sketch of a single flower, has laid in Dr. Lindley's herbarium ever since, but I cannot find that any more information about it has come to hand. Reichenbach knew nothing of it in 1861, when writing his account of the genus in the sixth volume of Walpers' *Annales*. A fine plant of an Orchid, received from the Trinidad Botanic Garden last year, has just flowered at Kew, and proves to be the long-lost species. Whether it is a native of Trinidad, or a plant received by them from another source, we do not at present know, but its re-appearance is certainly interesting. The flowers are of a peculiar light reddish-brown, with numerous purple-brown spots, the lip of a shining

* *Fritillaria (Amblirion) canaliculata*, Baker, n. sp.—Bulbo depresso-globoso magno; caule subpedali foliis 10—12 alternis linearibus glaucis profunde canaliculatis, floribus c., 3—5 cernuis, pedicellis brevibus basi foliis pluribus reductis bracteatis, perianthio campanulato pollicari extus sordide vinoso-purpureo haud tesselato intus flavo-viridi, segmentis oblongis supra medium diu connventibus, nectarii parvo oblonge suprabasali, staminibus perianthio paulo brevioribus, stylis ad apicem coalitis.



FIG. 44.—GIGANTIC SPECIMEN OF CATTLEYA SKINNERI. (SEE P. 287.)

blackish-purple, paler on margin. The smell is peculiar. Lindley compares it to that of an overripe Melon; to me it seems exactly like Cucumber, or the green shoots of Philadelphus. Raceme short, three to four flowered, like the broad bracts, dark purple-brown in colour. Leaves (not before described) broadly lanceolate, petiolate, coriaceous, with three strong nerves, 12 to 15 inches long, 3 to 4 inches broad. Pseudobulbs ovoid, 1¼ inch long. It belongs to Xylobium (then considered a section of Maxillaria) and is very distinct from every other species of the genus. *R. A. Rolfe.*

A GARDENERS' PROBLEM.

As we are in committee on "a garden problem," it is permissible to speak more than once. I should like to draw attention to one point which has not been mentioned, but which seems to me of importance in the discussion. Some of your correspondents say that a knowledge of the native soil and surroundings of plants is of little or no use to them in the garden cultivation of the plants, and that they often succeed in growing them in soils in which they do not grow naturally. But gardeners must not assume that plants will not, or do not, naturally grow in any particular soil or situation merely because they have not been found in that particular soil or situation. Some plants do absolutely refuse to grow except in certain soils, such as the Rhododendrons and some of our chalk Orchids; but many, and probably the majority of plants, will grow in any soil, but in some soils the battle of life is more favourable to one set of plants, in other soils the battle goes in favour of another set of plants. I will illustrate my meaning by two familiar instances. I mentioned in my former letter the case of Erica vagans, which is not found in England off the serpentine, but grows freely in any garden. This at once shows that the serpentine is not necessary for the growth of the plant, and need not be imported with it, but it also shows that the serpentine is fatal to many other plants which elsewhere grow luxuriantly in Cornwall. Now when these plants reach the serpentine the Erica vagans is able to fight them at a great advantage, but when the Erica vagans comes into their county they are strong enough to fight it and strangle it, because they there have food that suits them, and so are lusty and strong. I have no doubt it is the same with many alpines. They are found to grow naturally on bare rocks and moraines; but it does not follow from that that they will only grow on such places. It shows that they will grow where other plants would starve, but they would also grow in more genial places, and in richer soils. Their seeds must often fall on the alpine meadows and pastures, and there they may germinate; but they meet there with a luxuriant growth of other plants, which soon suffocate them. When the Heath or the alpines are brought into gardens they have a fair field given them, and no favour shown to their adversaries, and so they grow, often in a soil very different to that in which they are found wild, but not in soil that is unnatural to them.

But the case may be carried much further. The discovery of a plant in a particular soil or situation does not prove that that is naturally the best for it; it may, and often must have been, squeezed out of better quarters, and now at last has found a place where it can carry on a starved existence. If it could have established itself in a better place, it might have been a very different plant. We have an instance of this ready to hand. All over the upper parts of the Cotswolds the Campanula glomerata grows as a dwarf plant, almost in its growth suggestive of Gentiana acaulis. But if it is brought into the garden it grows 3 or 4 feet high, and becomes a rampant troublesome weed. Does not this show that the larger and more luxuriant growth is its natural habit, but that it cannot fight the battle of life in the lowland pastures, and so has had to retreat to the upper regions, where it leads a starved and stunted life.

The gardener is able often to give his plants advantages which they do not have in their native quarters, and so he is often able apparently to ignore their natural requirements. But it is only apparently; the real fact is that the knowledge he had acquired of the plants from books or travellers was only a limited knowledge—there was a great deal more history, which books or travellers could not tell him, and which his experiments have partially helped him to learn. But even when he succeeded in growing the plant, he has not learned its full history; he has learned something of its modern, but very little of its ancient history. *Henry N. Ellacombe.*

—— As Mr. Woodall has mentioned my name seven times in his letter, I hope it will not be deemed egotistical if I say a few words in reply. With regard to Polygala Chamæbuxus, I am not much surprised at what he says, for oddly enough, when I saw my own words in print in your columns it struck me for the first time that perhaps Polygala Chamæbuxus might grow at a lower altitude than I had imagined, and that possibly leaf mould might not be such a luxury to it after all. I know very well the sort of spot to which Mr. Woodall refers, and I can fancy how my little favourite would revel in it at once. What put me off the scent was this: neither Frœbel, nor Robinson, nor Gusmus, nor Backhouse, in any list, nor catalogue, nor book that I have seen, gives leaf-mould as the right thing for this plant, and as I know Frœbel generally speaks from a close personal acquaintance with the mountains and their treasures, I thought it was growing higher up on their flanks than seems to be the case, and beyond the range of trees altogether. But I did not think much about it either one way or the other, nor does it seem to me to be of much moment in this discussion, excepting so far as the following consideration goes. It now is a most conspicuous instance of the value of empirical efforts. When all the books were wrong, and all the observers had failed to notice a point of very great importance, experiment put me on the exactly right course with regard to Polygala Chamæbuxus, and it finds itself in its beloved leaf-mould after all! Could anything be more to the point? Much the same sort of thing could be said about other instances that have been given, but it is hardly necessary to dwell on them. What is important is, to clear the whole controversy from misconceptions and cross-purposes which have entered into it. When Mr. Woodall writes, "the thing we want is perfect knowledge, then we shall not attempt under circumstances where we must court failure; but more than half the battle is knowledge of the climate, soil, and temperature of your garden," he blesses me altogether, though I really thought till I came to those words that he was driving at something else. But when my good friend, Mr. Ross, says, "Nor can I see how empiricism can successfully compete against practice with science," I open my eyes, for nobody has said that for a moment. It is exactly the same thing as asserting that science is bad, and that a knowledge of the laws of Nature will only do harm. I never met with anyone who promulgated such an idea, nor have I ever come across the competition to which he alludes. Ever since I was a boy at school, and had to learn the familiar hackneyed line, "*Naturam expella furcâ*," &c. I have been under the impression that if you try to oppose Nature—either in your garden or anywhere else—you will be surely punished for the offence.

Then what is all this discussion about? I can fancy someone saying—We all mean the same thing, though it is differently expressed. My answer is, that we do not at all mean the same thing, and that there is in all this tangle of words one point of real value which must not be lost sight of. That important consideration is this, as it seems to me: Is Nature better consulted by a hard servile imitation of its conditions which seem all right, it may be to the eye, or is it more closely reproduced very often by what at first sight appears to run against it, but which really does not offend it in the least? An example will explain what I mean. My greatly lamented friend, the late Sir George Hutt, often told me that Rosa berberidifolia was not properly grown in this garden—he used to say—"it can stand any amount of cold. I have seen it myself in Persia all frozen over. Why in the world do you put that large glass construction over its head? You should let it have liberty, it will stand many degrees of cold." But was he right for a moment in giving me such advice as that about the Rose? I had the benefit of Max Leichtlin's experience at Baden Baden before my eyes about this very plant, and I knew that when the frost came, away went Rosa berberidifolia with him altogether; so I kept my own counsel, and I have also kept the Rose, though I have no doubt that Sir George Hutt's reminiscences were perfectly correct, and that from a superficial point of view they could not be impeached at all. What I submit, therefore, as probably being the case is this: Rosa berberidifolia can stand a certain amount of cold, but only in proportion to the humidity of the surrounding atmosphere, and consequently there must be a vast difference between its habits in Persia and the Isle of Wight, and this must be taken into consideration if you want to succeed with it. You are treating it just as naturally if you more or less give it protection here, as you would be treating it unnaturally if you were to build a large greenhouse for it on the mountains of Afghanistan. And the same sort of thing goes on in ten thousand instances. Extreme literality is not of necessity scientific. It may be the very negation of science and what, offhand, you may claim as consulting, for it may really give it its death-blow. And here it is, I submit, that the great value of observation and experiment come in. I have never had an idea that you can succeed in growing plants by suppressing Nature or running against Nature, or anything of the sort. It would be about as wise to try and teach a fish to walk on dry land. But I do think that we must not hastily assume that this or that is natural. Put it all to the test, allow for the differences of conditions in different places, and when you have got the "perfect knowledge" of which Mr. Woodall speaks, then, and then only can you afford to be certain that you are acting for the best. No less a person than Lord Bacon has said, the bold and enterprising are likely to meet with a greater number of tangible failures than the over-cautious; and yet, if you take a hundred average men of each description, you will find that the bold have had, on the whole, a more successful career;" and if that be translated into the language of horticulture, it is this:—Never mind the tangible failures which experimenting is certain to bring about. You will find out in that way what is really natural better than in any other way, and let this be your reward. *H. Ewbank.*

—— "Granted that everything is known as to the physical conditions under which a plant grows in the Tropics, is the gardener who attempts to grow it really much better off?" Such is one question put by Mr. Dyer, whilst commenting upon the little advantage a gardener derives from a knowledge of the geographical distribution of plants. In answer to this I should say, that he certainly would have a decided advantage over one who was ignorant of such facts. First of all, because knowing the correct physical conditions of the locality whence the plant was obtained, he has some basis to work upon; whereas otherwise he would have to work upon whatever he thought best, perhaps from the texture of the leaves, or some other peculiarity.

The case of Trichinium Manglesii, which Mr. Dyer mentions, seems at first sight rather an exception to the above remarks, growing as it does in Nature in almost pure sand in most arid sun-burnt situations, and consequently most gardeners having that plant, if new to them, and knowing the physical conditions under which it grew in Nature, would endeavour to imitate her by potting it in sand, where it is found the plant fails; but by experiment it is found the plant enjoys under cultivation a good soil,

rich in cow-manure, and I have seen them do well under such treatment at Kew in the Cape-house. But, with a little foresight, one might see that Nature does not limit the plant to a 60 or 48-pot of pure and simple sand, for in all probability these plants receive equally as much moisture and nourishment from the sandy plains of South Africa, conveyed to the surface from perhaps some considerable depth by capillary attraction, as the cultivated ones do from the cow-manure.

Then, again, Mr. Dyer says, that "Nature is at best a very poor gardener." I entirely fail to see where she is. I have never come across a sickly plant in Nature; she never places a plant in any locality where it is not likely to grow up and bear fruit a hundredfold. Whereas there are many plants which good gardeners are unable to fruit in this country, excepting with a very great deal of trouble. Again, what gardener could produce such effects as Nature does in a tropical forest, or in a hedgerow or vale in Devonshire? Not one! Then assuming Nature is a poor gardener, why should our best landscape gardeners try to imitate the works of a poor gardener? What I contend is this, that in Nature plants grow as it is intended they should grow, and any plant artificially grown under glass or otherwise is simply what you might term a pleasing monstrosity." Take, for example, the enormous blooms of Chrysanthemums now produced under cultivation. *A. E. Groombridge, Bayswater.* [In the absence of any new evidence on either side, we think it desirable that this interesting discussion should now be brought to a close. Ed.].

Plant Notes.

Brodiæa leichtlinii,

First described in the pages of the *Gardeners' Chronicle*, Feb. 20, 1875, p. 234, as Milla Leichtlinii, is a native of the Southern Andes. It was introduced by the gentleman whose name it bears, who presented bulbs to the Royal Gardens, Kew, where they are now flowering, and have been since the new year. It is a very distinct and well-marked species, nearest to porrifolia and biflora, but distinguished from these by its broader dark green, not glaucous leaves, single flowers, and very short peduncles. The flowers, over an inch in diameter, are pure white, with a conspicuous green keel down the back; slightly fragrant, and remaining for a considerable time fresh. It seems very slow of increase, and never, so far as we know, ripens its seed. It has been grown in the open border for many years, is quite hardy, and will be a desirable acquisition on account of its early flowering habit.

Brodiæa porrifolia.

The old genus Triteleia first merged in that of Milla, and finally, in the *Genera Plantarum*, into Brodiæa, included a large number of Chilian, and other species, which, in the new order of things, have been broken up into numerous sections. The section Triteleia includes uniflora, ixioides, laxa, peduncularis, crocea, and many other well-known species; while Hesperocordum, in which the species have capanulate tubes, and the stamens distinctly inserted in two series, in addition to B. porrifolia, includes subbiflora, aurea, hyacinthina, hirtella, &c. Most of the species in this section are Chilian, as in the case of the above plant, and subbiflora, and they are hardy enough to stand untouched even in severe winters. B. porrifolia (Milla, Baker), (Triteleia, Pöpp. Frag, 10, *Kunth Enumeratio*, iv., 468; C. Gay, *Fl. Chili*, vi., 118), and *Gard. Chron.*, in 1868, with a very poor figure, p 990. It is a native of Chili, growing in grassy places; and was first discovered at Concau by Poppig. It was also collected on the Cordilleras of Santiago by Phillipi, and first introduced by the indefatigable Herr M. Leichtlin, of Baden-Baden. It has proved to be quite as hardy as B. (Triteleia) uniflora, and though the flowers are not so numerous, they are quite as handsome, and are produced in fairly large umbels. The flowers are described by Pöppig as being of a violet colour, but under cultivation they are white, with a more or less greenish rib along the centre of each segment. The flowers are inodorous, a great advantage certainly, as the Onion-like scent in B. uniflora is against its ever coming into use as a cut flower. It blooms at the same time as B. uniflora, and proves a most useful addition in spring when grown in sheltered spots. It forces very well, and may be obtained in full flower at the end of January. The long, narrow, glaucous leaves and straw-coloured spathes are very characteristic of the plant. B. subbiflora, B. hyacinthina, and B. aurea are equally useful, and quite worthy of general cultivation. *D. Dewar.*

Castilleja indivisa.

The species of this extremely handsome genus are said to be parasitic, in the same sense as the Orobanche, Pedicularis, Lathræa, &c., but the above species is, at least, an exception to this rule. It would not be easy to imagine finer or better coloured specimens than those we have seen growing in the ordinary soil of a common flower border, far from the reach of roots by which it could possibly be benefited. At Kew, in the rock garden, and also in the poor sandy soil of the herbaceous ground, the plant was last year very attractive, and towards autumn it was so brilliantly coloured as to be remarked by every one who saw it. Unfortunately the plant requires such careful rearing as to be out of the reach of those who may not possess a frame or pit; for, though the seeds will germinate in the open, they are usually so late in coming as to leave scarcely sufficient time to mature before autumn has arrived. The plant seems to be perennial, but it does admirably when treated as an annual—that is, sown in heat early in spring, transplanted into boxes when large enough to handle, and keeping the seedlings to a light airy position near the glass, and out of the reach of cold draughts. What has to be guarded against is, the tendency the plants have to throw up flower-stems prematurely, which are, of course, weak, and the plants producing them not worth planting out; but if treated in the manner described above, there will be little fear of this occurring. Towards the end of the month of May they should be planted out in the open, in soil that is good but light, and in as warm a position as may be available. The flowers are inconspicuous, but the bracts which in strong plants are very large and of the most brilliant crimson-scarlet, last in perfection for a considerable period of time. Seeds ripen in the open border, and, if carefully stored, are available for future sowings. *D.*

Medinilla Curtisii.

This plant was figured in the *Gardeners' Chronicle*, vol. xx., p. 621, also in *Bot. Mag.*, 6681; but beyond this, very little, if anything, has been heard of it. In habit it is rather unlike the other cultivated members of the genus, and a good point in its favour is that it is nearly always in flower. It grows freely, and is easily propagated from cuttings; and the habit of growth suggests that it would make a good pillar plant, or would lend itself well to exhibition. It requires the temperature of a stove like other Medinillas, and thrives in a compost of turfy loam and peat, with a good addition of silver-sand. It is useful for cutting from, as it may be cut from without fear of injuring it. It was discovered on the Western Coast of Sumatra by Mr. Curtis (whose name it bears), a traveller for Messrs. Veitch, of Chelsea.

Phœnix rupicola.

This Palm, a handsome and useful plant for decorative purposes, has pinnate leaves which assume a graceful pendent habit, forming a contrast to many members of this genus, which are of a stiff habit. It is of hardy constitution, thriving either in the dwelling, greenhouse, or stove, excepting when subjected to too low a temperature, which causes it to appear starved, and thus detracting somewhat from its beauty. I know of a plant which has stood in a window for the past three years without injury, a test sufficient to place it amongst the list of plants suitable for window gardening. Care should be taken not to overpot the plant. It was introduced from India in 1873, and is said to attain a height from 15 to 20 feet. I have read in some gardening journal that it is similar to P. canariensis, but this is an unfavourable comparison, as our specimens of the latter are almost erect, and the leaves have not the graceful habit which belongs to this Palm. *W. Harrow, Botanic Garden, Cambridge.*

Apricots on Walls and in Pots.

The article, p. 192, on the Apricot, by our late friend, Mr. Wildsmith, is full of suggestiveness, and is one which I quite agree with, as far as it goes. Almost every gardener in England will endorse that part of it in which he refers to the difficulty of maintaining the trees in good condition. From my earliest recollection, the difficulty of doing so has been a perplexing question, and the ablest fruit growers of more than thirty-five years ago discussed this subject, notably Mr. Bailey, of Nuneham Park, and Mr. Saul, of Stourton; the latter was a good gardener, as well as an able writer, and he advocated deep drainage, and the thinning out of the fruit-bearing spurs for Apricot walls, as one of the means to adopt to keep the trees healthy. About that time Mr. Johnson, gr. to the Duke of Wellington, at Strathfieldsaye, had, as he said, "as fine a wall of Apricot trees as any in the country," but he also, like others, failed to get good crops of fruit until the borders were deeply drained, and "the garden, from being one of the latest in the neighbourhood, to be one of the earliest," by means of deep drains. Spencer, of Bowood, also adopted deep drainage at that time, and with good results to his Apricot trees. Deep *versus* shallow drainage was subsequently discussed in the gardening journals, and I am not at all sure whether the advocates of drains 5 feet deep or those of 4 feet had the best of the argument. Covering for the trees in the spring was also discussed, Mr. Bailey being for and Mr. Saul against its use. In my method of growing fruits, I have been greatly guided by the doings and opinions of these good gardeners of a generation ago, not following their lead blindly, but always keeping their teaching in mind. Our late friend writes of having to water the trees after the crop was taken, and I have found it advisable to do the same on light gravelly soils, but it would not do here. I found the path in front of the trees always wet after rain, and the water would stand on it for some time. In that case I set about having a drain laid along the entire length of the border and 3 feet deep. The path and the border are now quite dry after rain, and even in dry seasons we do not water the trees. The soil is rather heavy, overlying what seems to be good brick clay. The Apricot is not like the Peach, subject to attacks of injurious insects, and nearly all the difficulties that one has to encounter in cultivating it is in the roots getting into a bad subsoil, and which will often induce canker; and it is safe to add, that any serious check to the development of the trees is followed by the same effect, and no other fruit trees are more liable to be attacked by canker. There is no remedy when once the disease is present. I hold to deep drainage of the soil where necessary, and cropping the ground over the roots very lightly, or not at all. I am convinced of the good results following the enticing of the roots to the surface by mulchings of decayed farmyard manure and the least possible digging of the soil, and thinning the spurs when they are crowded. All or nearly all the pruning and thinning should be done soon after the fruit is gathered, and the best results are obtained when the wood is well thinned out.

Culture of the Apricot in pots is not to be recommended unless a house can be set apart for them, or they can be put with pot Cherries and Pears. I grew orchard-house trees very well for fifteen years,

and found out, after two or three seasons' failure to get a good set of fruit, while Peaches, Nectarines, and Plums set freely, that the same atmospheric conditions would not suit the Apricot. Apricots and Cherries require a very dry atmosphere when the trees are in blossom, and not only so, but the air ought, if possible, to be in motion by night as well as by day. [As it usually is out-of-doors at that season. Ed.] A roughly built house where the air can find admission by cracks and crevices is the best. In some cases I would advocate pot culture, for the reason that I never saw a tree in a pot have cankered wood, possibly because there is perfect command of the roots; in the second place, the fruit is always of splendid quality, and can be protected from wasps and premature decay. We lose quite half of our fruit on the walls if the weather is damp when it is ripening, by it decaying before it is ripe; and lastly, well grown trees in pots are a source of enjoyment to their owners all through the flowering and growing season, especially if Cherries and Pears are grown in the same house with them. Many persons have not a garden wall suitable for fruit culture, and cannot have one, and such, I am sure, would find the culture of fruit under glass interesting if not profitable. We do not expect to make profits out of our hobbies. One man may build a glass house (many do) for Chrysanthemums only, and their culture is quite as troublesome as that of fruit trees in pots. The question would be, which is the most satisfying? *J. Douglas.*

The Alpine Garden.

SAXIFRAGA LIGULATA.

This well-known hardy, but common large-leaved Saxifrage is now blooming in the open border, amid fog and frost and rain. Always early to flower, it appears to have been even more so this season, owing, no doubt, to the mildness of the weather [up till recently], which finds many things in a state of unusual activity; but its beauty seems lost in the open, and this is why it is I always grow a few plants in pots in a cool-house. Clumps placed in large pots will go on flowering freely in them for years, aided by an occasional top-dressing and some manure-water. When a specimen becomes unduly large, it is taken from the pot, divided, and planted out in the open for two years, in which time they attain to a blooming size, and can be potted under glass, and without the aid of artificial heat the flowers are produced in large panicles; they are deeply coloured and pure, because their lustre is undimmed by any taint from rain and fog. I wonder this plant—common as it is—is not more grown for cutting from at this time of the year, for it can justly lay claim to a large share of vernal beauty. I took a panicle of charming pink flowers to a Court florist in London a few days ago, who I imagined was well acquainted with the flowers that put in an appearance at this season of the year, and he asked in wonder and delight what it was. Not a particle of artificial heat is required to have it in flower in the early part of February. In early spring the plants can be stood out-of-doors, and remain there all the summer and until the autumn. I find the specimens in pots very useful for furnishing my forecourt garden during the summer. They put forth a lot of large bold leaves, which have quite an ornamental appearance. Other of the large-leaved Saxifrages are also useful for the purpose, but S. ligulata specially, because it blooms so early. *R. D.*

Lychnis Lagascæ.

This pretty little alpine is often offered in nursery catalogues, being very easily raised from seed which it ripens abundantly, and looking very neat and gay when flowering in small pots in a frame. But to make it a perennial out-of-doors in England has puzzled most cultivators. It forms a small evergreen bush, with very fragile stalks, 3 or 4 inches high, and is quite unfit, in ordinary exposed positions, to endure the alternate snows and rains of an English winter. I formerly used to plant it in recesses under overhanging stones in a rock bed; but it never seemed to like being covered overhead, and used to lean forward to get out. For the last two or three years I have tried it on the perpendicular side of an old brick wall with a north-easterly aspect, where it continues to do well, and is very ornamental when in flower. *C. Wolley Dod.*

SPRING-FLOWERING IRISES.

The enthusiasm displayed for these lovely plants manifested by Professor Foster has stimulated others to undertake their culture. As a consequence, many more species and varieties are known in gardens than was the case a few years since. In beauty they stand a comparison with Orchids or any other group, but they have one defect, which in these days is a serious one—they are not useful for "cutting." This does not make much difference to the botanist and the enthusiast, for hardy spring flowers are always specially welcome, and if one flower melt away, another takes its place. Iris Bakeriana, of which we give an illustration at fig. 45A, from a plant which flowered at Kew, is in habit like Iris reticulata, but the leaves are cylindrical and eight-ribbed, and the flowers have the fragrance of Violets. It was originally described in the *Botanical Magazine*, tab. 7084, by Professor Foster, and is further alluded to by Mr. Lynch in our issue for January 11, 1890. His remarks were supplemented on January 18 by some valuable notes from Professor Foster, who alludes to the great variability of the plant. The plant is a native of Armenia.

Iris Bornmülleri (fig.45B) is a dwarf yellow-flowered species, in which the petals or "standards," of garden nomenclature, are so arrested in their development as to be almost obsolete. It was originally described in the *Flora*, 1889, p. 140, and is considered to be closely allied to the Armenian Iris (Xiphion) Danfordiæ. A full description, from a plant grown at Kew, is given by Mr. Dewar in our columns, January 25 of the present year. Like the preceding, the plant is a valuable addition to our spring flowers.

THE CLEMATIS.

These beautiful hardy climbing plants, of which there is such a large variety, are classified under the following types, and taking them in their order of blooming, the first is the Montana type, and which are spring bloomers. The most important are C. montana, which flowers in large clusters in the month of May. Next comes the Patens type, consisting of very bright, showy varieties, blooming principally during May and June, and of which the following are a few of the best:—Albert Victor, Miss Bateman, Miss Crawshay, Mrs. George Jackman, Mrs. Quilter, and Standishii.

These are succeeded by the double and single blooming varieties known as the Florida type, which flower during June and July; the best varieties are Belle of Woking, Countess of Lovelace, Duchess of Edinburgh, Fortunei, John Gould Veitch, and Lucie Lemoine. All the above mentioned types flower on the previous year's wood, if well ripened, so that only the weak, straggling, or overcrowded branches should be pruned out, if a fine display of bloom is to be obtained; and this should be done as soon as the winter frosts are over.

The Graveolens type are late summer bloomers, but little planted; and except to run over thickets, or over the stems and boughs of trees, the flowers being small and poor in quality. Of these are C. vitalba, though this in the autumn is very conspicuous, with its shaggy plumose fruits, from which it has gained the name of Old Man's Beard. It is also commonly known as Traveller's Joy, or White Vine.

The Lanuginosa type are the next in succession, flowering from July to October, and very effective the fine and large blooms of some varieties are. Alba Magna, Blue Gem, Fairy Queen, Gem, Henryii, Lanuginosa, Candida, Madame van Houtte, Princess of Wales, and Purpurea elegans, are amongst the best. These varieties flower successionally on the short lateral summer shoots, and should therefore be pruned down to about 3 feet from the ground every spring, to prevent them becoming long and bare of young shoots near the base, the tendency of the plants being to develop new growth at the extremities.

The Viticella and Jackmanni types flower at the same time in profuse continuous masses on the young summer shoots till the frost comes, making them very attractive. Of the former type the following might be mentioned:—Ascotiensis, Lady Bovill, Mrs. James Bateman, Viticella rubra grandiflora; and of the latter, Gipsy Queen, Jackmanni, Madame Grange, Rubella, Jackmanni superba, and Velutina purpurea. These should be pruned so as to assist the development of strong shoots by cutting back the summer growth as soon as the frost has disfigured them.

Clematises grow freely in most garden soils which are of good texture, but where it can be provided, a rich loamy soil is the best, and if this can be mixed with chalk or lime it is generally found beneficial. Thorough drainage is absolutely necessary to grow good healthy plants, and their strength should be maintained by manuring with horse or cow manure at least once a year. For planting, the spring and autumn are undoubtedly the most suitable times.

The uses to which the Clematis may be applied are numerous. They may be trained up verandahs, walls, or trellis-work; made to climb up poles, forming pillar plants; be festooned, run over masses of rockwork or rootwork, or trained over iron supports as specimens for lawns. The summer and autumn flowering varieties are also used as bedding plants, the young shoots being pegged down before they get entangled. The best effect is obtained by raising the surface of the bed, or using hooped rods, to display the flowers better, and edging the bed with white or yellowish foliaged plants. The beds should be well manured and trenched before planting, and I should recommend, where it is possible, to plant the Clematis permanently, so that they should not be disturbed, as each year they would get stronger, and flower even more profusely. *A. G. Jackman, Woking.*

Roses.

TEA ROSES.

The remarks on this subject by "Wild Rose" at p. 131 contains much useful general information on the quality and comparative hardiness of some of the varieties. No doubt some growers were anxious to contribute their quota of information to the Rose Conference, and sent in a list of names without sufficiently testing the merits of the different varieties under varying systems of culture. There could not be many of this class, and the aggregate mass of information would be sure to come out right, so that the Chiswick Rose Conference stands out boldly as one of the greatest floricultural, and, one may certainly add, botanical achievements of the year 1889. It might be well, when lists are sent in containing palpable errors, to consider whether it would be better not to publish them at all; for instance, Madame Falcot is one of the most popular of Tea Roses—it is so very beautiful in the bud state; but if it is recommended as an exhibition Rose on the strength of its popularity as a pretty little thing for button-holes, one must conclude that the person doing so cannot have had sufficient acquaintance with show Teas; nor is anyone who does not know a Bourbon from a Tea Rose better qualified to give a list of the best Teas for any purpose whatever. The Conference has certainly served the very useful purpose of bringing before the public the names of the best varieties in the various classes. This is a most important con-

sideration for those who have to purchase Roses. The trade lists are far too long, and they always have been so. I have been perusing a list of Roses published in 1833 by Mr. Wood, nurseryman, Woodlands, Maresfield, Sussex, and of Paris, and it contains just 1000 varieties of garden Roses. Under the heading, Tea-scented Roses, there are ten varieties only, viz., Belle Felix, rosy-lilac; Bourbon, white; Boutelaaye, pink; Hymenée, white, yellow centre; Jaune Panachée, straw-colour and rose; Large Crimson, splendid crimson; La Surprise, rose; Rêve du Bonheur, rosy-blush, yellow centre; Roi de Siam, pure white; Strombio, cream colour.

Roses. The Tea-scented Roses had not been thought of as autumn bloomers at that time.

I have just turned to a report of the Grand National Rose Exhibition, held in St. James's Hall on July 1, 1858 (not July 3, as stated in Dean Hole's speech at the Conference), and on carefully scanning the names of the Roses exhibited, I find the following Teas only:—Souvenir d'un Ami, Gloire de Dijon, and Madame Bravy. Now Teas are the most popular of Roses, and deservedly so. They may be grown in every garden, for if the soil is not suitable, it may be made so. I have grown them in light sandy soil over gravel, and also over very heavy



Fig. 45.—Hardy spring flowering Irises: A, Baker's Iris, flowers pale violet, spotted with blue; B, Bornmuller's Iris, flowers yellow. (See p. 292.)

Mr. T. Rivers, jun., of Sawbridgeworth, published his *Rose Amateurs' Guide* in 1839, and gives an interesting chapter on "The Autumnal Rose Garden," but in the descriptive list, I do not notice the names of any Tea-scented Roses. Lee's Crimson Perpetual was thought at that time to be one of the best autumnal Roses. It having been raised from seed in the gardens of the palace of St. Cloud in 1812. He says of it:—"Every garden ought to have a large bed of Crimson Perpetual to furnish bouquets during August, September, and October. Their fragrance is so delightful, their colour so rich, and their form so perfect." Mr. Rivers was of the opinion that the old red and white monthly Roses were concerned in the parentage of the perpetual

brick earth. In the former case they were planted on the level ground, the gravel being so near the surface, that it had to be removed, and its place supplied with some heavy loam; a depth of 18 inches was obtained over the gravel, and some good manure placed at the bottom of the trenches; and more of it, with another layer of it 6 inches or so under the surface. I have tried all sorts of manure for Roses, that from the pig included; but I believe the best is a mixture of equal proportions of cow and stable manure. When the two are thrown up together they evolve a gentle heat. I tried on our light gravelly soil Teas as Standards, also dwarfs on the Manetti seedling Briars, stocks, and on their own roots; some of them grew with the greatest vigour on their own roots. Safrano, an excellent variety in the bud state, was particularly vigorous on its own roots. I planted some hundreds of seedling Briars, and budded them where they were intended to bloom, but we had a deal of trouble with suckers—still they are not so bad as the Manetti; I therefore go in for own root Tea Roses, and those that may be budded on the seedling Briar.

In the heavy brick earth on a clay bottom, cold and wet, we have raised the beds quite a foot above the surrounding surface, and banked up the sides with turf; we filled up the beds to the above height with decayed turf, and some rotten manure. The ground sunk considerably the first two years, and the fresh lot of loam required to make up the beds again was an excellent stimulant to the Rose bushes, for it is not well to continue to replant the Roses year after year on the same space of ground without any addition of fresh loam, and even with that, they are not likely to do so well as they would if a fresh bed had been provided for them. I gave up standards because they were much injured or altogether killed in severe frosts. I have not planted any on the Manetti for many years, but confine all Roses, and those intended for pot-culture as well, to their own roots or those of the seedling Briar. The time of planting is of some consequence, and in this connection the nature of the soil must be considered, for it cannot be supposed that small plants of Tea Roses with stems not larger, perhaps, than a goose-quill, planted out in the autumn, will pass through a severe winter in a cold clay soil. It would be far better to plant them out from pots in March or April, as in that case they would have a good chance to become well established during the summer, and flower in the autumn. It is a good plan to place decayed manure around the roots of newly-planted and old Roses before frosts set in. *J. Douglas.*

Climbing Niphetos at Home.

A few days ago, in looking through the well-appointed nurseries of Messrs. Keynes, Williams & Co., Salisbury, I was pleased to see a fine specimen of this Rose in full flower. The plant is growing in an 18-gallon petroleum cask, with the bottom removed, ample drainage and good loamy soil being provided; and last year some of the leading shoots attained a length of 37 feet. These were trained underneath the roof of a span-house, the tub being stood on the floor at the north end of the house, which runs north and south. Thus trained, the wood got thoroughly ripened before the fall of the leaf; the strongest shoots were then shortened back to promote a balance of growth in the plant, the weak ones being spurred back, as in a Vine; with the result, that in due time the several shoots pushed into growth as regularly as a well ripened young Vine would do. The plant in question was started only two months ago—that is, the house having a bed of tan in the centre, and a stage on either side for propagating purposes—was kept close then. Now the roof, both sides, is furnished with fine healthy foliage and substantial blooms for a distance of about 25 feet. The blooms number about 150, and twice as many are showing in the bud. Of course a plant of this description requires and receives generous and judicious treatment both at root and branch, in order to maintain it in such a fine free-flowering condition. The roots are, therefore, kept well supplied with clear water and liquid manure during the growing season, with an occasional surface-dressing of artificial manure before giving water. This is evidently a very valuable Rose for private and marketing purposes. *H. W. Ward.*

A Witty Florist.—At a florist's.—Customer: How much for the Lilies of the Valley? Florist: Five shillings a bunch. Customer: Too much. Florist: Well, madam, if you will have the Lilies of the Valley, you must pay the "valley" of the Lilies.

The Herbaceous Border.

DWARFING HARDY PERENNIALS.

By continued observation in the direction of dwarfing plants, I am enabled to speak with confidence. In making selections of hardy herbaceous plants for given purposes from time to time, I have been compelled to omit many of the best and showiest by reason of their height, but this inconvenience is now overcome, by adopting the cutting down or "dwarfing" plan; for example, in years gone by I should never have thought of including Chrysanthemum serotinum or Pyrethrum uliginosum, as it is more generally called, in a collection of plants suited to a border not more than 3 feet wide, but to-day I do not hesitate in the least, as by cutting down this plant it may be had in all its beauty and freedom of flowering at from 2½ to 3 feet high instead of 6 feet. It is in consequence a plant of far greater value than hitherto; the value of this method of dwarfing was discovered a few years ago, and quite accidentally. In the month of June I had occasion to move a large batch and replant for stock purposes, at this time it had made about 18 inches growth, and knowing that these latter would never pick up again after having once flagged greatly, I pruned them back to about 9 inches from the base, replanted them, and gave them a thorough watering.

A week or two later, in spite of this apparent unfavourable treatment, the plants began to break away freely, and eventually they flowered at their usual time, though of only half the common height. The bed, in fact, was very effective, with its hundreds of large white blossoms, and not more than 3 feet high. I at once saw that plants so treated had increased value, and every year since I have allowed the plants in one-half of the bed to attain to their full height, and cut the other half down at the time stated, to serve as an illustration to visitors. For large beds in parks this plant so treated would be an excellent subject.

Having satisfied myself of the utility of the method, I resolved to ascertain how it might be extended to other plants, with the result that it is equally suited for all the taller Michaelmas Daisies, the taller herbaceous Phloxes, Sunflowers, Heleniums, many of the taller Campanulas, Delphiniums, and others of similar growth. All these are rendered eligible for even small borders, from which they were often excluded on account of their altitude. The adoption of this method will tend to open up a wider sphere of usefulness for tall-growing plants, and greater numbers may now be employed in gardens, where hitherto they were not admitted. *E. Jenkins.*

Trees and Shrubs.

THE FLOWERING ASH (FRAXINUS ORNUS).

Now that the planting season is on, it may be well for me to direct attention to this handsome, but neglected tree. The Manna, or Flowering Ash, a native of the South of Europe, was introduced to this country in 1730, and it is somewhat remarkable that it should still be rare in our gardens. At Holwood, near Bromley, Kent, there is a specimen growing which is fully 35 feet high, with a stem girthing 4 feet 7 inches, and 3 feet 11 inches, at 3 feet and 5 feet from the ground, and the spread of the branches 27 feet in diameter. This tree has a nicely rounded head, is well and evenly branched, and when laden, as it is every year in the spring, with panicles of large cream-white flowers, is as pretty as it is unusual. The flowers are of good substance, and remain good for a long time. It is hard to propagate, and this may be one reason for its present scarcity, and as it is seldom asked for in our nurseries, a large stock of it is not kept on hand. *A. D. Webster.*

Vegetables.

CELERY.

It seems to be the custom with m any cultivators of Celery to choose the largest kinds, and, as a corollary the tallest growers, which, in my opinion, is a great mistake, as in general the tall varieties are much less solid in texture than the rather dwarf Celeries, and these latter require considerably less earthing and protecting to blanch and tide them safely through the winter. Anyone who has grown the two must have experienced this, and they have been most fortunate, if at the time of using the long stalked varieties they have not found them pithy, a very common occurrence, though such may answer for culinary purposes. As flavouring, they are quite unfit to serve as a salad. I find the best Celeries for eating in the raw state are Veitch's Solid White and the Sandringham or Incomparable White, and the varieties though dwarf in stature are massive and have few outside leaves, and much heart, which, owing to their compactness of growth, blanch very easily, and are of sweet flavour; some gardeners consider the Reds to be hardier than the Whites, and it may be that they are so, and if so, I know of none better than Major Clarke's, which is of medium height, and compact in texture. To have Celery in use in the autumn it is necessary to sow by the end of February, but as plants raised thus early cannot be relied on to stand long without bolting, the main crop should be sown till towards the end of March, and then it is a good plan to have a bed of mild fermenting material made up, on which to place a frame to sow the seed in. If this is done on fine light soil, pressed quite firm and level, and the seed just covered, it will soon germinate, and should then have air, when the weather is favourable, to keep the young plants from drawing. To prepare these, and have them sturdy, with plenty of roots, choose a site with a solid bottom, and put 9-inch boards round it, so as to make up a temporary frame for any old spare lights to be laid on to protect the young Celery. This done, the next thing is to spread a layer, 2 inches thick, of old Mushroom dung, or very rotten leaves, and on it a little soil, and then prick out the plants at about 4 inches apart, keeping them close and shaded for a few days or a week to give them a start, after which full light and air must be given. What has to be attended to when this stage is reached, is, that the plants should never get dry at the root, as that tells much against them, and is a frequent cause of their running to seed. It will be found that Celery treated in this manner will lift with firm masses of roots from the hard floor, and will go out into the trenches without feeling a check. We always have ours between Peas, as both crops are benefited, the Peas by having plenty of room, and the Celery slight shade, which, in the summer months, is just what it likes. *J. Sheppard.*

Plants and Their Culture.

Treatment of Forced Plants.—Plants that have been forced are often placed by the gardener on one side, and neglected till it is too late in the year for new growth to be made that will be of any use for next season's bloom. I know that at this period of the year there is usually a want of space in many gardens, still much may be accomplished if means are taken to give the forced plants a place in which they may continue the growth commenced in the forcing-house. For this purpose, fruit-houses are often available, and the back parts of plant-houses and frames, but I do not advise the use of the fruit-houses in cases where the plants are infested with mealy-bug or scale; moreover, I consider it to be a waste of time to force plants that are infested with mealy-bug, as the warmth soon increases the mischief. Any hardy plant that has been forced should have suitable shelter given it, as exposure out-of-doors for one cold night will do great mischief, and this plan should be followed even if the plants will not be required for the next season. Azaleas demand especial care. Indian Azaleas when past their best should have all the seed-vessels removed, and be placed in a house with a moist-growing temperature of 55° to 60° at night. In greater warmth than this, or when placed close to hot water-pipes, thrips become very troublesome. I would not advise placing these plants in a vinery, they being liable to be infested more or less with thrips and red-spider. Any of the Azaleas which may be infested with either of these insects should, after blooming, and before more new growth is made, have a thorough syringing with tobacco water and soft soap, or other insecticide. As soon as new growth commences, the plants may be watered occasionally with a fertiliser. Small plants should be repotted before placing them in heat, using for the purpose good peat and plenty of coarse silver sand, well-drained pots, and doing the potting firmly. The mollis varieties of Azalea should, if possible, be kept growing in an intermediate temperature, such as is afforded by a vinery or Peach house just started. These plants may in a few weeks be removed to a cold house or pit, and gradually hardened off.

Deutzia gracilis should have extra care, so as to get strong plants for next season, and need to be treated like the Azalea mollis; but if not in good condition they should now be repotted, and have a few of the strong roots shortened; the plants may be grown for a time in a warm house. Spiræas should be protected until the time arrives to plant them out in the open. Primulas, in order to bloom well next year, need protection in a frost-proof house for a time. Most hardy plants, as Rhododendrons, Viburnum opulus, Andromedas, and the like, are all of them benefited by not being exposed to frost at this season, but gradually hardened off, and finally plunged or planted out on a warm border. Lilies of the Valley after forcing, if kept moist in a cool frame, matted up at night, and planted out, are very serviceable for cutting purposes after the offsets have reached two years of age. They require a good compost at planting. Most kinds of bulbs are serviceable if protected in this way and given a place in the open ground, producing much bloom the following year. When planting the Lily of the Valley and bulbs, care should be taken first to divide them. *Geo. Wythes, Syon House, Brentford.*

The Orchid Houses.

The Inmates of the East India House.—Calanthes of the Veitchii and vestita sections are now sufficiently forward in growth for repotting, which ought not to be delayed, the young growths being liable to get bruised if it be done late. The compost may consist of about three parts fibrous loam, that is fresh-cut turf well pulled to pieces, with one part of peat and chopped sphagnum moss, and the addition of a little silver sand.

The compost should be moist, but not sufficiently so to bind together; the size of pots may be twenty-fours (7 inch), and these may be filled to about three-parts with potsherds, a little sphagnum moss being placed over these to keep fine particles of compost out of the drainage; and lastly, about an inch of the compost is placed over this last, and rammed down firmly. The pseudobulbs, if large, may be put to the number of four, and if of ordinary size, five are not too many to put into a pot, each being placed in position and the soil made firm about it before another is placed in the pot. When finished, the soil should only be about three-quarters of an inch from the rim. This will give space for watering when the roots and growths are well advanced. No water will be necessary for at least three weeks after potting, and, if possible, newly potted plants should be placed upon a shelf or stage very near to the glass, and in a temperature of 65°. Where a plant stove is at command, it will be found one of the best places for Calanthes at this period, much heat and moisture being alike necessary. Great care must be exercised so as not to syringe the pseudobulbs overhead when the young growths are coming through the soil, or spotting will at once occur with its attendant ill effects. Maxillaria Sanderiana does well with us in this house. Cœlogyne barbata, a useful winter flowering species, is now starting to grow, and should be repotted, if found needed; a compost of one-half peat and one part turfy loam and sphagnum moss is suitable. Epidendrum nemorale should be kept dry, the pseudobulbs

being just preserved from withering. Once a week mild fumigation may be done, to keep thrips and aphis in check, care being taken that the leaves of the plants are quite dry at the time it is done. The house should be syringed twice a day.

Where warm Orchid houses have an arid atmosphere, the present time is a good one to plant out some ornamental foliage plants under stages and on the walls, these things adding to the appearance of a house, and retaining moisture better than bare surfaces. Suitable plants are Fittonias, Tradescantias, Panicum variegatum, the Rex varieties of Begonias, Selaginellas, dwarf and tall Ferns, Hoya carnosa, Philodendrons; burrs from the brick kiln, and masses of tufa or soft sandstone have a like effect in retaining moisture.

The Intermediate-house.—Vanda tricolor and V. suavis should be shaded from sunshine, and but little water supplied to them as yet, the small quantity the plants require being given with the syringe. Plants which are bare of foliage should have their stems syringed to induce the forming of new roots at that part. Vanda cœrulea should now be repotted, and little water given it for the present.

The repotting of Anguloas may now be done safely, a compost of turf, peat, and sphagnum moss being employed. It is better to pot or dress these plants before they lose last year's foliage, the roots then being less active, and less susceptible to injury. Scale is a pest to which these plants are very subject, and to rid them of it, they should be sponged with soft-soap and water occasionally. The temperature at night may be 58°, with a rise of 10°, with sunshine by day, but less than this will be sufficiently warm for the plants if the weather be sunless. *A. G. Catt, Parkfield, Worcester.*

THE FLOWER GARDEN.

Bedding Plants.—Continue the potting up of all autumn and spring struck cuttings—the latter as soon as they are sufficiently rooted; and keep all of them in a temperature of 58° to 60° by night, until they have become established. Pot off or prick off into pans and boxes seedlings of plants, the seeds of which were advised to be sown in the previous Calendar, not allowing the little plants to remain in the seed-pots till the roots get interlaced, but taking them in hand as soon as a few true leaves are made.

Propagation.—Push forward the propagation of tender bedding plants, and afford the cuttings increased temperature, which they will now stand. No time should be lost, the importance of strong and well established plants at bedding-out time not being possible to gainsay. By a neglect of this precaution a considerable part of the season goes by before any fine effects can be looked for. Cuttings of Pansies should now be put in for late summer flowering plants.

Seeds of all the flowering plants used in the flower gardens should now be sown, and these should include Asters, Zinnias (both the tall, and the dwarf Hangeana varieties), Ten-week Stocks, Verbenas (especially the striped varieties), Petunias, Phlox Drummondi (including P. D. cuspidata), herbaceous Phloxes, &c., Sweet Peas that is, for early bloom, sowing them like the earliest culinary peas in pots and hardening off. All seeds of summer climbers, such as Cobæa scandens, Tropæolum canariense, Lophospermum, Maurandya, &c., require to be sown now, if they are to cover the space designed for them early in the season.

Gladiolus.—The first planting of these should now be made; if in the mixed herbaceous borders, clumps of from three to seven may be planted; but where they are grown for cut flowers or exhibition purposes, a properly prepared bed or row will be the best. In either case the soil should be deeply dug, and a liberal dressing of well decayed manure and leaf-mould added, and if the soil be heavy, a handful of sand and leaf-mould should be placed around each corm, these being placed at about 3 inches beneath the surface.

Flower-Beds.—Where the summer arrangements include Pansies, Violas, and any other such hardy subjects, also flower-bed edgings of Stachys, Cerastium, Saxifraga, Thyme, &c., all of these plants may now be planted. In no case should edgings made of the above be allowed to remain for more than two years without their being divided and replanted in the spring. *D. C. Powell, Powderham Castle, Devon.*

THE HARDY FRUIT GARDEN.

Orchard and other Trees.—Secure all standard trees planted in the autumn to stakes, as those put to them at that time will be found to have got out of their proper position. Place a piece of hayband neatly between the tree stem and the stake, which will then do no injury to the former. Dwarf growing fruit trees may still be planted, and these, if well attended to, will do fairly well. At this place a few years ago, the building of a wall was not finished until the month of April, and for which trees consisting of Plums, Cherries, and a few Pears had been ordered to be sent at once, and some of these had started into growth, and a few were in bloom. The tree border was ready, and holes were dug in readiness for their reception when they came to hand. After being planted, they were kept syringed twice, and sometimes three times a day, and were shaded. The result was that every tree made good growth and some fair sized fruits were gathered. I mention this to show that when circumstances have prevented the operation of planting being done in due season, trees may still be planted if extra care be taken. Early forced Strawberry plants if intended to be planted, a good practise generally, should be carefully hardened off in cold frames or under some kind of protection, so as not to have their crown buds damaged by frost. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

Peaches and Nectarines.—Early-house fruit will now require judicious thinning. One fruit to a square foot is the orthodox quantity, but seldom carried out. Over-cropping is a serious matter; it is better to have fewer good fleshy fruits than a larger number of stones and less flesh. Disbudding will require weekly attention, shoots having healthy swelling fruit at their base should be stopped at three leaves, and shoots retained should be tied occasionally. Give the warm borders rather weak liquid manure. Shut up early before the sun leaves the house, giving a good shower bath. Night temperature, 60°. Keep a look-out for aphis, and fumigate slightly for two or more nights in succession when the foliage is quite dry. Give an occasional syringing with clarified soot-water, and also damp down with strong liquid manure at closing time, both being preventives of insect attacks. Allow the sun to run the temperature up to 90°, with judicious ventilation; but be on the alert for draughts, so prevalent in this month from dry east winds. Second and later houses must have daily attention. Pull off deformed flowers, and those growing underneath the branches, leaving only those best placed. Spur flowers also may be thinned, and where two or three flowers are in a cluster, reduce these to one. Close all houses at least an hour before the sun leaves them to economise fire-heat.

The Strawberry-house.—Remove pots of ripening fruit to a warm dry shelf near the top ventilators, to improve the flavour, water with clear water, and do not hurry the colouring. Keep successional plants more moist after flowering, give a night temperature of 50°, and the day temperature may run up to 60° to 80° by sun-heat and ventilation. The small flowers and weak trusses of plants in flower may be thinned; six to eight fruits to a 5-inch pot will be found a fair crop. La Grosse Sucrée is the best early forcing Strawberry. Place into the pits fresh batches of plants according to demand. Syringe twice daily all plants except those flowering or ripening. Plants on dry shelves will be assisted if a 6-inch square of turf, hollowed out a little in the middle, be placed under each pot. The roots will soon benefit from this.

Young Vines.—Cutbacks for next year's supply should now be shaken out, and repotted into 12-inch well-drained pots, using the best procurable turfy loam, mixed with some ½-inch bones and old mortar rubble; plunge in bottom-heat of 70°. Succession vines should be tied into place, and the disbudding closely attended to. Gradually withhold syringing of the foliage, and remove the beds of fermenting materials, if any, from the house, and keep a sound covering on the outside borders. The present is a good time for starting a house of Madresfield Court Vines, Muscats, Lady Downes' Seedling, and other late varieties. Vigorous canes should be tied down bow-wise to induce a regular break of the back buds, and to this end the ammonia arising from a heap of fermenting materials within the house will assist the outer border being covered to protect it from snow and rain. If late Black Hamburgh Grapes are required, the house should be kept open, dry and cool, until the vines start of themselves.

Early Melons will in many cases have reached their trellis, and by way of prolonging the ripening of the crop, I recommend every alternate plant to be stopped as soon as four or six leaves are on the trellis, setting the crop from the laterals springing therefrom. Allow the other plants to go nearly to the top of the trellis before stopping their leaders, removing the lower laterals as soon as seen. Add a little fresh fermenting material as required, in order to maintain a bottom-heat of 80° to 90°; encourage sturdy, healthy growth, to stand sunshine later on, without which luscious fruit cannot be obtained, and no forced fruit better repays generous treatment than the Melon. Prepare successional plants for planting out. Sow Blenheim Orange seeds now. This kind will perfect splendid fruit in the ordinary dung-frame, if well prepared and skilfully handled; whereas for house culture, under liberal treatment it will (if true) be found the very best of Melons. Grow in heavy loam, well rammed.

Cucumber-house. With increased light, better growth and fruit will be made freely by the plants sown last August for some months yet, if not over-cropped. Crowding of the foliage, followed by hard prunings, is ruinous to Cucumbers; moreover, they are often planted too thickly, for no plant better likes extension training. They require but little top ventilation; indeed, market-growers' houses are often erected without it, and the atmosphere cannot well be too humid and close. Prepare plants for the dung-frames, sowing at once a good strain of Rollisson's Telegraph. The materials for these frames should be well sweetened, and its gross fermentation subdued by two or three turnings before the bed is built up. Soil of a lighter character than that chosen for Melons is desirable, using a small quantity at first, as best results are obtained by frequent top-dressings. *W. Crump, Madresfield Court, Malvern.*

THE KITCHEN GARDEN.

Forced Potatos.—Potatos in frames should be carefully examined; give tepid water if dry; water, however, should be sparingly given till the plants attain good size. It is best to give the waterings on bright mornings, so that the leaves may get dry before night. When the plants are 6 to 8 inches high, earth up with moderately light soil slightly warmed, raise the frames, if movable, to prevent the tops coming in contact with the glass; give abundance of air at all favourable times, but avoid a cutting draught; also, well cover up at night to prevent a chill.

Parsley, early sown in pans or boxes in mild heat, should be pricked off either into small pots or boxes, allowing 2 or 3 inches between the plants. Place the pans as near the glass as possible. With care these will produce an abundant supply several weeks before the outside sowings.

Brussels Sprouts and Cauliflowers should now be pricked off in boxes; this should be attended to early, or damping off will ensue. Of the Erfurt type three may be pricked into a pot, to be subsequently turned out and planted without separating them; but the larger types will require much more room. If seed of the former has not yet been sown, no time should be lost in getting it in, especially in cold northern districts, it being essential to get good strong plants at an early date.

French Beans.—To assist the formation of good fat pods, give weak liquid manure each alternate watering—that made from deer or sheep-droppings suit beans well. Syringe the plants twice daily, except on wet or foggy days, and pick off the pods, when large enough, so as to give the smaller ones a better chance to develop. These pods may be tied up in bundles and stood with the ends in water, and placed in a cool spot, when they will keep for a few days. Place twiggy sticks to succession plants, when large enough, first top dressing if required; sow more seed every fortnight, either in fruiting pots or small 60's, according to circumstances. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Newspapers. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, Mar. 11 — Royal Horticultural Society: Fruit, Floral, and Scientific Committees, and Lecture.

SHOWS.

WEDNESDAY, Mar. 12 — Royal Horticultural of Jersey. Royal Aquarium: First Spring Show (two days).

SALES.

MONDAY, Mar. 10 — Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms. Nursery Stock at The Nurseries, Romford, by Protheroe & Morris.

TUESDAY, Mar. 11 — Roses, Greenhouse Plants, &c., at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, Mar. 12 — Roses, Fruit Trees, Shrubs, Border Plants, &c., at Stevens' Rooms. Lilies, Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, Mar. 13 — Orchids in Flower and Bud, 10,000 Lilium auratum, &c., from Japan, at Stevens' Rooms.

FRIDAY, Mar. 14 — Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—42°1.

Nomenclature of Orchids.

A considerable number of suggestions, some of a contradictory character, and others that are impracticable, have, we learn, been received by the committee appointed by the Royal Horticultural Society to consider the subject, but these being still under consideration, we are not at liberty to say anything more about them at present. If, however, we may judge from the correspondence that has reached this journal on the subject, it would seem that there is a pretty general unanimity of opinion except upon one point, and that is as to the form of nomenclature to be adopted for minor variations and for cross-bred plants. All agree that Latin names, given and registered by a competent botanist, should be assigned to species and varieties, *e.g.*, Cattleya labiata, and Cattleya labiata Mossiæ, C. labiata Dowiana, C. labiata Mendeli, and so on; but when it comes to such variations as are represented by names as Cattleya labiata Mossiæ aurantiaca grandiflora, or Cattleya labiata Mossiæ kermesina marginata, there is apparently a divergence of opinion. Some are of opinion that the style of nomenclature adopted for florists' flowers is the best for such minute subdivisions, whilst others claim for them the application of Latin names, with the result as above seen. The names applicable to crosses too will need urgent attention. We need not point out the possible vulgarisms and awkward expressions that may result from names expressive of the parentage of particular varieties. Such cases might even entail an occasional action for libel! On the other hand, if we are to combine the Latin names of both parents into one appellation, we shall have, as in the case of the Cattleyas just referred to, appellations of ten words in length! It would seem therefore that a middle course is preferable, and this, no doubt, will be duly considered by the Committee.

M. Godefroy, who was asked to favour the Committee with, his views on the subject, has preferred to publish them independently in a recent number of the *Orchidophile*. M. Godefroy would call an Orchid that was worthy of cultivation by a short euphonious name; if it were ugly, then he would not object to any barbaric name being applied to it! M. Godefroy, like every one else, would leave the naming of species and varieties to the botanist, but in the case of garden varieties raised by the gardener, he thinks very justly that the latter should be considered in the matter.

In the case of a first cross, M. Godefroy upholds the usually adopted plan of combining the names of the two parents, *e.g.*, Cypripedium javanico-superbiens; but when the hybrid is again crossed, say with C. barbatum, we should be burdened with such a name as Cypripedium javanico-superbiens barbatum, and so on. It is evident that this system would break down under its own weight. M. Godefroy goes on to suggest that each species, say of Cypripedium, or other genus, should be designated by a letter, thus, Cypripedium barbatum would be indicated by the letters C. B.; Cypripedium insigne would be noted as C. I. and so on. Hybrids would be named thus:—C. Leeanum, C. I. × Sp., to indicate that C. Leeanum was a cross between insigne and Spicerianum. In cases where a cross was effected between a species and a hybrid, C. Schroderæ, for instance, M. Godefroy would write C. Ca × Sc × Lo; that is to say, "C. caudatum × Schlimi × longifolium, or Schlimi × longifolium = Sedeni." If a hybrid be fertilised by a hybrid, *e.g.*, Sedeni and grande would be thus indicated, "C. Sch. × C lo × Ro × Ca." These examples, says M. Godefroy, have not cost him anything, and he does not expect to derive much profit from them!

In all this, as it seems to us, there is an attempt to mix up distinct things, viz., the application of a name, and the history, and sometimes even the structure, of the plant. In rare instances this can be conveniently done, but in the majority of cases the attempt to combine these objects, lands us in a slough of symbols, and crosses, and syllables which, however useful for the purposes of the botanist, are worse than useless for the gardener and amateur.

One of the golden rules of botanical nomenclature is that which forbids us from attributing to any author, words or names that he did not employ, or a meaning for which he cannot justly be held responsible. Now if a Latin name be given to a plant, the inference is that the plant so-named has been examined, named, and registered by a botanist, and further that the plant is, in his opinion at least, a definite species or variety. But a Latin name as applied in gardens without authority, is, so far as its name goes, an impostor, pretending to represent something which it does not. Even when plants are submitted to a botanist, there comes a limit to his discriminating power, or at any rate to his power of so describing a plant as to be intelligible to others, or so as to admit of accurate comparison with other plants. Again the points of distinction, such as they are, may be of little moment botanically speaking, but quite otherwise from the point of view of a horticulturist, especially of a commercial horticulturist. When this limit is reached, then we think the use of Latin adjectives should cease, and be replaced by some other system of naming.

The botanist, moreover, may be right or wrong, if right, the name he proposes will remain; if wrong, it will have to be changed, and everyone who cares to do so will be able to consult the registers and ascertain the history of the plant and form his own conclusions. But if Latin names are to be applied indiscriminately, and to variations which defy accurate definition in words, great confusion will arise, nobody will be responsible for them, and there will be no authentic record or description to refer to in case of doubt.

For these reasons, we deprecate the employment of any appellation which by its character may give rise to a false inference. If a plant has a vernacular or a fancy name, we know at once that we have to deal with a garden-plant which may be a variety of some botanical species, or an artificial production. In either case its beauty and interest are in no wise lessened by a "fancy" name, even for botanical purposes, though some fear that its commercial value might be lessened. The cosmopolitan nature of Latin is, of course, an enormous boon, and it is one of which we can, to a considerable extent, secure the benefit without engendering the confusion begot of imitating botanical names proper. Such names as Cattleya Apollo, Cypripedium Minerva, would be understood all over the world. They would be specially applicable to crosses of various degrees, if written with a ×, and their history could be recorded in any suitable publication. If some scholar could devise some Latin form for naming garden plants of uncertain standing, and one which would not be open to the objection of conflicting with proper botanical names, he would be doing a service. The nearest we can get to it at present is to add the suffix *hort.* to the Latin name. This answers well in writing, but is otherwise useless. But on all these matters we may expect shortly to be guided and directed by the collective wisdom of the nomenclature committee.

The Gardeners' Orphan Fund. — The monthly meeting of the committee of the above took place at the Caledonian Hotel, Adelphi, on Friday, the 28th ult., Mr. George Deal in the chair. The minutes of the last meeting having been signed, the Hon. Secretary read a letter of thanks from Mrs. Wildsmith, in reply to the resolution of condolence on the death of her husband, an active supporter of the Fund. Among the special donations and subscriptions handed in was one of £15 from Mr. William Robinson, and one of £14 0*s.* 11*d.* from Mr. J. Hughes, the local secretary at Birmingham; and £2 16*s.* from Mr. J. Hussy, Hains Hill Gardens, Twyford, local secretary for that district. The matter of the annual floral *fête* at Covent Garden in aid of the Fund, then came under consideration, and a letter was read from Mr. J. Bourne, stating that the Duke of Bedford was willing that the Flower Market should be again utilised for that purpose. It was resolved that a meeting of the standholders of the Market be called at the Hummums Hotel, Covent Garden, on Friday, the 14th inst., at 9 p.m., to solicit their co-operation in carrying out the *fête*, and to appoint a committee from their number to work in conjunction with the committee of the Fund. It was also resolved that, consistently to the convenience of the President, and the engagement of the Hall, the annual meeting of subscribers, the election of children to the Fund, and the annual dinner take place at the Cannon Street Hotel on Friday, July 18. The Secretary, having brought up



FIG. 46.—ONE OF THE GIANT ORCHIDS, GRAMMATOPHYLLUM SPECIOSUM. (SEE P. 287).

a statement as to the probable income of the Fund for the current year, and the sum available for allowances to children, after funding the donations, &c., as prescribed by the rules, it was unanimously resolved that ten children be placed upon the Fund at the next annual election in July. The usual vote of thanks to the chairman closed the proceedings.

Rationalism v. Empiricism.—In relation to the very interesting discussion taking place in our columns, we may incidentally refer to one particular instance, because it is one we earnestly desire to see tested in practice by those who have the means. There is, as we have already indicated in these pages, an astonishing diversity of minute structure in the leaves of Orchids. That diversity, unless we are incapable of forming just inferences, is certainly connected with the relation of the plant to varying degrees of light and moisture. The structure in many cases furnishes indications as to the amount of shade required, the quantity of water demanded, and the power of resistance to adverse conditions. Few more promising researches could be carried out than one into the structure of the leaves of tropical Orchids, either from the point of view of physiology, or of its application to the requirements of the cultivator. The Director of the Jodrell Laboratory could institute few more important inquiries.

"Kew Bulletin."—The last number of the *Kew Bulletin* is devoted to a list of seeds of hardy herbaceous plants, shrubs, and trees which may be had by way of exchange from the Royal Gardens at Kew. The list occupies no fewer than thirty-three pages in double columns.

The Weather. It is only a short time since we were chronicling the advent of early flowers, and the writer of extraordinary Gooseberry paragraphs was in his element in the daily papers. He will have to try another tack, and the weather will help him. Here is a fact for him—the thermometer at Shirley, near Croydon, registered, on the night of the 3rd—4th, as many as 29° of frost. This is something extraordinary.

Messrs. Seeger & Tropp.—A short call at this compact and well-stocked nursery at East Dulwich was sufficient to prove that an interesting addition has been made to Orchid-growing establishments round London. It is small in size, but not an inch of space is wasted, and every scrap of it is devoted to Orchids. Messrs. Seeger & Tropp are importers, and dispose of their produce largely by auction sales, especially on the Continent; but that they are experts in cultivation is shown by some fine pieces of Lælia purpurata in variety showing for bloom, as well as forms of Cattleya gigas, Sanderiana, and a very fine sample of Odontoglossum coronarium, and another of Sobralia Cattleya. There is a very rich collection of Masdevallias, no fewer than 117 species being cultivated. Of course, at this season there is not a great display of flower, but there are several forms of Odontoglossum triumphans in bloom, various Cypripedia, including C. bellatulum, Oncidium aureum, Sophronitis grandiflora, and others. The strictest cleanliness is practised, and its good effects are visible in the health of the plants.

The Horticultural Hall.—We are informed that Lord Rothschild and Mr. Hambro have each expressed their willingness to contribute £1000 to Baron Schroder's Trust Fund.

Berlin Great General Exhibition, from April 25 till May 5.—The Horticultural Society of Prussia, of which His Majesty, the Emperor of Germany is Protector, will arrange a great general (international) exhibition from April 25 till May 5, as we have already communicated to our readers. Since that time the applications for space have increased so much, that the large space will scarcely be sufficient. In addition to Germany, Belgium and the Netherlands specially enter into competition in truly grand style. The Reichskanzler has permitted plants from Great Britain and Ireland, also from Russia, to be sent direct to the Exhibition Hall, and there be examined as to their freedom from Phylloxera by Mr. W. Perring, Inspector of the Royal Botanic Garden at Berlin. They will require no certificate at all respecting Phylloxera, only a certificate from the exhibitor that the plants come from his establishment; even this will not be absolutely necessary. Those English firms which, even under these facilities will not venture to send plants are requested to send cut flowers. A supplement to the schedule will be published in a few days, with some new competitions (also for cut flowers), and with a large number of honorary prizes. The city of Berlin has given six prizes, each 500 m. (£25); His Majesty, the Emperor, a large gold medal; Her Majesty, the Empress Augusta Victoria, a fine vase in porcelain; Her Majesty, the Empress Frederick an honorary prize, as also the Duke of Ratibor, the Minister Friedenthal, and many private persons. Applications for programmes and supplement should be made to the Secretary General of the Verein zur Beförderung des Gartenbaues, Berlin N. Invalidenstrasse 42. The term of application has been extended to March 20.

Chiswick Horticultural Society.—Rose exhibitors have a good open class provided for them at the exhibition of this Society on July 10 next, in the form of a special prize, consisting of a Silver Cup, value 20 guineas (in addition to a 1st prize of £3) for twenty-four Roses, three blooms of a sort. There are also money prizes offered as 2nd and 3rd. The cup is offered by J. Mantell, Esq., one of the conditions being that it must be won three times, but not necessarily in succession.

The Canadian Import Duty on Fruit.—The fruit growers of Canada are urging a re-imposition of the import duty on fruit, as they begin to fear that without this protection the retail trade may pass into the hands of the United States.

Show Fixtures.—The following dates are announced:—Maidenhead, August 14; Hammersmith, July 17 and November 6; Chiswick, July 10.

Ealing Horticultural Society.—This Society, which formerly embraced Acton, Chiswick, Hanwell, and Brentford within its radius, will now confine itself to the parish of Ealing; the prizes for Roses, open to all comers, have been withdrawn from the schedule. Mr. Dean, the Hon. Secretary for the Society for the past fourteen years, has resigned that post; his successors are Mr. J. A. Dawes and Mr. George Cannon.

Reading Gardeners' Mutual Improvement Association.—A well attended meeting of this Association took place at the "British Workman," on Monday evening, and Mr. R. D. Catchpool, a Vice-President of the Association, presided. After the usual business had been disposed of, Mr. J. P. Jones gave a lecture on "The use of Flowers," and exemplified it with illustrations of table decorations. The lecture was of a varied and interesting character, and a vote of thanks was unanimously accorded to the lecturer.

The Market Trade.—Young men advertising for situations in private gardens can hardly fail to notice the number of vacancies found in market establishments. If anything could indicate the growing development of the market trade, apart from statistics, it is certainly found in the numerous advertisements of vacancies in market growing gardens. The remarkable demand now made for Tomatos has given a great impulse to trade in the market direction, and, once well supplied, other elements of a popular kind will follow; indeed, there seems to be no finality to the production of fruits, vegetables, and flowers for market sale. What seems to be so obvious is that, in spite of extraordinary competition, money is made; but then when the control of the temperature in all glasshouses is absolutely at the command of the gardener, production of that description ought to flourish. It is out door culture which labours under so many disadvantages.

The Southampton Horticultural Society.—We observe that Alderman W. H. Rogers, J.P., has just been elected to the post of chairman of the committee of this well-known horticultural society. It seems odd that so eminent a horticulturist should not have been invited to occupy such a position earlier, but once a chairman is elected, it is difficult to replace him by another, hence an old soldier who has been not inefficient has held the post for some twenty-six years, and only gave place to a capable gardener when ill-health intervened. The Society seems to have got a little mixed in its work, having become the promoters of sports and athletics apparently far more largely than of horticulture, hence it is not a matter for surprise that its finances should not be in a flourishing condition. Should the new chairman be enabled to give to the Society a more purely horticultural aspect, and relieve it from its sport associations, it may not only occupy a higher gardening status, but be enabled to show a more flourishing balance-sheet.

Soma.—Dr. Aitchison, in a paper read before the Botanical Society of Edinburgh, draws attention to the fact that there has for some time past been a good deal of talk in India as to what the plant "Soma" of the ancients could be, as from it used to be prepared a strong drink by the priesthood. Ephedra pachyclada is known throughout Affghanistan as Hum—Huma—Yehma, and is at present employed by the Parsees in their fire-worship. Some suppose that this may have been the Soma of the ancients, as it corresponds in a degree to a very vague description given in the old Sanskrit writings. On my leaving Tash, in Persia, on the outskirts of the village, I came, says the doctor, upon an old woman who held in her hand a small dish, on which were some live coals. As I came near she placed some twigs on these coals; they burnt up, and gave forth an odour long forgotten by me. It was the odour of the burning of Juniper twigs; I jumped off my pony, and got my interpreter to question her for me. The lady was a Persian, a Mahommedan, making a fire-sacrifice, with good wishes for my journey, and hoping for the charity of the stranger. She allowed me to examine the twigs she was employing. They consisted of Juniperus excelsa and Ephedra pachyclada, the symbols of two very different religions—the former being used by the Bhudists, and the latter by the Parsees or fire-worshippers. Was it by accident that these two symbols were thus used together, employed by a follower of a third religion—that of Mahomet? I leave this question for others to answer.

Culture of Plants in Alpine Regions.—M. Gaston Bonnier thus concludes a communication to the Paris Academy of Sciences on this subject, in which he shows that certain modifications and adaptations are directly due to the climate:—"Other things being equal, in plants cultivated in the alpine regions it may be observed that the branches spread more widely, are shorter and closer to the soil—that the flowers are more highly coloured, the leaves thicker and of a richer green. The protecting tissues of the stem are more developed. Owing to the greater thickness of the palissade tissue, and the abundance of chlorophyll, the assimilation by the leaves is proportionately increased."

Nature Notes.—Under this alliterative title the Selborne Society, with whose aims every lover of natural history must sympathise, now publishes a monthly journal. It is edited by the Rev. Percy Myles and Mr. James Britten. The object is to

establish a connecting link between uninstructed love of Nature and scientific knowledge, and this it will strive to compass by fostering accuracy of observation, profitable comparison, and systematic methods of study and record. The British Museum and the Royal Gardens, Kew, will be utilised, and the admirably instructive series of typical forms and structures in the Natural History Museum will furnish the opportunity for conveying knowledge pleasantly. The magazine costs but twopence per number, but its value and interest seem to be in inverse proportion to its cost.

Primula sinensis.—Many err in growing too many varieties, and consequently having too many shades of colour. A houseful of red, white, and "blue," alone at Aldenham House, the residence of H. H. Gibbs, Esq., displays a far better selection. In about equal quantities are Chelsea Red (Veitch), Chelsea Blue (Veitch), and Avalanche (Williams). Mr. Beckett has grown his Primulas well, and the effect is all that could be desired. In their own house they are kept in their batches, but when taken out for use, they are disposed as required.

Craig-y-nos Castle.—We have been informed by a correspondent of Madame Adelina Patti's wish to erect at Craig-y-nos Castle a winter garden, which will measure 104 feet by 70 feet, with a curved roof of 45 feet. The roof, which contains about 8000 square feet of glass, will be covered by Messrs. Sam Deards & Co., Limited, with their "Victoria Dry Glazing," which is alleged to be the only method of glazing without the use of putty which is capable of resisting the heavy gales common in that part of the country.

Biographical Index of British and Irish Botanists, from the *Journal of Botany (continued from p.* 266):—

"Miller, Charles (1739–1817: b. Chelsea?, 1739; d. London, 1817. Younger son of Philip Miller. First Curator of Cambridge Bot. Gard., 1762–1770. Went to India, Sumatra, &c., 1770, and settled at Bencoolen. Experimented on cultivation of Wheat. Letters to J. Martyn in Bot. Dept., Brit. Mus. Gorham, 114; Account of Sumatra in Phil. Trans., lxviii., 160; Rees, under Philip Miller.

"Miller, John Samuel (fl. 1847–1858). Nurseryman. A.L.S., 1847. Of Bristol. Herbarium in City Library, Bristol? ? Author of 'Nat. Hist. of Crinoidea,' Bristol, 1821. Dr. John Evans, 'Picture of Bristol,' ed. 4, 1828.

"Miller, Philip (1691–1771): b. Deptford or Greenwich, 1691; d. Chelsea, December 18, 1771; bur. Chelsea Churchyard. Gardener at Chelsea, 1722–1770. 'Hortulanorum princeps.' 'Gardeners' Dictionary,' 1731–1807. 'Catalogue of Trees . . . . near London,' 1730 (published anonymously). 'Catalogus pl. . . . . in Hort. Chelseyano,' 1730. 'Introduction to Bot.' 1760. Herbarium of exotics bought by Banks, now in Mus. Brit. Rees; Pritz., 618; Jacks., 581; Gent. Mag., lxxvii., 1807, i. 520, 1828, June; Linn. Letters, i. 255. Nich. Illust., i. 323; Semple, 79; Felton, 158; Cott. Gard., v. 157; vii. 109; Journ. Hort., xxi. 1876, 76; Loudon, 'Arboretum,' 81. Fancy engr. by Maillet in 'Dictionnaire des Jardiniers,' 1789. Portr. Kew. Inscribed column, 1815, in Chelsea Churchyard *Millerea* L.

"Milne, Thomas (fl. 1795–1837 or 1838). Curator Oxford Bot. Garden before 1796. A.L.S., 1795. Contrib. to With. Arr. ed. 3 (i. xii.).

"Milne, William Grant (d. 1866): d. Creek Town, Old Calabar, May 3, 1866. Of Edinb. Bot. Garden. Botanist to expedition of H.M.S. *Herald* to Fiji, 1856. Collected on W. Coast of Africa from 1862. Plants in Herb. Mus. Brit. Trans. Bot. Soc. Edin., viii. 485; Journ. Bot., 1857, 106; 1866, 272; R. S. C., iv. 396; viii. 408; Gard. Chron., 1866, 731."

Publications Received — *The Book of the Farm*, by H. Stephens (4th edition, revised by J. Macdonald. Division IV. (Edinburgh and London: Wm. Blackwood & Sons.)—*Our Hardy Fruits*. By B. Wynne. (London: Eyre & Spottiswoode).—*Transactions and Proceedings of the Botanical Society of Edinburgh*, vol. xvii., part iii.

Trade Notice.

Sam Deards & Co., Limited.—The first annual general meeting of this Company was held at the Company's offices, Dashwood House, New Broad Street, on Monday, February 24. A dividend of 7½ per cent. was announced.

Orchid Notes and Gleanings.

Phaius tuberculosus.

The secret of growing this handsome plant, which has baffled so many growers, seems to have been hit by Messrs. F. Sander & Co. In the warm house in which the Nymphæas are growing, the water occupies the whole of the base of the house, and suspended near the roof are large numbers of Phaius tuberculosus on rafts on which lays a little sphagnum moss only. These plants, after growing with much vigour, are now sending up flower-spikes very profusely, and some flowers are already expanded. Oncidium ampliatum majus, and other plants which are not noted for being good doers generally, seem also to grow to perfection in this tank house.

Cœlogyne flaccida.

Two large specimens of this, each with fifty or sixty of its long pendulous sprays of white flowers are now in bloom at Aldenham House, Elstree, and are such fine objects as to cause one to wonder why the fact of its being a well-known species should cause its beauty to be ignored. Mr. Beckett, the gardener, says that his plants never fail to flower well, as do the plants of C. cristata and its varieties, whose bloom are not yet over. *J. O'B.*

Howick House, Preston.

The principal feature in E. G. Wrigley's fine collection at the present time is the display of Phalænopsis, which fill the front of a large lean-to house, facing north. There are upwards of seventy spikes of P. Schilleriana, Stuartiana, amabilis, Sanderiana, gloriosa, &c., now open, and the prospect on entering the house is a very beautiful one. The plants are in excellent condition with abundance of fine large leaves. The back stage of this house is filled with choice Cypripediums in excellent condition, and C. bellatulum especially so.

The adjoining house is gay with Cattleya Trianæ and Lycaste Skinneri, &c., in flower, C. Trianæ alba being a very beautiful example. Some of the L. Skinneri were carrying over a dozen blooms from a bulb; L. Skinneri alba had nine flowers open, and is a good form of this fine variety, the flowers being large, very pure, and of substance. *J. J.*

Culture of Odontoglossums.

Nearly every cultivator of Odontoglossums recommends the use of small pots. When beginning, many years ago, I, of course, followed the instructions of practical men, but, having remarked, during several years, that most of the roots preferred, so to say, to remain on the upper part of the pots, and that those that went deeper down suffered more or less, I tried another system. I tied the plants to sticks made of Yew, about 6 inches long, putting these into pots and filling the lower part with crocks, &c., and the rest, up to the plants, which were about 2 inches above the rim of the pots with a mixture of peat, sand, sphagnum moss, and a little good leaf mould and crocks, covering the surface with living moss, not sphagnum. Soon good results showed themselves—the bulbs grew larger and the plants improved generally. Seeing this, I went still further. I had low but broad baskets made, and planted the bulbs in the same way as above. The improvement was soon still more apparent, and many of the plants of O. Alexandræ, &c., which formerly produced only one spike on a bulb, have now two, the plants looking very robust and healthy. A young plant of O. roseum, planted in this way last year, has now on two bulbs four spikes with twenty flowers each, and there are bulbs of O. Pescatorei 4½ inches long and 3 inches broad. No stimulants are used. I, of course, do not presume to say that this system is perfection, I only wish to state the fact that under the conditions by which the Odontoglossums grow here, they have considerably improved under the above treatment. I have tried the following species:—Odontoglossum Alexandræ, O. Pescatorei, O. Rossi majus, O. roseum, O. cirrhosum, and Oncidium macranthum. *O. F., Lehenhoff.*

Cattleya Trianæ Measuresiana.

This is undoubtedly the finest variety of Cattleya Trianæ in cultivation, and distinct from all others, in its large broad labellum, which is of an intense lake-crimson colour throughout, and without margin of any other colour, so usual in varieties of C. Trianæ. Near the orifice of the lip the colour deepens in intensity and brilliancy, forming an unequal ring, and being carried well back in the tube where it is relieved by a yellowish streak irregularly wedge-shaped; the sepals and petals are rosy-white, the latter very broad, forming a striking contrast to the rich dark colouring of the labellum. On the same bench, and near this matchless plant, was the true Cattleya Trianæ alba, with its snow-white blossoms, and no suspicion of any other colour save and excepting the lemon blotch on the lip. This is one of the rarest of white Cattleyas, comparable, and reminding one of the beautiful C. Bluntii. *J. G.*

Epidendrum radicans.

This remarkable species is seldom seen in gardens, owing, no doubt, to the fact that it takes up rather more space than can be well afforded to it. The plant itself, however, does not seem to be particular in this respect, as it is quite content to ramble over any spare piece of rockwork, and produce its clusters of brilliant flowers. Perhaps another reason why it is seldom seen is, that it has the reputation of being a shy bloomer. In my estimation, it seems to be as free-flowering, if not more so, than many other species which are more often met with, and are certainly much inferior to it in the beauty of their blossom. A plant of E. radicans has been flowering at Messrs. Sander & Co.'s nursery, St. Albans, since the beginning of January. It is not potted in soil, but is simply allowed to creep up the side of a piece of rockwork, to which many of its thin, white, whip-like roots cling for support. The stems, about 10 feet long, are clothed with oblong-cordate leathery leaves, 1½ to 3 inches in length. The deep scarlet flowers are borne in dense clusters at the end of the long terminal peduncle, which is clothed with sheathing bracts at each node, and exudes a varnish-like substance from the upper portion. The colour of the lanceolate-acute sepals and petals, and the three-lobed lip is of a dark crimson colour, with a brilliant orange centre. E. radicans is a native of Mexico and Guatemala, and seems to have been first discovered and described by the Spanish traveller and botanist, Pavon. It is also known as E. rhizophorum, under which name Bateman mentions it in the *Bot. Reg.* in 1838—two years after its introduction to cultivation. After being known so many years, it is useless to imagine that it will ever become very popular. Nevertheless, it might be grown in collections where space is of little moment. *John Weathers.*

Phalænopsis at Clapton.

The extensive and healthy collection of Phalænopsis at Messrs. Hugh Low & Co.'s, is constantly producing new species or varieties. P. casta and the delicately tinted P. leucorrhoda were followed by the beautiful P. Stuartiana, and then in quantity by the clear white P. gloriosa. Afterwards came the white Schilleriana, followed by P. Sanderiana punctata and the superb P. Cynthia×, and now we have a white form of P. Sanderiana. Many of the above are still to be

found in flower, as also a large quantity of P. amabilis, some of which are near to the crimson-eyed P. a. Dayana; many P. rosea, both the typical form and P. rosea leucaspis of Rchb. f., which is destitute of yellow in the centre, and has dark crimson markings. A good lot of the fragrant P. Schilleriana is also in bloom, as well as some smaller species.

Angræcums, &c.

Almost a houseful of the charming Angræcum citratum is now to be found in flower at Messrs. H. Low & Co.'s nursery, and many of the neat small growing white A. hyaloides are to be found in the same house; as also a specimen of a new kind, evidently a natural hybrid between the two above-named species in flower. The fine Vanda Amesiana seems to flower in quantity throughout the dull season; and in the Cypripedium houses, Messrs. Low's strain of C. villosum majus and C. v. aureum are fine, and the specimens of C. argus, C. Elliottianum, C. hirsutissimum, and C. callosum, are in many instances in bloom; also the fine C. Ainsworthii×, and many others. The Cattleyas have some good C. Trianæ in bloom, and the large Odontoglossum houses are well set with bud. *J. O'B.*

Lycaste Skinneri alba.

The specimen of this plant in the collection of R. Young, Esq., Aigburth, Liverpool, mentioned in the *Gardeners' Chronicle* of November 9 last year, as having twenty expanded flowers, and several more in bud, has borne fourteen more blooms from the same pseudobulb, and which are of large size and fine substence. *J. G.*

RENOVATING HARDY FRUIT TREES.

It by no means follows that the only means whereby old fruit trees may be renovated is found in grafting. Where heads have become crowded with weak fruitless shoots, and the points die back because immature, the whole surface of the stem and branches is covered with conferva, and generally the trees wear an exhausted aspect, some good may be accomplished, not so much by thinning, as by literally beheading and compelling new shoots to break out all over the stumps, even if the trees be left to do their poor best under ordinary conditions fairly good stout shoots will inevitably break out; when, however, in addition to the severe beheading the stems be well scraped and cleansed of all parasites, the soil about the roots deeply forked and manured, and liberal doses of liquid-manure given them when dry weather sets in, then wonders in the way of new growth will result, and in a couple or three years quite new heads full of strength and fruiting-wood will be formed. It is, of course, needful that the shoots which break out after the beheading, should be thinned, the best being reserved to form a head of fitting proportions. The stimulation given to the roots by forking, manuring, and adding new soil, combined with the more powerful force exercised on the sap by the robust nature of the top growth and luxuriant leafage, soon produce almost new trees, which only need regular pruning and constant cultivation at the roots, to maintain them in robust fruiting condition. A very powerful influence is exercised on the roots of stunted trees by opening trenches half-way round the roots at some 6 or 7 feet from the stems, casting out the old soil some 3 feet wide, and as much deep, and filling up with fresh soil, and some manure added. By the time the roots have got a good hold of this new soil, say some three years after, the other half of the roots may be served in the same way. This plan of treatment is most useful in grass orchards, where the destruction of the pasture about the trees is undesirable. In opening the root trenches, the turf may be removed, laid on one side, and be replaced after the trench has been filled in with the fresh soil. Of course, treatment of this kind is only to be commended where the sorts are good and worthy of retention. Where the varieties are worthless, regrafting is undoubtedly the best form of renovation. It is not too late yet to undertake work of that sort. So far as the scions or grafts are concerned, it would have been well, perhaps, could they have been cut from the parent trees earlier; but as there is so much restfulness in vegetation just now, there is not much the matter, so far, at least, as Pears, Apples, and Cherries are concerned.

Grafting is to be governed rather by the condition of the leaf-producing sap rather than by the bloom-producing sap, and the former is always later in its action. [There are not two saps. Ed.] Then in selecting wood for graft-making for large or old trees, it is not at all needful to take shoots with fruit-buds on them. The best grafts invariably are made of stout yearling growth as large round as a man's finger, if possible, but on which leaf-buds are stout and plentiful. There is an abundance of such shoots to be found yet on robust trees, and if these be taken off as hard back as well can be, tied into small bundles, and laid in some 6 inches, by the bottoms, in loose soil, they will be found in capital condition for use in April next. By having the grafts thus cut early and heeled in, they are found at the grafting time to be invariably several days later in starting leaf-buds than are shoots left on the trees. It is thus possible to command the time for grafting more easily than when shoots are left on the trees till required as grafts. Beheading may be done at once also, although not back to the point at which it is proposed to graft; if cut to within a foot of that particular place some time previous to the final severance, which will be best left until the work of grafting is proceeding. But when the heads are removed, something may well be done at once in thoroughly cleaning the stems and branches, loosening or otherwise assisting the soil, adding manure, or in any way rendering the roots material aid. The effects of that assistance will not be immediate, but will be shown more fully when the grafts have become united later, and the sap is in full circulation. Once the junction of the graft with the stems is assured, and growth is proceeding, the more fully the roots are active the greater will be the first year's growth, and the stouter the head eventually. It is of the first importance the early growth of the grafts should be robust, as that being secured, the later development will assuredly be satisfactory. The best time for grafting is found, according to locality, to range from the middle to the end of April, and in the north even later.

As to the proper places at which trees should be grafted, that must be regulated materially by the condition of the trees, where several clean arms can be found a few feet beyond the jointing from the main stem; it is better to cut back hard to these and graft them, than to graft a large number of small stems on long arms. The labour of grafting these is great, and because they are so wide and high, are often in danger of being blown out by high winds; when the grafting is performed closer home with very stout scions, which are securely fixed and tied, it is easy later to give them some support during rough weather by means of one or two stout stakes tied to each arm, to which the graft-growths are secured. In a couple of years the union becomes so perfect, that there is little danger to be apprehended from rough winds.

Where older growths than yearling shoots offer, and in consequence are larger, the stoutest may be let into the stem, as well as into the rind, by wedge-grafting. The great object of the grafter should be to ensure quick unions, thus losing no grafts, and forcing, as it were, very robust growth, the first season. The stouter the shoots made, the more robust the foundation laid for the formation of a big head in a few years. Strong growers, such as the Blenheim Pippin or Warner's King, worked on to old stems, draw sap and develop growth rapidly; these both form fine heads and begin cropping early. Probably no Apple will repay so well for grafting on to old stems in this way as the Blenheim Pippin. *A. D.*

NURSERY NOTES.

ORCHIDS AT HOLLOWAY.

We found a nice display recently at Messrs. Williams' nursery in North London—nowhere a great many plants together, but scattered through the various houses. The late-flowering Calanthe masuca, C. Regneri, and C. Williamsi, were found in quantity, and gave always a bright look to the houses. Cymbidium eburneum was found in two houses, blooming vigorously in each; and C. Lowianum was seen with six long spikes of flower-buds that will shortly be expanded. A few Lycaste Skinneri were observed; also L. costata, more curious than beautiful; and still another, L. fulvescens, a buff-coloured blossom. A small plant of the rare Dendrobium Veitchianum, better known as D. macrophyllum, carried one spike of three blooms. The colours of the flower greenish-yellow, dirty-white, with purple-coloured streaks on the side lobes of the lip, and purple dots on the middle lobe mark it as a singular and interesting plant. A vigorous plant would not be without effectiveness. Several Cypripediums were noted, including C. Lowii and C. hirsutissimum. Vanda suavis was found in fair bloom, and a number of Odontoglossums, and many more coming on; amongst the latter O. baphicanthum in several examples, also O. cirrhosum Klabochianum. The Peruvian Epidendrum lanipes, described first by Lindley, has this year bloomed for the first time under cultivation. The flowers are yellowish. The collection of plants, besides the Orchids, is rich in Crotons of very high colours, and excellently grown, in Sarracenias just now going over, in Dracænas and pitcher plants. A remarkably well grown example of Heliconia aurea striata, a plant that usually behaves badly under cultivation, was observed in one of the stoves. As seen, it would make an excellent vase plant for a warm room or for dinner-table adornment.

Orchids at Messrs. Backhouse's.

When lately looking through the Orchid-houses at the York Nurseries, I noticed a grand display of Cattleya Trianæ in the large Cattleya-house. I calculated that there were quite 500 flowers open. By the time these lines are in print, this number will be much increased, as many sheaths were about ready to burst. As might be expected in such a large lot, some few flowers were not quite up to the average quality; still, the number of such was small, the great majority being good varieties, with broad, well set out petals and sepals, and bold prominent labellum, many of the latter being of a purplish-crimson in the front portion, backed by shades of orange, which extended right into the throats. The plants, as a whole, were a healthy-looking lot, with an abundance of roots on the surface of the potting material.

In the same house was a quantity of Oncidium splendidum in bloom, some of which Mr. Bousell, the Orchid grower, informed me had been open since the commencement of the year. Also some very fine plants of Dendrobium nobile, which were smothered with bloom on stout healthy growths. In the cool Odontoglossum-house there were fully a hundred spikes open, with others in various stages. This house is glazed with rough plate glass, and judging by the healthy looking growths, its use is not hurtful.

There has been a large increase in the glass department lately in these nurseries. Two handsome, well-built, span-roofed houses, each 100 feet long by 21 feet in width, have been erected. Along the southern ends of this block a large corridor has also been put up. It is about 180 feet long by 12 feet in width. Each house opens into this corridor, which will be a great advantage from a cultural point of view, seeing that a more genial temperature can be arranged for, especially during the winter and early spring months, by opening the doors of houses when necessary, thus causing a circulation of air all through without opening the top ventilators. A smaller corridor already connected the ends facing

north; the houses run from north to south. Messrs. Richardson of Darlington are the builders. *H. J. C.*

Messrs. P. Barr & Sons.

In the 16 acres of land which Messrs. Barr & Sons have acquired at Long Ditton recently, quantities of Anemone fulgens are in flower, a most dazzling sight when the sun shines on the scarlet blossoms. If the roots of this species of Anemone are planted early, flowers may be gathered from Christmas onwards, and by successional plantings from August to May, a continued display may be maintained until late in the autumn. The planting made for summer and autumn-flowering must be in a situation where in summer the ground is moist, and shaded, from after 10 or 11 A.M. The full yellow-flowered Narcissus cyclamineus has also been, and still is, in great beauty at this nursery. It is a beautiful dwarf Daffodil to naturalise in grass, and charming for pot culture, the perianth being gracefully reflexed, and the trumpet of elegant form. The true N. minimus is a gem, as the smallest of trumpet Daffodils, of a rich full yellow colour, and of great usefulness for edgings, rockwork, and pot culture. It is very early in flower. Of the Hellebores, of which many are grown, H. niger maximus ruber was the only one found in good condition. *B.*

Florists' Flowers.

THE CARNATION AND PICOTEE.

The weather is cold and winterly, so that I would advise those who are obliged to turn their plants out-of-doors after potting them, to delay the repotting until the weather changes for the better. Our plants when repotted are placed in cold frames, where they will remain until the end of the month of April. During March very little water is required, for the plants grow but little at that time, and may not need to be watered at all in that month, and it is really safest to keep them rather dry at the root.

When possible, get the potting soil in readiness some few months before having to use it. I have added to my compost this year a large proportion of old plaster, and this material being in my neighbourhood more than half road-grit, I hope it will have a good effect on the plants. Most growers will have noticed that certain varieties decline in vigour year by year, until plants and flowers become so small, that they are scarcely worth growing. A change of climate improves them, for I have sent the dwindling plants to the north of England, and have had them returned to me in vigorous health. The late Mr. George Rudd, of Bradford, used to exchange plants with me; and my plants came back from that smoky town with the leaves smeared with soot, certainly, but of a deep green colour; and it was an easy matter to pick out the Bradford plants by their stronger growth, and larger and better flowers. A change in the constituents of the potting soil might re-invigorate the plants in the same way as a change of climate; but of this I cannot say anything from experience. I grow enough plants in pots to quite fill a house 50 feet long by 12 feet wide, and which are all placed in 8 and 9-inch pots: two or three plants are placed in each pot, according to vigour, and their tendency to produce layers.

The plants out-of-doors in beds and borders have passed through the winter almost unscathed, and will be no trouble until they have made a little growth, and the sparrows attack them as usual. These depredators are scared away by white threads stretched over the plants. A new marauder has appeared this year in the form of short-tailed field-mice, which crop off the leaves of Carnations, &c., close to the stem, with the evident intention of building their nests with them, as they collect them into a heap.

It is a good time now to stir the surface of the ground, and apply a rich compost consisting of equal parts loam, decayed manure, and leaf-mould. Tree or perpetual-flowering Carnations may now be propagated. These will be the flowering plants next autumn and winter. If very strong plants are required, they should have been propagated from the middle to the end of the month of January. *J. Douglas.*

MONTBRETIA POTTSII.

This plant, as seen at its best, is a most attractive Cape bulb, but it has a knack of disappointing people by increasing like Couch-grass, and never producing a solitary inflorescence. My impression is that it soon starves itself in a clump, and that it requires annual, or at least biennial, transplantation. This year we dug up a large proportion of our stock in November, and have only just replanted the tubers; in a word, we have dried them off in a cool dry shed, as is so often and successfully done with Gladioli. The result remains to be seen. I send you a root (fig. 47), in order to show how necklace-like one corm succeeds each other every year, and how they, by clustering closely above one another in this way, soon weaken themselves very considerably. The close allies of the Montbretias, viz., the Crocosmias, on



Fig. 47.—Succession of growth of corms in Montbretia Pottsii.

the other hand, flower much more freely; but even these wear out, unless pretty often replanted into fresh soil. C. aurea is a lovely thing at its best, but the new C. imperialis is said to surpass it in size of flower, even if not in colouring. I shall be very glad of the practical experience of any cultivator who has succeeded in flowering Montbretia Pottsii year after year since its introduction ten or twelve years ago. So far, "nothing but leaves" is our portion, and we have lately utilised the foliage for associating with Gladioli and Iris flowers; but we should, after all their utility in this way, prefer to see them enlivened by flowers of their own. *F. W. Burbidge.*

CALADIUMS, ETC.

Caladiums and Kæmpferias including Cienkowskia, and Monolophus, which have been resting, will now require to be brought from their winter quarters and started into growth, which probably will be already pushing, in cases where they have had a high resting temperature, which is about 60°, they are then much more vigorous than when kept in one that is too cold; indeed any difficulty experienced in wintering those plants is generally attributable to keeping them too cold, and particularly is this the case with Caladiums, which are never seen better than when kept in the stove the year round, and merely reducing the watering as the foliage ripens off, and only giving water when signs of shrivelling are observed. The soil that answers best, I have found, is a rich but rather light compost, with much decayed humus or manure in it, and where light friable loam is available, it should form at least one-half of the compost, with sufficient sharp sand to render it porous—and which would of course greatly depend in quantity on the texture of the loam. Fibry peat may be substituted for leaf-mould, but peat is always a soil poor in plant food, therefore the former is preferable. As a substitute for leaf-mould, I have used the sifted decayed waste from the Orchid potting bench, together with a small quantity of some prepared fertiliser such as Thomson's, Jensen's fish potash, and native guano. However, with all such finely disintegrated composts, which have a tendency to shrink and decay faster than more natural soils—the potting should be much firmer, especially if it is not intended to repot the plants during the season; and this is a point upon which there is some difference of opinion. But, except in the case of young plants, I think that neater and more enduring specimens are produced by potting the bulbs at once into the pots they are to occupy for the season. Care should, however, be taken not to water very liberally until the pots get well filled with roots, and then, if it be required, apply liquid manure regularly. We have had plants by this treatment give large leathery leaves 2 feet across in 8-inch pots.

An important point in the cultivation of Caladiums is to grow them with as little shading as possible, indeed, some of the finest coloured specimens I ever grew stood in a hot, moist stove, along with Crotons, and to which no shading whatever was put. Very close attention must be given to the watering of the plants, for, should they once get the least degree dry, a sudden collapse is the result, and some thin light shading is therefore preferable, but it should be portable, and never permitted to be over the plants when it may be done without. Caladiums enjoy strong heat and a humid atmosphere with three daily syringings in sunny weather, but in dull days the usual damping of walls, &c., will be sufficient, otherwise attenuated leaf-stalks will result.

For ordinary purposes bottom-heat to start them is quite unnecessary, but a light position near the glass is of more importance, and is at all times essential. The plants in summer, before being removed to cool houses, should be hardened for a week in a less warm house than the stove, otherwise much of their beauty will go before they get used to the change.

Amongst the best varieties in cultivation I may mention Baron James de Rothschild, which has bright rose-coloured young leaves, which get paler with age; Madame Joubert Kœchlin, long leaves, with fine large dark-red spots; Bosphore, very large leaves suffused with red; Luddemanni, primary nerves crimson, the leaf blotched with magenta and white, and furnished with a light green border; Mithridates, leaves of crimson-lake, with darker venation, and bronzy green margin; Titian, a leaf, having finely reticulated red and green ground colour, with magenta midribs, a striking plant, especially when the leaves are young and still transparent; Aurora, orange-red, carmine leaf with a creamy-white margin—a very distinct plant; La Perle du Bresil, leaves white, suffused with rose, a green venation, and quite transparent; Cardinal, magnificent foliage, intensely red, spotted with yellow; Charlemagne, large, rose-coloured leaves, and dark red veins; Candidum, one of the best whites, with deep green coloured venation; Duchesse de Montemart, large pure white transparent leaves; Comte de Germiny, lurid red, flaked with French grey, dwarf and distinct; Raymond Lemoinier, a handsome thing, in crimson and red, and very effective. Among older useful varieties, the pretty little argyrites, Agrippine Demitry, Lepeschkinei, Souvenir de Madame E. Andre, and Golden Queen, may be recommended.

KÆMPFERIAS.

These plants succeed admirably when treated in a way similar to Caladiums, but as most of them are small-growing subjects, they are much easier accommodated as regards space. They belong to the Ginger family, and some are cultivated for their flowers, which are pretty while they last, but frequently both flowers and ornamental foliage are combined. The species most commonly met with are Roscoeana, rotunda, undulata, secunda, metallica, Parishii, Gilbertii, and a few others –the last-named a pretty little plant, throwing up a tuft of leaves about 6 inches high; they are oblong lanceolate, with slightly undulating margin, of a green colour, banded broadly with white, and irregularly striped with white lines—a distinct and desirable plant.

Monolophus elegans is a Maranta-like plant, with long-stalked, acute-lanceolate leaves, deep green above, purple beneath, with a broad central silvery band on the upper surface, the whole having a shining varnished appearance. It is a good decorative foliage plant.

Cienkowskia Kirkii is a Zanzibar plant, with elliptic-lanceolate leaves and light rosy-purple blossoms, which are produced on many-flowered scapes; it is of easy cultivation, and succeeds under the same treatment as that afforded Caladiums, except that it should not be syringed when in flower, the latter being easily spoiled by moisture. Although Cienkowskia and Monolophus have now been included with Kæmpferias, yet for garden purposes they are sufficiently distinct for the old names to be retained. *F. R.*

HOME CORRESPONDENCE.

THE WEATHER.—The very low temperature of 7° Fah. was recorded here this morning, March 4. This is the lowest reading since I have resided at Beckenham, from 1872. My thermometer is by Browning, and placed in a stand 4 feet from the ground, facing north. *C. S. Pringle, Fairnalie, Foxgrove Road, Beckenham, Kent.*

—— We have had during the last four nights severe weather for this time of year, the thermometer registered 8° and 9° of frost. This was exceeded on the 2nd, when the temperature was very low, and 15° being registered in the open, and 10° in the sheltered aparts of the town. There was but little snow, only a slight fall of sleet on the 1st. Cold east winds have been prevalent for the last ten days, and I have observed that many of the choicer shrubs have suffered during the last few days, those which had made a new growth have all the points of the shoots destroyed. Many of the plants had commenced to grow freely, having experienced but little cold weather during the winter months. Many of the choice Rhododendrons, Veronicas, and other Euonymus have suffered; most bulbs in the beds were coming into bloom freely, and have suffered from the cold and the cutting winds. Sweet Bays are grown largely in the sheltered parts of the town, and do not show any bad effects from the weather; but then these had made no new growths. I have observed that many of the choice shrubs have a screen of latticed wood, so placed as to protect them from the winds; they are most serviceable, and may be easily removed. *G. W., Bournemouth.*

— The sudden access of severe weather over these islands on March 3, brought on 22° of frost, an event of great infrequency at this time of the year, and the day before we had filled our ice-house, the two preceding frosts of 12° and 13° having given us an inch thick coating of ice on our ponds. Fortunately for vegetation a heavy fall of snow came previously and they were thus partially protected; but the poor Apricot trees have fared badly, as they were almost in full bloom, and a set of fruit would seem now to be an impossibility, although our best lot was heavily covered up. I fear we shall also see a deal of canker in the branches, as I am of opinion that frost, when the sap is moving, is the primary cause of this malady. *J. Sheppard, Woolverstone Park, Ipswich.*

—— We registered here on the morning of March 4 as much as 28° of frost; and, strange to say, that on the same date last year the sharpest frost of the season—24°—was registered. The Peaches, Apricots, and other wall fruits have suffered severely. *H. Turner, Fineshade Abbey Gardens, Stamford.*

—— The thermometer this morning (March 4), at daybreak, registered 12°, or 20° below freezing-point, at 3 feet from ground. This is 6° lower than at any time during the present winter. *Thos. Woodford, Atherstone.*

EUCHARIS AMAZONICA.—We have a fine lot of plants of this popular subject, which have been flowering very freely since the end of November last year up to the present time, during which period liberal supplies of warm liquid manure, and an occasional dressing of artificial manure have been afforded them. I shall continue this treatment for a few weeks after the plants have done flowering, and afterwards they will then be kept on the dry side at the roots until a fresh batch of flower-spikes appear, when the treatment will be resumed. The plants are always kept in the stove. Treated in this manner, our plants are, as they have been during the last eighteen years, healthy, robust, and floriferous. With regard to the presence of the "mite" in the bulbs of Eucharis, I still entertain the opinion that in many instances the disease is brought about by the cultural treatment to which the plants have been subjected. Of this I feel quite certain, for I have known a batch of healthy plants to be infested with the "mite" nine months after they had changed hands. They had been kept too moist at the roots, and at too low a temperature. Plants, like animals, when badly treated in the matter of temperature, moisture, &c., are thereby predisposed to the attacks of disease, and in many cases the treatment generates the disease. *H. W. Ward.*

MEREWORTH CASTLE GARDENS.—I had, a few days ago, an opportunity of seeing these gardens, and could not but admire the thoroughness with which every operation is conducted, and the satisfactory state in which everything about them was. It was evident from all around that these gardens are at present managed by a gardener who knows how to make the most of the resources at his command. The fruit walls are covered with trees very well managed, and that are bristling with fruit-buds in the case of Apples, Pears, and Plums, and it was noticed that the long spurs so frequently seen on the trees were conspicuously absent here. Root-pruning and summer pinching is practised, and help to keep the trees in a healthy, fruitful condition. Peach trees on a long wall, planted about four years ago, are quite models of trained trees, having short-jointed and moderately strong shoots, carefully trained. Everything in the kitchen garden has been pushed on with speed, so that the ground is in good working order, and the sowing and planting of the various crops may go on when the weather breaks, without hindrance. I was much pleased with all that I saw there, and was satisfied that the sound practice advocated by Mr. Markham in his Calendrial articles in the *Gardeners' Chronicle* is carried out thoroughly at Mereworth. *H.*

CROCUS MINIMUS AND C. SUAVEOLENS.—In the beautiful rock garden of Andrew Kingsmill, Esq., at The Holt, Harrow Weald, patches of these two pretty Croci have been very attractive objects for a considerable time, despite the changeable and often inclement weather. The former, which have increased from corms collected by Mr. Kingsmill in Corsica, display great variety of colouring, the inner segments of some being white, while those of others are light purple. Crocus suaveolens, whose portrait is among the drawings of Herbert's MSS. in the Lindley library, and which appears to have supplied the plate in *Bot. Mag.*, is an exquisitely pretty species, the blush outer segments delicately pencilled with purple and tinged with yellow at the base. Seen in patches of forty or fifty flowers, which are continually succeeded by others as they fade, and at a season when there is little else in flower outdoors, the charm of these pretty species may easily be imagined. *J. O'B.*

THE CULTURE OF LILIES.—Before adopting Mr. Wilson's plan of sinking casks in order to keep the roots of shrubs and trees from Lilies, I should like to know how long he has tried this plan, because my experience is to the effect that nothing is more likely to ensure the health of many species of Lilies than the presence of the roots of evergreen shrubs in the soil in which they grow. I attribute this to the fact that roots of other plants keep the soil from becoming water-logged and sour at a time when the Lily roots are not active, and it is certainly the case that in nature Lilies, as far as I have seen them, grow more freely among shrubs and strong-growing herbaceous plants than elsewhere. Some species may for a time grow stronger if they are not exposed to the drying influence of other roots, but I have lost far more Lilies when I have planted them away from trees and shrubs than when they have been more or less smothered by them, and I do not think that it is wise to sacrifice the permanent well-being of Lilies for the sake of a temporary and unnatural luxuriance. *H. J. Elwes, Preston, Cirencester.*

FRAGRANCE IN FERNS.—In addition to those mentioned by Mr. Watson as noticed at Kew, there is Cheilanthes fragrans, and I have often noticed a very pleasing odour emitted by Cheilanthes elegans; while, on the other hand, there are some of the varieties of Pteris which have a strong scent that is very unpleasant, of the dead Nettle, Pteris arguta, and P. sulcata, are among those. *E. Sandford, The Gardens, Dale Park, Arundel.*

A CHEAP MUSHROOM-HOUSE.—A very useful and inexpensive house in which to grow Mushrooms was constructed by Mr. Beckett last autumn in the gardens of H. H. Gibbs, Esq., at Aldenham House, Elstree. The idea was to utilise the warmth of the leaf heap, which had inevitably to be made at the fall of the leaf. On the site which it was intended to use for the leaf heap, Mr. Beckett occupied spare labour in building a span-roof Mushroom-house of wooden slabs and boards, but as, if simply built one board thick, the slugs and wood-lice would come in through the openings and damage or destroy the crops; the house was constructed with double boarding, which was fixed on the inside and outside of the framework, and this admitted of a packing of 3 inches of coal-ashes between the inner and outer boards, which effectually excluded slugs and insects of all kinds. When the house was finished, the leaves were piled up around and over it, and soon a gentle heat was got up which has kept up evenly in all weathers. In due time the beds were spawned with mill-track spawn, and throughout December, January, and February there was a constant and regular succession of good Mushrooms, with plenty to run for a long time yet. Indeed, by spawning the beds in rotation the supply will not fail. Seeing the expense many incur for elaborately fitted Mushroom-houses, and the trouble they take to obtain what is often a poor and uncertain crop, this note on a structure in which the Mushrooms will grow with the least amount of attention on the part of the gardener, will be useful. Where leaves are not obtainable, stable litter would, no doubt, answer as well. A fine crop of Rhubarb is also to be found in Mr. Beckett's homely structure. *J. O'B.*

SEDUM ACRE AUREUM.—I am somewhat afraid that with the flow of the popular tide in favour of Carnations, Chrysanthemums, Begonias, and other things that are now such common favourites, many simple plants of great beauty and usefulness are in danger of becoming neglected and quite forgotten. One of these is the pretty Stonecrop at the head of this paragraph. Now that winter is dissolving into spring, this useful Sedum becomes tipped with the brightest gold, and on walls, rockwork, and other fitting spots, where it does not usurp the place of other plants, it shines forth with a radiance peculiarly its own. Singular to state, it seldom appears to blossom; the gold that in the green form appears in almost multitudinous flowers, here gives brilliancy to the foliage, and a dense mass of it becomes singularly attractive. Perhaps the rapidity with which it propagates itself causes it to be regarded as a kind of vegetable bore. *E. D.*

NANNY APPLE.—I was agreeably surprised, so recently as March 1, on taking down a small box which had been inadvertently placed close up under the tiles of an outhouse, to find in it a few very nice firm fruits of the Nanny Apple; they had been placed there since November last, and overlooked. The fruits were wrapped in tissue paper, and I was pleased to find how very soft and delicious eating they proved to be. I little imagined this Apple, which has the reputation of being a late autumn ripener, would have kept sound so long. Probably the cool and semi-damp nature of the place assisted to keep the fruits so sound and well-flavoured. The Nanny is probably one of the oldest of English Apples; its name bears the impress of age. I got the graft, from which the tree I have

grown, twenty-one years ago, from a huge tree reputably one hundred years old, and as the kind is of so robust and enduring a nature, I have no doubt trees could be found in Sussex even much older than that. It is one of the kinds fought shy of by the express growers, who like to plant to-day and gather to-morrow, because it does not fruit much until it is well into years. It belongs to the Methuselah tribe of the Apple family, full of bearing and vigour, when scores of others, having lived short and merry lives, have paid the debt of nature or are worthless. It comes into the category of great orchard trees, with Blenheim Pippin, Grange's Winter Pearmain, a very fine late keeping Apple; Beauty of Kent, English Mother Apple, and some other fine kinds, which, when big and aged, are enormously productive. Fruits of the Nanny are of medium size, roundish, very slightly ribbed, eye somewhat depressed; skin, when ripe, rich golden hue, liberally flushed, and streaked with bright red. It is one of the prettiest, as it is one of the best flavoured of all our old Apples. *A. D.*

FORCED STRAWBERRY PLANTS.—When the crop has been taken from early forced Strawberry plants, they may, if wanted for forming a plantation, and for which they are not unsuitable, be hardened off in cool frames, keeping the lights closed for a few days, and then admitting plenty of air until the time of planting them out in the month of April. If early fruit is looked for, a warm border should be chosen, and the plants put out at 18 to 20 inches apart. In planting, the soil must be made firm about the ball, and the latter should be quite moist at the time. Short stable manure may be put between the plants to the thickness of 2 inches, and water given the plants to settle the soil about them. When well looked after, good crops of fruit may be obtained in the first autumn, following Elton Pine and Oxonian. *H. W. Ward.*

HEATHS AND CLAY.—In your note on Professor Goodale's article on the Heather failing to grow in America, you relate an experience of it having been grown on the London clay, with no peat, for many years; allow me to remark that you say *on* London clay, not in it; growing it on clay would give it a cool, moist basis, which is an advantage, by preventing drought from affecting it, and the assistance it received from the application of road sand supplied the silicates and humus required by the Heather for its support: an example of Heather found growing in London clay pure and simple would be more conclusive. [The plant is growing *in* London clay, generally sodden with water, and had only one application of road sand at the time of planting—say, ten years ago. Ed. Let me relate a somewhat similar circumstance and its explanation. It was reported to me that a patch of Heather had been found growing on the limestone hills south of Belvoir, and one day, accompanied by my informant, I rode over a considerable extent of ground in quest of this eccentric Heath, which had exhibited so great a departure in the matter of taste from its family. I found the Heath growing, and not unhealthy, and its occurrence even on limestone was soon explained: on a patch of undrained land, undisturbed probably for centuries, on which grass, rushes, and mosses had grown and decayed, leaving annually a deposit of decomposed vegetable matter, until a bed of vegetable mould resembling peat had accumulated; sweeping winds had brought particles of sand, and so contributed the other component of peat required by the Heath family. A little close investigation will often help to elucidate what appears anomalous. I have another record on a larger scale, of peat-loving plants growing on what might be said was limestone. On the lower slopes of the Dent du Midi, at the upper end of the Lake of Geneva, Polygala Chamæbuxus occurs abundantly, and on examination it will be found that the decay of vegetable matters has given a deposit of leaf-mould of a peaty nature, and of a depth sufficient to sustain the Polygala and the Ericas associated with it. In cultivation we regard Polygala as a peat-loving plant; my observation confirms Mr. Woodall's remarks on the same subject. *W. Ingram, Belvoir.*

SNOWDROPS IN ISLAY.—Snowdrops were in flower on this island on Christmas Day, and on New Year's Day the Lent Lilies were well above ground, with flower-stems one or two inches above ground also. I wish some capitalist gardener could be induced to come to this place; it might be to Scotland what the Scilly Isles are to England. Even in the eye of the wind Snowdrops were in bloom on December 31, and the Lilies were hanging their heads preparatory to bursting into bloom. Honeysuckle is in full leaf against the house, and this in the rhins of Islay, where there is scarcely a shrub to be seen for miles—an open, rich alluvial country, with the ocean everywhere, and a stretch of Irish land in sight, from Rathlin to Instrehull. Thermometer to-day 80° in the sun, 62° in the immediate shade. *I. S., Cladville, Islay.*

MULCHING.—Peas and Broad Beans, which have recently been transplanted from pots and boxes to warm borders and more exposed parts of the garden, should have a mulching of short dung laid on each side the rows of plants. This, in addition to keeping the soil about the roots of the plants warm and moist, will also shield the haulm from frost and injurious winds, and thereby increase the crop and extend its bearing period. *H. W. W.*

CINERARIAS AT GREAT DODDS.—A fine batch of plants is just now a very conspicuous feature in these gardens—and well exemplifies the state of perfection to which the florists have brought this flower. A dwarf plant of compact habit has long been familiar to us, and recently very large flowers of great substance, regular form, and often with a broad, well defined central ring of white. In many of the large flowered strains the head of flower is not so full and compact as might be wished, and sometimes the edges of the leaves curve upwards. In Mr. Brown's strain all these defects seem to have been got over in a great measure, and the plants have a compact full head of bloom that is thrown well above the foliage; the individual flowers are large and of good substance, of varied shades of bluish-purple, carmine, magenta, &c., and often furnished with the white zone before mentioned. But in some of the plants, this zone or ring is produced in a rather different manner to what is usual; the petals being of a dark purple—with a ring of rosy-carmine instead of white, the flowers thereby gaining in distinctness. Should this break become general, or extend to other colours, we shall then possess a very distinct strain of the Cineraria. From what has been said, it will be seen that the strain is already distinct in these points, and the foliage is larger and of better substance than in others, and it is without the objectionable upturned edges and hangs well over the edge of the pot—an undeniable advantage in plants employed in decoration. Although the pots in which the plants are grown are small ones, it is astonishing what satisfactory results are attained by judiciously assisting the plants with liquid manure. *F. R.*

PLAGIOLIRION HORSMANII.—Do I understand that Plagiolirion Horsmanii is planted out in the open ground at Messrs. Sander? If so, the plant of it which I have has been kept in much too hot a house, which no doubt accounts for its being far from as vigorous as you describe it to be at Messrs. Sanders. I should like much to know whether it is really hardy, or how much protection it requires. *C. W. Strickland.*

CYPRIPEDIUM CALLOSUM.—In the paragraph at p. 198, referred to by Mr. H. J. Ross on p. 266, "barbatum" was inserted instead of "Lawrenceanum," which was intended. If his C. callosum has hairy warts on both edges of the petals (not sepals as he states), it is an exceptional variety, and another proof that probably several of this section, which are considered distinct species, are local forms or modifications of C. barbatum, which in C. barbatum pulcherrimum so closely approaches a small form of C. callosum as to deceive a good judge at a short distance. On the other hand, the large dorsal sepal of C. callosum more nearly approaches that of C. Lawrenceanum, and apparently in Mr. Ross's plant having the petals clothed with hairy warts on both edges, it takes another step towards that species. *J. O'B.*

TRAINED SPECIMEN CHRYSANTHEMUMS.—"A South-eastern Flat Trainer" seems to have taken a somewhat one-sided view of my remarks on p. 699, vol. vi, due probably to his adopting the flat system of training himself. All that I intended to convey was that third-class workmanship is not deserving first-class pay. Not being an exhibitor at Kingston, I had no other motive than to call attention to an unmistakably badly trained lot of plants, and which I looked at again and again, wondering why they had been awarded 1st prize. I also spoke to several gentlemen present, and learnt that many others had been trying to solve the same problem. It may be satisfaction to your correspondent to know this, and surely judges even at Chrysanthemum shows are liable to err at times. One exhibitor told me he had never seen a worse lot at Kingston than those to which my remarks applied, and I certainly never have myself. Therefore I contend that the judges would have been within the exercise of their prerogative had they, in this instance, withheld the 1st prize and awarded the 2nd—a very simple matter, for if memory serves me right, there was only one group in the class referred to; and the fact of judges withholding prizes absolutely, where the exhibits are not deserving award, is certainly nothing new. I am not aware that I have suggested training without staking; this is absurd. What I distinctly object to in trained specimens is, that there shall be more sticks and cross-stems in full view than anything else—a state of things rendered more displeasing from the fact that many of the final ties had been done so recently, that much of the foliage was on exhibition the wrong way up, and surely a good trainer of specimen Chrysanthemums would never permit this. *E. Jenkins.*

LA GROSSE SUCREE STRAWBERRY.—I have again to record my favourable experience with this excellent Strawberry as a first early forcer, and contend that it has no rival, being better in all points than Vicomtesse Hericart de Thury, Noble, Pauline, and King of the Earlies, each of which it has honestly beaten by nearly a week, and under equal circumstances and conditions, and was ripe on February 22. La Grosse has a stronger constitution than the above-named varieties, in standing forcing better, in freedom of flowering, and puts up stout flower stalks, followed by much larger fruit, and which swell away vigorously from the first; lastly, the fruit is firm, and packs and bears carriage to long distances by railway without injury. I have heard the flavour of La Grosse abused, but in February Strawberries I will waive that; but I cannot admit its accuracy, nevertheless. Noble will probably be tried again, but it takes a week longer to ripen than La Grosse Sucrée, and the fruit is softer. Hericart de Thury is small and sweet, and only a few days later than La Grosse Sucrée, but we cannot get the trusses out sufficiently far over the sides of pot. Pauline does not set its fruits properly, consequently they come deformed. King of the Earlies is a weakly grower, Black Prince subject to mildew, and Keen's Seedling is a bad traveller. Henceforth, La Grosse Sucrée and President will be our mainstays for first and midseason forcing Strawberries. *W. Crump, Madresfield Court, Malvern.*

SINKING TUBS FOR PLANTS.—Those who have to contend with the difficulties in horticultural practice that are found in places where soils little suited to plant culture exist, will best appreciate Mr. G. F. Wilson's idea of isolating particular plants or bulbs by sinking tubs filled with the preparation of soil their distinct occupants require, and thus securing them from the invasion of more vigorous and encroaching associates either in the border or shrubberies. It occurs to me that in that way Rhododendrons and other American plants may be grown in limestone districts. Many attempts in such localities have been made by excavating holes, and filling them with peat, but hitherto failure has generally attended such experiments. Heavy rains, by carrying the lime-charged water to the beds, and a too porous subsoil, having greatly contributed to it. If Mr. Wilson finds the plan advantageous, possessing, as he does, deep beds of Peat and a light siliceous soil, the delight of Lilies, as the stalks crowned with bloom that tower above one's head at Wisley sufficiently testify, how much more valuable we may expect it to prove in situations where clay, more or less calcareous, prevails, for even in such positions pockets of peat soil are soon deteriorated by means of worms and invading roots. I have, by way of experiment, employed the barrels in which American Apples are imported; these filled with—to us—the precious commodity peat, and other preparations, when necessary, for Lilies, and sunk amongst shrubs, lead me to look forward hopefully to some degree of success hitherto unobtained in their culture. *W. Ingram, Belvoir.*

THE JOS FLOWER of the Chinese has received considerable attention in England this winter, although I fear some amateurs have been disappointed when their plants flowered; they having thought that it would prove to be something more than an ordinary Narcissus, and be that as it may, it still remains a desirable plant, especially as it stands

forcing, and flowers freely. The method in which it may be grown will have a charm to many, and perhaps next season the bulbs will be somewhat cheaper than they were advertised this past season. We put in three bulbs of Narcissus Tazetta, but of what variety I do not know, but they were good large bulbs, and while the Jos flower has been flowering for some time past, these are only some 4 inches in height, though they have received the same treatment, and were planted at exactly the same time. *W. Harrow, Botanic Garden, Cambridge.*

THE APIARY.

BEE-KEEPING AS AN OCCUPATION FOR WOMEN.

The following, though it comes over the great herring pond, from the *American Bee Journal*, is very applicable to our country:—

The question may be, and no doubt often has been, asked, "Is bee-keeping a suitable or desirable occupation for women?" and after having given it a fair trial (says Henrietta F. Buller) for the last eight years, I am of the opinion that there is no reason why any woman of moderate strength and ordinary intelligence should not be able to take charge of an apiary of from thirty to fifty colonies with very little assistance, and derive both pleasure and profit from the employment. At the same time I doubt whether there are many who would succeed very well in carrying on the business alone, though of course there are a few who would.

In reading the numerous bee papers that are published nowadays, one frequently meets with articles on the subject of whether it is best to make a specialty of beekeeping, or combine it with some other occupation. Now, I do not believe that the farmer can himself carry on both farming and beekeeping successfully; but if he has either daughters or sons who will make a specialty of this department—bee-keeping—it may be very advantageously combined with farming, and I do not know of any reason why girls might not make as great a success of the business as boys. The wife is supposed to have her hands quite full enough with household work, and, I may say, her head too; and, for any one, either boy or girl, man or woman, to do any good with bees, they must give them their individual attention, and be really interested and enthusiastic overt heir work. "Eternal vigilance is the price of success" in any business, and in none more than in bee-keeping. It is not only a labour, but a science, and will make constant demands not only on the patience but on the bodily strength and intelligence of those who engage in it; at the same time, there is a fascination about the business which relieves it of all tediousness. A woman will think of her bees, study about them, and become so interested as to be almost paid for her work by the love of it.

I believe it would be well worth while for any one who has not been in the way of having the management of an apiary to spend one season with a skilful bee-keeper before embarking in the business on his own account, as he would then find out not only the best methods of working, but also whether the kind of work suited him. However, even with this preparation, all will not succeed; for I know a lady who took this course, and afterwards failed entirely when she was working for herself, while others who have only learned what they could from books and papers, besides the suggestions and instructions given them by more experienced bee-keeping friends, have done very well. In conclusion, I may say that a great deal of the work in the apiary is quite as well adapted for women as for men, and also in the care of the honey, and in preparing it for market. Where they are more likely to feel their deficiency is in the lack of skill to do the various carpentering jobs that seem to be inseparably connected with bee-keeping. I imagine that it is the exception rather than the rule to find a woman who knows how to handle carpenter's tools, though even this they may acquire enough of to answer the purpose where there is a necessity for so doing. *Bee.*

SOCIETIES.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

This Association held its thirteenth annual general meeting on the 4th inst., in 5, St. Andrew Square, Edinburgh, Mr. D. P. Laird, Vice-President, in the chair, the meeting being a crowded one. The Treasurer, Mr. A. Mackenzie, Warriston Nursery, read the financial report for the past year, which showed that the income was £53 7*s.* 10½*d.*, and the expenditure £31 10*s.* 9*d.*, leaving a balance of £21 17*s.* 1½*d.* to the credit of the Association. The Secretary's report showed that the past year had been one of great prosperity, and that the influence and usefulness of the Association were steadily extending. Both reports were approved of, and cordial votes of thanks were accorded to the Secretary and Treasurer for their able services during the past year.

The election of office-bearers for the ensuing year then took place, as follows:—The Duke of Buccleuch and Queensberry, K.T., Hon. President; Professor Bayley Balfour, President; Mr. Robertson Munro, Abercorn Nursery, and Mr. Carruthers, Hillwood, Corstorphine, Vice-Presidents; Mr. R. B. Ferguson, of Messrs. Munro & Ferguson, 6, South St. Andrew Street, Edinburgh, Secretary; and Mr. A. Mackenzie, Warriston Nursery, Edinburgh, Treasurer. In the room of five retiring members of Council, the following gentlemen were elected:—Messrs. D. P. Laird, Alex. Milne, P. W. Gray, John Methven, and Alex. Calder.

The chairman announced to the meeting that on the occasion of the first monthly meeting of the session (April 1) the Rev. G. Marjoribanks, of Stenton, would deliver a lecture to the members of the Association, the subject of the lecture being "A Trip Across the American Continent."

There were some interesting exhibits on the table. Mr. James Brown, The Gardens, Ardarroch, Dumbartonshire, was awarded a Cultural Certificate for two fine specimens of Dendrobium nobile, each with about 150 blooms of very large size and splendid colour, and a grand plant of D. Wardianum with over 200 blooms. Mr. Alexander Chalmers, The Gardens, Terregles, Dumfries, exhibited an Odontoglossum of the crispum type, which was alleged to be "a natural hybrid," but which was decided to be an ordinary O. crispum. The spike of blooms was fine, the flowers were white with very slight markings.

Mr. Wm. Minty, The Gardens, Isle of Raasay, Stromeferry, exhibited a curious example of "sport" in a Dutch Hyacinth, the peculiarity of which was that two spikes of flowers grew from one bulb, each distinct from the other, not only in colour, but also in the shape and size of the flowers, and also in the build of the spikes; each was perfect in its way, and there was no evidence of fasciation. From the same exhibitor came some good blooms of Rose Gloire de Dijon, grown in the open air in Raasay, and also sprigs of Ficus stipulata from a north wall in the same place.

Messrs. Dickson & Co., Pilrig Nurseries, Edinburgh, exhibited blooms of the pretty Cyrtanthus McKenni, and the curious Gladiolus atroviolaceus.

The several prizes offered by the Association for essays on various subjects by assistant gardeners, only drew out one essay—a miserable response—by the young gardeners of Scotland, in the course of a year. The solitary essay was by Mr. Alex. Munro, journeyman gardener at Powfoulis, Falkirk, the subject being, "The best Method of Procuring a Supply of Cut Flowers all the Year round;" and the writer was awarded the usual Certificate of the Association.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending March 1st, is furnished from the Meteorological Office:—

"The *weather* during this week has varied considerably in different parts of the kingdom. At first it was rather mild and generally fair over Ireland and Scotland, and rather cold and dry, with local mists and fogs over England. Towards the end of the week it became cold and wintry in all districts, and slight falls of snow, alternating with bright intervals, were experienced over Great Britain, as well as in some parts of Ireland. In the extreme south-east of England, however, the snowfall was considerable.

"The *temperature* has just equalled the mean in 'Scotland, E.' and 'Scotland, N.,' but in all other districts it has been below the normal value. In 'England, S.W.,' the deficit has been 5°, and in 'England, E.' and 'England, S.,' as much as 6°. The highest of the maxima, which were registered during the earlier days of the period, ranged from 46° in 'England, E.' to 56° in 'England, S.W.,' and to 60° in 'Scotland, E.' (at Ochtertyre). The lowest of the minima were recorded either on Friday or Saturday, where the thermometer fell to 20° in 'England, S.W.,' 21° in 'Scotland, W.' and 'Scotland, E.,' 22° in 'England, S.,' and to between 23° and 28° in most other districts.

"The *rainfall* has been the same as the mean in 'England, N.E.,' but in all other parts of the kingdom the fall has been less than the normal. In most districts the fall was extremely slight.

"*Bright sunshine* shows a very decided increase on that recorded during the previous week, the percentage of the possible duration having ranged from 17 in 'Scotland, N.' and 'Ireland, N.,' to 31 in 'England, S.,' 32 in 'Scotland, W.' and 'England, N.W.,' 43 in 'England, S.W.,' and to 58 in the Channel Islands."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending March 1.	Accumulated Above 42° for the Week.	Accumulated Below 42° for the Week.	Accumulated Above 42°, difference from Mean since Jan. 1, 1890.	Accumulated Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	0 nav.	1	28	+ 26 —	35 6 —	44		9.4	17	16
2	0 nav.	6	33	+ 13 —	48 4 —	35		5.8	28	21
3	3 —	0	34	+ 1 —	59 0 nav.	32		3.4	24	19
4	6 —	0	47	— 5 —	16 1 —	35		3.4	24	26
5	1	3	42	— 1 —	5 5 —	32		4.0	25	22
6	6 —	0	39	+ 20 —	37 4 —	31		4.1	31	23
7	1 —	8	32	— 17 —	51 7 —	38		9.4	32	17
8	1	0	32	— 12 —	40 5	37		5.6	32	21
9	5	5	33	+ 8 +	23 8	36		6.9	43	27
10	1	0	23	— 1 —	21 6 —	41		6.0	17	21
11	2	11	24	+ 5	0 7	41		9.0	26	25
12	4	8	8	71 —	21 6 —	10		6.7	58	32

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.: 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing Dists., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, March 6.

Market still inactive, prices remaining unaltered *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Ericas, various, doz.	8 0–24 0
Aspidistria, doz.	...18 0 42 0	Ferns, in var., doz.	4 0–18 0
— specimen plants, each ...	... 7 6–10 6	Ficus elastica, each	1 6– 7 0
Azaleas, various, each	2 0– 3 0	Foliage plants, various, each ...	... 2 0–10 0
Christmas trees, doz.	4 0–24 0	Genista, per doz.	... 8 0–12 0
Cyclamen, dozen	... 9 0–24 0	Hyacinths, p. doz	... 6 0– 9 0
Cyperus, per dozen	4 0–12 0	Lily of the Valley, p. doz. pots	...18 0 24–0
Daffodils, doz. pots	... 8 0–12 0	Marguerites, doz.	... 6 0–12 0
Dracæna terminalis, per dozen ...	...30 0–60 0	Palms in var., each	2 6–21 0
— viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen	... 6 0– 8 0
Epiphyllum, per doz.	12 0–18 0	Roman Hyacinths, per dozen pots	... 9 0–12 0
Euonymus, in var., per dozen ...	... 6 0–18 0	Solanums, per dozen	6 0–13 0
Evergreens, in var., per dozen ...	... 6 0–24 0	Tulips, doz. pots	... 6 0– 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Abutilons, 12 bun.	2 0-	4 0
Acacia (French) bun.	0 6-	1 0
Azaleas, doz. sprays	0 6-	1 0
Bouvardias, per bun.	0 4-	1 0
Callaasthiopica, 12 bl.	3 0-	5 0
Camellias, white, doz.	2 0-	4 0
— various, per doz.	1 0-	2 0
Carnations, 12 blms.	1 0-	2 0
Chrysanth., 12 bun.	4 0-12 0	
Cyclamens., 12 blms.	0 4-	0 9
Daffodils, doz. blooms	0 4-	1 0
Eucharis, per dozen	3 0-	5 0
Gardenias, 12 blooms	12 0-24 0	
Heliotropes, 12 spr.	0 6	1 0
Lilac, white, Fr., bun.	4 0-	6 0
Lilium, var., 12 bl.	2 0-	6 0
Lily of the Valley, doz. sprays	0 6-	1 0
Maiden Hair Fern, 12 bun.	4 0-	9 0
Mignonette, 12 bun.	2 0-	4 0
— French, per bun.	1 6-	2 0
Marguerites, 12 bun.	3 0-	6 0
Narcissus, various, doz. bun.	1 6-	6 0
Pelargoniums, scarlet, 12 spr.	0 9-	1 0
— double sprays	1 0-	2 0
Primroses, 12 bun.	1 0-	2 0
Primulas, double, 12 sprays	1 0-	1 6
Roman Hyacinths, Eng., doz. sprays	0 6-	1 0
— (French), 12 bun.	1 0-	2 0
Roses, Tea, per doz.	1 0-	3 0
— coloured, dozen.	2 0-	4 0
— French, dozen	1 0-	2 0
— red, per dozen	4 0-	8 0
— Safrano, dozen	1 6-	2 6
Spirea, doz. sprays	1 0-	1 6
Stephanotis, 12 spr.	9 0-12 0	
Tuberoses, 12 buns.	1 6-	2 0
Tulips, doz. blooms	0 6-	1 0
Violets, 12 bun	1 0-	2 0
— French, bunch	1 0-	2 0
— Parma, bunch	3 0-	4 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Apples, ½-sieve	1 6-	7 0
— Nova Scotia, brl.	12 0-	25 0
Cobs, per 100 lb.	140 0-	...
Grapes, per lb.	2 0-	5 0
Lemons, per case	12 0-	20 0
Pine-apples, Eng., lb.	1 0-	1 6
— St. Michael, each	2 0-	6 0
Strawberries, oz.	0 9-	1 6

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.
Asparagus, English, per 100	12 0-	...
Beans, French, lb.	2 0-	...
Beet, red, per dozen	1 0-	2 0
Carrots, per bunch	0 6-	...
Cauliflowers, each	0 3-	...
Celery, per bundle	1 6-	2 0
Cucumbers, each	1 0-	1 6
Endive, per dozen	2 0-	...
Herbs, per bunch	0 4-	...
Leeks, per bunch	0 3-	...
Lettuces per dozen	1 6-	...
Mushrooms, punnet	1 6-	...
Mustard and Cress, punnet	0 4-	...
Onions, per bunch	0 5-	...
Parsley, per bunch	0 6-	...
Rhubarb, per bundle	0 6-	...
Seakale, punnet	2 0-	...
Shallots, per lb.	0 6-	...
Spinach, per bushel	4 0-	...
Sprue, per bundle	1 6-	...
Brussel Sprouts, pr lb.	0 3-	...
Tomatos, per lb.	1 0-	...
Turnips, per bunch, new	0 4	...

POTATOS:—Supply of old Potatos continues plentiful, and the market has a tendency to fall. Fresh arrivals of Canary new potatos; price from 18s. to 22s. cwt. Market quiet. Inferior samples difficult to sell except at lower figures. New Potatos—best samples quickly cleared at 20s. to 24s. cwt. *J. B. Denver.*

SEEDS.

LONDON: *March 5.*—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market thinly attended. There is more inquiry for field seeds, and the very low prices all round now ruling in London prove very agreeable to buyers. Choice Red is obtainable at unprecedentedly cheap rates. Alsike and white firm. Trefoil steady, but quiet. Fine Rye-grasses could never before be bought at to-day's quotations. Rapeseed is inquired for. Birdseeds sell slowly. There is more doing in Blue Peas.

CORN.

Averages.—Official statement showing the average prices of British corn, imperial measure, in the week ended March 1:—Wheat, 29*s.* 10*d.*; Barley, 30*s.* 11*d.*; Oats, 18*s.* 8*d.* For the corresponding period in 1889:—Wheat, 29*s.* 7*d.*; Barley, 26*s.* 1*d.*; Oats, 16*s.* 8*d.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *March 5.*—The supplies exceed the demand as regards fresh vegetables and Potatos. Fair supply of foreign fruit. Good demand. Prices were as follows:—Cauliflowers, 5*s.* to 10*s.* per tally; Savoys, 2*s.* to 4*s.* do.; Sprouting Broccoli, 1*s.* 6*d.* to 2*s.* per sack; do., 6*d.* per sieve; Turnip-tops, 1*s.* to 1*s.* 6*d.* per sack; Spinach, 1*s.* per bushel; Curley Kale, 5*d.* to 9*d.* do.; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Greens, 1*s.* 6*d.* to 2*s.* 6*d.* per dozen bunches; Parsley, 2*s.* 6*d.* to 3*s.* do.; Carrots, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Turnips, 2*s.* 6*d.* to 3*s.* do.; Parsnips, 4*d.* to 9*d.* per score; Beetroots, 4*d.* to 6*d.* per dozen; Horse-radish, 1*s.* to 1*s.* 4*d.* per bundle; Celery, 4*s.* to 12*s.* per dozen bundles; Leeks, 1*s.* to 1*s.* 6*d.* per dozen; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; Endive, 1*s.* 6*d.* to 2*s.* per dozen; English Onions, 10*s.* to 11*s.* per cwt.; Spanish do., 10*s.* to 12*s.* per case; Bordeaux do., 7*s.* to 8*s.* 6*d.* do.; Dutch do., 7*s.* to 8*s.* per bag of 110 lb.; Belgian do., 7*s.* to 8*s.* do.; English Apples, 5*s.* to 8*s.* per bushel; American do., 16*s.* to 26*s.* per barrel; Dates, 13*s.* per cwt.

STRATFORD: *March 4.*—Supply has been good during the past week, and a fair trade was done at the following prices:—Savoys, 4*s.* to 6*s.* per tally; Cauliflowers 5*s.* to 10*s.* per crate. Turnips, 30*s.* to 40*s.* per ton; Carrots (household), 38*s.* to 40*s.* do.; do. (cattle feeding), 10*s.* to 22*s.* do.; Mangels, 14*s.* to 17*s.* do.; Swedes, 15*s.* to 18*s.* do; Onions, English, 10*s.* to 12*s.* per cwt.; do., Dutch, 7*s.* to 8*s.* per bag; Apples, English, 3*s.* to 7*s.* per bushel; do., American, 18*s.* to 25*s.* per barrel; Celery, 4*s.* to 10*s.* per dozen rolls; Rhubarb, 1*s.* 9*d.* to 2*s.* per dozen bundles.

POTATOS.

BOROUGH AND SPITALFIELDS: *March 4.*—Quotations:—Regents, 40*s.* to 85*s.*; Hebrons, 40*s.* to 90*s.*; Magnums, black, 35*s.* to 50*s.*; Bedfords, 40*s.* to 50*s.*; Lincolns, 40*s.* to 60*s.*; Yorks, 45*s.* to 70*s.*; Scotch, 50*s.* to 95*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *March 5.*—Quotations:—Hebrons, 40*s.* to 65*s.*; Imperators, 45*s.* to 65*s.*; Magnums, 40*s.* to 50*s.*; Regents, 50*s.* to 60*s.*; Champions, 40*s.* to 50*s.* per ton.

STRATFORD: *March 4.*—Quotations:—Scotch Regents, 55*s.* to 65*s.*; do. Magnums, 60*s.* to 70*s.*; English Regents, 50*s.* to 60*s.*; Light English Magnums, 40*s.* to 65*s.*; dark do., 35*s.* to 40*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 78*s.* to 92*s.*; inferior do., 46*s.* to 75*s.*; hay, best, 60*s.* to 87*s.*; inferior do., 25*s.* to 50*s.*; and straw, 26*s.* to 38*s.* per load.

Obituary.

WE announce with regret the death, at the age of sixty-eight years, of Joseph May, after a short illness, on the 25th ult. The deceased was for many years well known in Covent Garden Market, and was for the last twenty years in the service of Messrs. John Waterer & Sons, Bagshot, Surrey. He was an occasional contributor to these pages.

NOTICES TO CORRESPONDENTS.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

AGENCY FOR THE DISPOSAL OF CHOICE FRUIT AND FLOWERS: *B. P.* We know of no such agency. There are "direct supply associations" of various kinds, but how these differ from the much abused commission agent, we have not discovered.

BAMBOO RODS: *D. E.* We must decline to recommend tradesmen. Advertise your wants, or examine the *Garden Directory*, under the heading, "Horticultural Sundriesmen."

BOOKS.—ARTIFICIAL HEATING AND VENTILATION: *W. H.* A practical treatise on *Warming Buildings by Hot Water, Steam, and Hot Air, and on Ventilation*, by Chas. Hood. Published by Messrs. Simpkin, Marshall & Co., and Messrs. Spon, London.—ON FARMING, SCIENTIFIC AND PRACTICAL: *H. B. The Book of the Farm*, by Hy. Stephens, fourth edition, revised and in part re-written by J. Macdonald. There will be of this edition six parts, of which four have already been issued. W. Blackwood & Sons, Edinburgh and London. We do not know the price. Publishers should advertise. — DR. HOGG'S "FRUIT MANUAL:" *R. S. D.* It is published at the office of the *Journal of Horticulture*, 171, Fleet Street, London, E.C. — MANUAL ON GARDENING: *A. B. C.* The *Garden Calendar*, by T. W. Sanders, price 3*s.*; published by Hamilton, Adams & Co., Paternoster Row, London.—LONDON PARKS AND GARDENS: *A. Beck. The Royal Parks and Gardens of London*, by Nathan Cole, published at the *Journal of Horticulture* Office, 171, Fleet Street, E.C.

CATTLEYA TRIANÆ; *T. E.* 1, The narrow-lipped form which collectors avoid. Its colour is fine and there is a bare possibility that it may improve in form; 2, is a good variety of the broad-lipped and large-petalled form.

CORRECTIONS.—CYPRIPEDIUM SPICERIANUM. A mistake was made in describing at p. 264 the plant figured in our Supplementary Sheet. The plant was not growing in a 60-size pot when, as was stated, the photograph was taken, but when it first came into Mr. Coomber's hands some few years ago.—On p. 270 of last week's issue read "dark hue'd Heather" instead of "dark lurid Heather" at line 37 in "Lamington and its late Lord."

EUCHARIS: *U.* (*Rugby*). Your plants of Eucharis are attacked by a fungus, described with illustrations in our issue for March 27, 1886, p. 396.

LEAVES OF INDOOR PLANTS: *J. M. S.* The leaves are spotted with abundance of loosely deposited spores. They are merely on the leaf, and not (in their present condition) parasitic. They look so like the conidia of one of the Sclerotinias, however, that we should be inclined to suspect them of parasitic habits in some seasons and places. They might be got rid of by washing. Surely, if they are merely scattered through the greenhouse, the fungus whence they spring should be discovered. Next time they are freshly formed, kindly send one or two lots direct to Prof. H. Marshall Ward, Forestry School, Cooper's Hill, Staines.

MUSHROOMS IN RAILWAY ARCHES: *Business.* We think you estimate the manure at rather too high a figure, as also the spawn, as, by taking 400 bushels, you ought to be able to get it at a cheaper rate than 3*s.* 6*d.* per bushel; or, better still, make it yourself. The price, 6*d.* per pound, is, taking the year's prices, much too low. We have known Mushrooms in winter fetch 20*s.* to 30*s.* per bushel. If the ends of the arches are not double-boarded or walled up, artificial heating would be required. It will be necessary for you to find out other markets besides those in London where the produce may be disposed of to advantage.

NAMES OF PLANTS: *G. S.* 1, Selaginella viticulosa; 2, Peristrophe speciosa (=Justicia); 3, Linum trigynum; 4, Cissus amazonicus; 5, Eranthemum æneum.—*Hortus.* Leptospermum bullatum. Your Azaleas and Crotons are attacked by thrips.—*T. C.* Iris fimbriata.—*Eversfield.* 1, Dendrobium Pierardii; 2, Vanda cœrulescens.—*Quarndon.* 1, Acacia dealbata; 2, Clianthus (probably C. puniceus); 3, Doronicum caucasicum. Grow in pots, and protect in a cold frame till December, then remove to the greenhouse.—*W. Smith.* Specimen insufficient.—*H. C.* 1, Polyporus fraxineus; 2, Corticium giganteum; 3, Polystictus versicolor; 4, Only spawn; 5, Polyporus annosus; 6, Peltidea canina (lichen). There is no such book as you mention. *M. C. C.* — *W. S.* Ficus stipulata, an almost hardy species.

ORCHIS LONGEBRACTEATA: *Monaco.* Fine specimens, but we have no doubt, as in the case of O. foliosa, it would improve under appropriate cultivation.

PLUM STOCKS: *C. J. N.* The St. Julien and Black Damask Plum stocks are practically the same, although samples of both sometimes vary slightly in appearance, owing to the soil on which they have been grown. Seeds are also sown under both names, and then the individuals of both will differ slightly among themselves.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY: *W. L.* The address of Mr. Collins, the Secretary of the above, is 9, Martindale Road, Balham, S.W.

VINES: *H. W. G.* The injury to your Vines is due to some chill, or sudden alteration of the temperature.

CATALOGUES RECEIVED.

THOS. KENNEDY & CO., 106 and 108, High Street, Dumfries, N.B.—Agricultural Seeds.

SAMUEL SHEPPERSON, Prospect House, Belper—Florists' Flowers.

BROWN & WILSON, 10, Market Place, Manchester—Farm Seeds.

TOOGOOD & FINLAYSON, Southampton—Agricultural Seeds.

ARSENE SANNIER, Rue Morris 1, Rouen, France—Fruit Trees.

COMMUNICATIONS RECEIVED.—R. D. W.—Monaco.—H. J. E. H. J. V.—D. M.—F. B.—P. W. Sourash, Russia.—A. G.—Ferrari—Major M.—W. W.—J. R.—F. F.—H. H. D.—N. E. B.—J. R. J.—J. H. H.—W. G. S.—J. P.—W. B. H.—W. T.—M.—P. E. N.—W. B.—R. A. R.—W. Holmes.—P. G. J. S.—C. W. D.—W. Hans.

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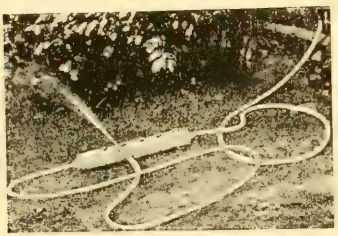
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GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d. BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth or Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.
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For GREENHOUSE or GARDEN.

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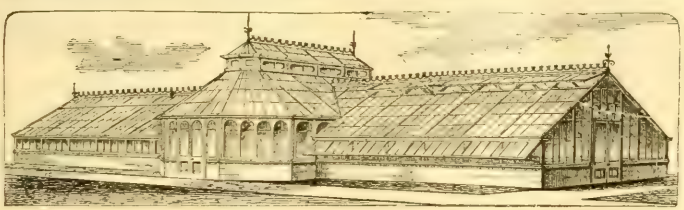
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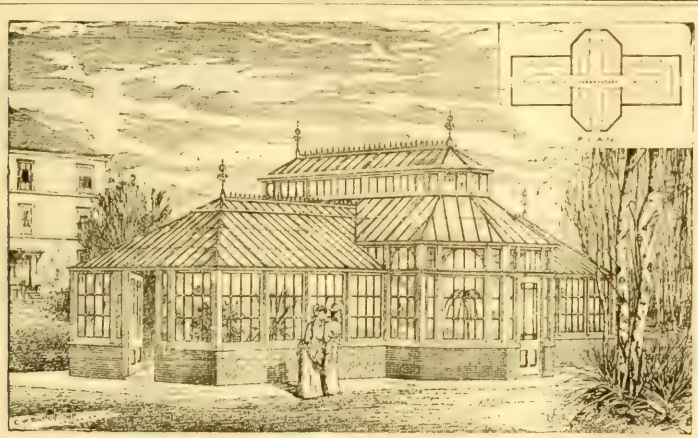
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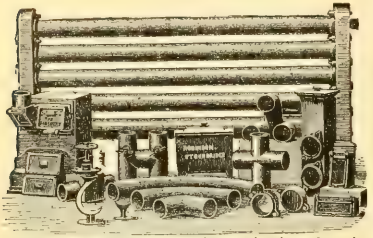
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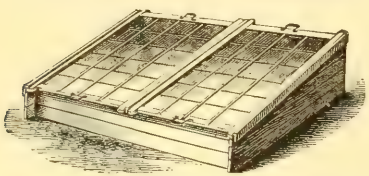


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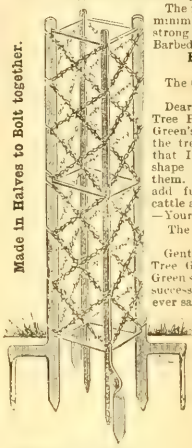
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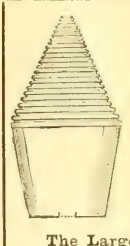
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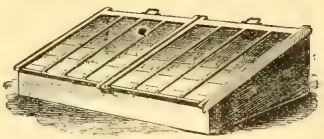
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TO MARKET GARDENERS.—A GENTLEMAN who intends to settle in Australia during the latter part of the present year to Cultivate Fruit and Flowers, DESIRES TO MEET WITH ANOTHER TO JOIN HIM in the enterprise. Applicant must be a thoroughly experienced practical man, and possess at least sufficient means to pay his own travelling expenses.—Address, with full particulars and references to GARDENER, Messrs. Brown, Gould & Co., 54, New Oxford Street, W.C.

WANTED, a sing'e man, to act as GARDENER, Outdoor, also small Stock and Lawns.—"Green Dragon," Winchmore Hill, N.

WANTED, MAN and WIFE. Man as Gardener and to take charge of a small Farmery (4 to 5 Acres). Wife as Cook and to look after Dairy, Poultry, &c. In the house. All found. Wages, £45 to £40.—Address, Major G., Junior United Service Club, Charles Street, S.W.

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WANTED, in a Large Establishment (four under gardeners kept), a MAN, not under 30, experienced in Houses and Flower Garden. Cottage, with garden provided.—Address, with full particulars of past service, H. R. F., Knibbesse Park, East Grinstead, Sussex.

WANTED, an active young Man, as SECOND GARDENER. Indoor and Out, quick and clean at his work; age 24. Wages, 16s. per week, Bothy, Vegetables, and Milk, &c.—W. GIBSON, Steventon Manor, Whitchurch, Hants.

WANTED, a good WORKING FOREMAN, to take Charge of a Small Glass Nursery; must be a good Propagator and Grower of Ferns, Cyclamen, Palms, Dracænas, Roses, Azaleas, Soft-wooded Plants, Cut Flowers, &c., for market.—Apply, with full particulars as to experience, age, wages, &c., to J. WINGFIELD, Widmore Hill Nursery, Bromley, Kent.

WANTED, a WORKING FOREMAN, good Grower of Grapes, Tomatos, Mushrooms, &c., for Trade. House, coals, and vegetables free. State age, family, wages, and experience.—F. H. WILKINSON, Lambley, Nottingham.

WANTED, a PROPAGATOR and GROWER, well up in Soft-wooded Stuff. Good reference.—Apply, with wages required, 24, High Street, Cardiff.

WANTED, young MAN, as PROPAGATOR, used to Market Nursery. Well up in Ferns, Stove Plants, &c. Also an active YOUNG MAN. None need apply but those used to Market Nursery.—WILLIAM ICETON, Nurseryman, Putney Park Lane, Putney, S.W.

WANTED, in a Market Nursery, a steady young MAN, to Grow Tomatos, Cucumbers, Ferns, &c.—Apply, by letter, stating wages required, with references, B. W. CROSSLEY, Lar Lodge Nursery, Batley, Yorkshire.

WANTED, an experienced MAN, to Grow Grapes, Cucumbers, and Cut Flowers for Market.—PAGET, Rosemeath, Ilgin Street, Clapham.

WANTED, a thoroughly experienced MAN, competent to take the Management of a Cow and Poultry, also Small Kitchen Garden. Wages, 18s. 6d. per week, with Bothy, fuel, and light.—E. WHEELER, The Gardens, Moray Lodge, Campden Hill, Kensington, W.

WANTED, IMPROVER in Market Nursery, under Glass, with some experience.—Apply, with all particulars, to RALPH CROSSLING, Penarth Nurseries, South Wales.

WANTED, a young Man, with some experience as IMPROVER in the Houses, Roses, Ferns, &c.—W. RUMSEY, Joyning's Nurseries, Waltham Cross.

WANTED, AT ONCE, a strong YOUTH, for Nursery Work, and to Attend Markets; one with a little experience preferred.—Apply, stating age, wages, &c., to J. WRIGHT, Nurseryman and Seedsman, 49, Granby Street, Leicester.

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GARDENER (HEAD).—Wide practical experience in all departments at home and in the Colonies. Highest references. G. W., Bryn-Mulgwyn, Llanrhos, Llandudno.

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GARDENER (HEAD).—Age 28, married; fourteen years' experience in good establishments in all branches. First-class references.—G. W. D., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GARDENER (HEAD).—Married; eighteen years' thorough practical experience in the Cultivation of Vines, Peaches, &c., Flower and Kitchen Garden. Abstainer. Excellent character.—F., 11, Millman Street, Chelsea, S.W.

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GARDENER (HEAD); age 38.—Mr. F. H. NORMAN desires to recommend his late Head Gardener. Understands Flowers, Fruit, and Vegetables; also Land and Stock. Eighteen years' experience.—Address, 62, Lombard Street, E.C.

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GARDENER (HEAD); age 32.—H. SWIFT, for three and a half years Gardener to the late C. A. Nicholson, Esq., Balrath Burry, Kells, co. Meath, is open to treat with any Lady, Nobleman, or Gentleman requiring a good, all round Gardener, thoroughly conversant with the requirements of a large establishment.

GARDENER (HEAD).—Age 36, married, no family; Scotch. Nineteen years' experience in Vines, Peaches, Melons, Tomatos, Stove and Greenhouse Plants, Flower and Kitchen Garden. Five and a half years' excellent character as Head.—W. B., 4, West Street, Nursery Road, Chester.

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GARDENER (HEAD); age 38, married.—Mr. D. WILLIAMS, Gardener to the Earl of Feversham, can with confidence recommend a thorough, practical, all-round Gardener, with several years' experience as Head. Thoroughly conversant with the requirements of a large establishment.—Address in first instance to F. G., Mr. D. Williams, Duncombe Park Gardens, Helmsley, Yorks.

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GARDENER (HEAD WORKING).—Age 31, married, no family; seventeen years' experience in Orchids, Stove, Greenhouse, Flower and Kitchen Garden.—J. R., 23, Charlton Road, Harlesden, N.W.

GARDENER (HEAD WORKING), where trust and ability are required.—Age 38, married; fourteen years with present employer. Highly recommended. Abstainer.—THOMAS PRIEST, Cowley, Uxbridge, Middlesex.

GARDENER (HEAD WORKING), where one or two are kept.—Married, no family; nineteen years' practical experience in Vines, Melons, Cucumbers, Stove, Flower and Kitchen Gardening, &c. Good references given.—H. FORD, Stanley Road, Newtown, Christchurch, Hants.

GARDENER (HEAD WORKING).—Age 33; eighteen years' practical experience in all branches. Well up in Forcing Vines, Peaches, Cucumbers, Melons, &c. First-class references from past and present employers.—Abstainer.—F. LANE, Alma Road, Reigate, Surrey.

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GARDENER (HEAD WORKING), where two or three are kept.—Age 31, married; thoroughly experienced in all branches. Land and Stock. Wife good Laundress. Highest references from present and previous employers.—J. M., 1, Daisy Villas, Stewart Road, Malmesbury Park, Bournemouth.

GARDENER (HEAD WORKING).—Age 33; married.—R. CALLAGHAN for the past six years Head Gardener to G. Burt, Esq., J.P., Furneck House, Livanage, is open to treat with any lady or Gentleman requiring the service of a thorough, practical, all-round Gardener; excellent testimonials from past and present employers.—Address as above.

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GARDENER (HEAD), or GARDENER and BAILIFF. Age 45, married; Scotch. Experienced in North and South of England. Good references.—W. S. CAMPBELL, 17, Prince Street, Bridlington Quay.

GARDENER, or GARDENER and BAILIFF.—The LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, wish to recommend a first-class man in the above capacity. Unexceptional references. Full particulars on application to the Company.

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GARDENER (good SINGLE-HANDED, or where help is given).—Age 29, married when suited; twelve years' experience, Inside and Out; four years' good testimonials from previous and two years' from present employer as second.—J. LUFF, Elmore Gardens, Chipstead, Surrey.

GARDENER, where two or more are kept, or good SINGLE-HANDED.—Age 25, married; thoroughly experienced in Vines, Peaches, Melons, Mushrooms, Stove and Greenhouse, and Flower and Kitchen Garden. Good character.—A. STOCK, Larchwood, Horley, Surrey.

GARDENER (SINGLE-HANDED), or with Assistance.—Age 34, married; nine years' good character. Satisfactory reasons for leaving.—W. D. ARRANDENE, Mill Hill, N.W.

GARDENER (good SINGLE-HANDED), or where help is given.—Age 27, married when suited; thoroughly experienced in all branches. Two and a half years' good character.—T. FEAVER, 3, South Terrace, St. John's, Sevenoaks, Kent.

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GARDENER (SINGLE-HANDED), or SECOND. Age 25; understands Glass and Outdoor Work. Good reference.—F., 29, Stewart's Road, Battersea Park, S.W.

GARDENER (SINGLE-HANDED), or SECOND.—Age 26; understands Glass and Outdoor Work. Can have good references from present situation.—J. N., Caen Wood Towers, Highgate, N.

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GARDENER (SECOND).—Age 27, married when suited; thoroughly competent in all branches. Wife thorough Laundress, if preferred. Good character.—Q., 21, Abinger Road West, New Cross, S.E.

GARDENER (SECOND).—Age 23; nine years' experience, Indoors and Out; four years' good character from present employer.—A. B., 158, Romnary Road, West Norwood, S.E.

GARDENER (SECOND), where four or five are kept.—Age 23; nine years' experience in good places. Seven years' good character from present situation.—G. W. Crawley Down, Sussex.

GARDENER (SECOND), in a Large Establishment. Age 25; ten years' experience. Two and a half years in last situation. Good testimonials.—W. G. PIPEWELL, Kettering.

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GARDENER (UNDER), or SINGLE-HANDED.—Age 23; several years' experience. Scythe and Machine. Good character.—A. W., 20, St. John's Terrace, Clay Hill, Enfield, Middlesex.

GARDENER (UNDER), or THIRD, where four are kept.—Age 21, single; four years' and a half good character.—L. P., Winters Hall, Bramley, near Guildford, Surrey.

GARDENER (UNDER), Inside, or Inside and Out.—Age 20; two and a half years at present place.—P. B., 20, Upper Square, Isleworth.

GARDENER (UNDER).—Age 21; five years experience Inside and Out. Good character. — J. CARTER, Clermont Gardens, Watton, Norfolk.

GARDENER (UNDER). — Age 35, married, strong and active; ten years' good character. Permanency. — GARDENER, Noon, Claremont Road, Romford, Essex.

GARDENER (UNDER). — Age 20; good knowledge In and Outdoors. Two years last situation; recommended; understands Cows.—H. LANGFORD, 16, Pool Road, Newtown, Mont.

GARDENER (UNDER), in a good Establishment, Kitchen Garden and Pleasure Grounds.—Age 30, married; thirteen years' experience, nearly three years in present situation.—W. GAIGER, Pankridge Street, Crondall, Hants.

GARDENER (Under), inside preferred.—Age 19; five and a half years' good character.—F., Gardener, The Bush, Walton-on-Thames.

KITCHEN GARDENER, or good Single-handed; age 31, married, no family.—A. Barlass, Gardener, Bonchurch, Isle of Wight, wishes to recommend his Kitchen Gardener as above; understands the general routine of Gardening. Wife Laundry or Poultry, if required.

FOREMAN, or MANAGER in Small Nursery. —Age 27; used to Growing Plants, Flowers and Tomatos for Market; Serving; Wreath and Cross Making, &c. Good references. Ten years' experience.—A. STREET, The Nursery, South View, Peterborough.

FOREMAN, in the Houses.—Age 25; nine years' experience. Inside and Out, in good places. Good testimonials.—B. BOWYER, Burhill Park, Walton-on-Thames.

FOREMAN, where three or more are kept, Inside.—Well up in Plant and Fruit Growing; good character. Address, stating wages, with bothy.—H. C., Mr. Grover, Boxmoor, Herts.

FOREMAN, in Good Establishment.—Age 26; eleven years' experience, two years in last situation, good references.—F. BLUNT, Wellbury House, Hitchin, Herts.

FOREMAN.—Age 24; eleven years' good all-round experience. Three years Market Gardens. Undeniable references.—A. P. FORD, 76, Woodland Lane, Chapel Allerton, Leeds.

FOREMAN; age 28.—S. Knowles, Gardener, Pylewell Park, Lymington, wishes to recommend his Foreman, G. Harding, as above. Three years' character from present situation. Knowledge of Stove and Greenhouse, Fruit, Early and Late Forcing.—Address as above.

FOREMAN, or Second.—Age 23; six years' experience. Two years in present situation.—A. COLE, The Gardens, Halstead Place, Sevenoaks, Kent.

To Head Gardeners.

FOREMAN, or Second, in Large Establishment.—Age 25; nine years' experience Inside and Out. Abstainer. Good character.—C. MARKHAM, Foreman, Ribston Hall, Wetherby, Yorks.

FOREMAN, PROPAGATOR and GROWER. —Twenty years' experience in Pot Roses, Palms, Ferns, and Soft-wooded Stuff for Market; Wreaths, Crosses, and Furnishing. Good Salesman.—WALTER, 3, Sem Gardens, Old Dover Road, Blackheath, S.E.

FOREMAN, PROPAGATOR, and GROWER for Market, or otherwise. Seventeen years' experience in all branches.—H. VAN ZAUTEN, 3, Elgin Terrace, Maida Vale, London, W.

FOREMAN PROPAGATOR and GROWER. —Twenty three years' practical experience in producing large quantities of Cut Flowers and Flowering Plants, Roses, Palms, Ferns, Bulbs, &c., Cucumbers and Tomatos.—J. S. F., 5, Gilbert Road, South Wimbledon.

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PROPAGATOR, or PROPAGATOR and GROWER.—Age 24; well up in Pelargoniums, Bouvardias, Genistas, Double Primulas, Cinerarias, Carnations, Cyclamens, Solanums, Ficus, Ferns, &c.—R. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GROWER (Assistant).—Age 24; Soft-wooded and Stove Stuff, seven years' experience; Wreaths, Crosses, &c. Good references.—H. B., Mill Cottage, Barnham, near Bognor, Sussex.

ORCHID JOURNEYMAN.—Age 19; five years in Orchid Houses.—G. F. S., Heath & Son, Cheltenham.

JOURNEYMAN (First). Age 23; nine years' practical experience. Good reference from present and previous employers.—J. SMITH, The Gardens, High Firs, Harpenden, Herts.

JOURNEYMAN (First), in a Gentleman's establishment.—Age 23; eight years' practical experience in Large Places. Good character from present and previous employers.—C. CLAXSON, 61, Lupton Cottages, South Weald, Brentwood, Essex.

JOURNEYMAN, Inside, in a good establishment, near London preferred. Age 24; well up in Propagating, Potting, Watering, &c. Eleven years' experience. Good character.—J. J. ASQUITH, Newark Road, Croydon.

JOURNEYMAN, in the Houses.—Age 21; seven years' experience. Mr. Jaques, Waddesdon, Aylesbury, can strongly recommend a young man as above.

JOURNEYMAN in Houses, good establishment.—Age 21; seven years' experience. Good recommendation.—G. E. C., Ashford Carbonell, Ludlow, Salop.

JOURNEYMAN, in good establishment.—Age 20; six years' experience. Excellent character. Bothy preferred.—H. SILK, Whiteness Gardens, Margate.

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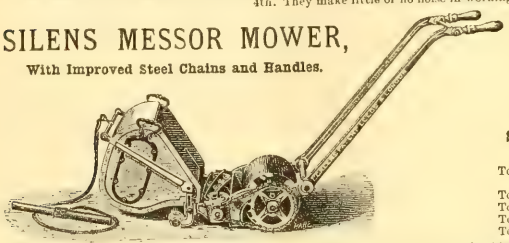
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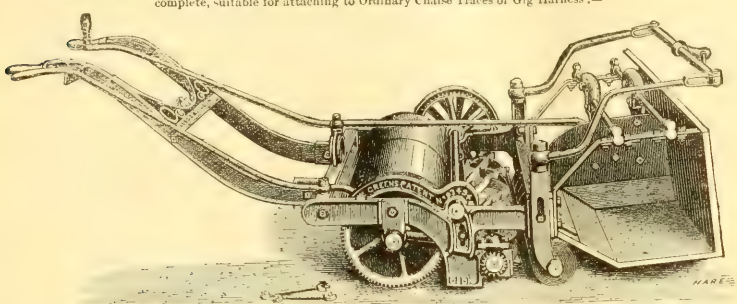
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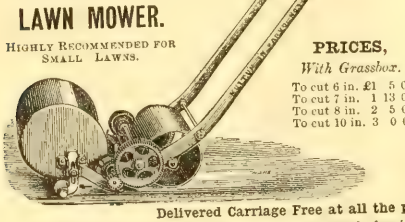
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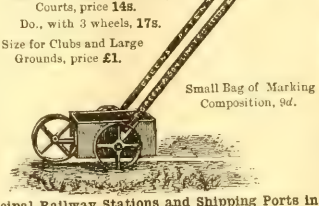
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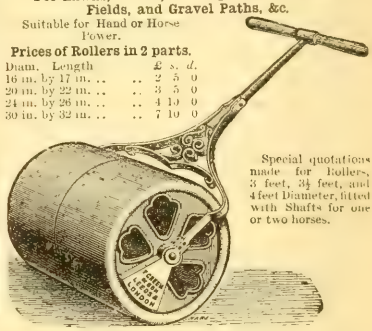
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PAUL AND SON can supply Dwarf and Standard trained Trees of the above—indeed, their trained Trees of all Fruits are good.
The Old Nurseries, Cheshunt, N.

VICTORIA PLUMS, FARLEIGH DAMSONS, feathered trees, 45s. and 60s. per 100. PLUM STOCKS, trimmed ready for quartering, 30s. and 40s. per 1000. STANDARD CHERRIES, very fine trees, £8 per 100. OVAL-LEAVED PRIVET, from 12s. per 100.
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

RED CURRANTS, Raby Castle and Red Dutch. COB NUTS, strong well-rooted plants. APPLES, Pyramid, good sorts, 5 to 7 feet. Scarlet CHESTNUTS, fine trees, 6 to 9 feet. STRAWBERRY PLANTS. Viscomtesse Hericart de Thury, Stirling Castle.—TODDINGTON ORCHARD CO., Winchcombe, Gloucestershire.

STRAWBERRIES.—Leading kinds, in 3½-inch pots, for immediate Planting or Potting on for Forcing. Send for LIST.
FRANCIS R. KINGHORN, Sheen Nurseries, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the manufacturers.—CHADBORN AND GOLDWELL, MFG. Co., 223, Upper Thames Street, London, E.C.
The largest makers of Lawn Mowers in the world.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Monday Next.

Various LILIES, from Japan; a large assortment of English-grown LILIES and Hardy BULBS, 500 Hybrid GLADIOLI, American PEARL TUBEROSES, BEGONIAS, GLOXINIAS, TIGRIDIAS, 300 CALLA ALBA MACULATA, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 17, at half-past 12 o'Clock.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, March 18, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

1000 LILIUM AURATUM, 600 L. ALBUM KRETZERI, and 600 SPECIOSUM RUBRUM, from J pan; 1500 American Pearl TUBEROSES, 1000 BEGONIAS, 1000 choice mixed Hybrid GLADIOLI, a large assortment of various LILIES, Standard and Dwarf ROSES, about 300 named CARNATIONS from a first-class grower, 400 splendid Bulbs of VALOTTA PURPUREA, 500 ANEMONE The Bride, 150 AZALEA MOLLIS, 100 AZALEA INDICA in Flower, and other PLANTS from Belgium, Greenhouse and Stove FERNS, PALMS, and other DECORATIVE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, March 19, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.

45,000 COCOS WEDDELLIANA SEEDS, just received.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on WEDNESDAY NEXT, March 19.

On view morning of Sale, and Catalogues had.

Thursday Next.

SALE of NURSERY STOCK from SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, March 20, a large quantity of NURSERY STOCK and GREENHOUSE PLANTS from sample, including the following:—

500 Adiantums, in 7-inch pots	2,000 Cupressus
1000 Double White Primulas	5,000 Laurustinus
2000 Chrysanthemums	2,000 Laurels, of sorts
5000 Seaforthias	5,000 Privet
1500 Roses, of sorts	30,000 Scotch Fir
1000 Cocos Weddelliana, Corypha australis, Latania borbonica, and Chamærops, in 60's and 48's	20,000 Apple and Cherry Stock
	200,000 1-yr. Seedling Ash
	2,000 Lily of the Valley
	2,000 Hardy British Ferns

Standard and Dwarf-trained FRUIT TREES in great variety, STRAWBERRIES for Forcing, and large quantities of other Stock.

Samples will be on view on morning of Sale. Catalogues on application.

Friday, March 21.

From Messrs. F. Sander & Co., St. Albans.

CATTLEYA IMPERIALIS and others.

Specially fine Importation, enormous masses.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, March 21, at half-past 12 o'Clock, a specially grand importation from Roezl's old locality, the Atrato River, whence came the superb varieties of years ago. The present consignment has been sent by one of our oldest collectors, Mr. Bartholemus, and the plants have arrived in superb order, with grand leaves and bulbs, and fine dormant eyes. CATTLEYA IMPERIALIS is absolutely one of the finest of the whole genus. In the lot now offered there are masses with 300 pseudobulbs, and many well-leaved, handsome, model specimens, that have the appearance of splendid established plants. There is altogether a distinctiveness about the plants now offered which should in luce Orchid lovers to speculate, as something new will certainly turn up among them, and we recommend buyers to carefully inspect the plants offered, as we believe many of the specimens are aureas, or a type of that magnificent Cattleya. We have now imported Cattleyas for twenty years, but have seldom seen such pictures of plants as many now offered. We spent a large sum of money in getting the consignment of this the finest Cattleya in the section. It is absolutely a fact that the white Gigas came from the same locality. (See last number of *Reichenbachia*.)

On view morning of Sale, and Catalogues had.

Friday Next.

VANDA CŒRULEA, a grand lot of Established Plants.

MESSRS. PROTHEROE AND MORRIS are instructed to include in their SALE, on FRIDAY NEXT, March 21, a magnificent lot of the above-named ORCHIDS, consisting of about 35 plants in large pans, all in splendid health and condition. Every plant is offered, and the pans have from 1 to 15 growths each; also a splendid specimen of LELIA PURPURATA, of 53 BULBS and 9 FLOWER-SHEATHS, and specimen CATTLEYA MENDELII, with 50 Bulbs and 12 Flower-sheaths.

Friday Next.

ODONTOGLOSSUM (New Hybrid).

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander, St. Albans, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 21, a magnificent plant of a natural hybrid ODONTOGLOSSUM, between Pescatorei and triumphans, absolutely distinct from anything hitherto seen, and exquisitely charming; it is in the way of the known Knox's variety and Excellens in Sir Trevor Lawrence's and Baron Schroder's Collections, which plants were from our importation; but the variety now offered is different to either, and takes rank with the princes of this genus. The flower is large, round, white and yellow ground, with numerous small and large chocolate crimson markings.

We offer this plant entire, consisting of four bulbs and two new growths; it is a double plant with 11 leaves, and within a few months will divide into two. The plant carries a spike of five flowers.

May be viewed on the morning of Sale, and Catalogues had.

Tuesday, April 1st.

SPECIAL SALE.—ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of ORCHIDS in FLOWER, will take place as above, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Wednesday Next.

A consignment of AZALEAS, PALMS, RHODODENDRONS, and other PLANTS from Ghent. Also 1500 Standard, Half-standard, and Dwarf ROSES, including many of the best-known varieties, from well-known English and French growers; several hundred FRUIT TREES, to name; BORDER PLANTS, in large quantity; Hardy Ornamental SHRUBS, EVERGREENS, CONIFERS, &c.; LILIUM AURATUM, PEARL TUBEROSES, LILY OF THE VALLEY CROWNS, GLADIOLI, and many other BULBS and ROOTS, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 19, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

A fine COLLECTION of ORCHIDS, chiefly in Flower and Bud.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 20, at half-past 12 o'Clock precisely, a fine COLLECTION of ORCHIDS, chiefly in Flower and Bud, including some fine varieties and specimens.

On view morning of Sale, and Catalogues had.

Thursday Next.

10,000 LILIUM AURATUM, L. AURATUM MACRANTHUM, L. SPECIOSUM RUBRUM, and many other LILIES from Japan, in fine condition; PEARL TUBEROSES from America; 10,000 LILY OF THE VALLEY CROWNS, &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 20.

On view morning of Sale, and Catalogues had.

Frog Hall Nursery, Enfield Road, Southgate.

Within a short distance of New Barnet and Oakleigh Park Stations, G.N.R.

MESSRS. HARLAND AND SON will SELL by AUCTION, upon the Premises as above, on TUESDAY, March 18, 1890, at 1 for 2 o'Clock, 1000 well-grown NAMED ROSES, in pots; 500 healthy WINDOW PLANTS, consisting of the best varieties for market purposes; 10,000 Strong MANETTA STOCKS, 1000 Red and White CURRANT TREES.

Good plants of the very best sorts.

May be viewed by applying to Mr. GRAY, upon the Premises, of whom Catalogues may be had.

Catalogues also at the usual Inns in the neighbourhood; and of the Auctioneers, Barnet, N.

Morton's Nurseries, Mowden, Darlington.

To NURSERYMEN, SEEDSMEN, FLORISTS, and OTHERS interested in the Horticultural Trade.

MESSRS. THOMAS WATSON AND SON, Auctioneers, will SELL by AUCTION, at the Darlington Auction Hall, Northumberland Street, Darlington, on TUESDAY, March 25, 1890, at half-past 7 o'Clock in the evening precisely, subject to such Conditions as will be then read, that VALUABLE OLD-ESTABLISHED NURSERY, about Two Acres in extent, known as and being the Mowden Nurseries, in the occupation of Mr. T. B. Morton, the world-famed Chrysanthemum grower, and situate about ½ miles from the Market Place in Darlington aforesaid, with the MESSUAGE or DWELLING-HOUSE, STABLE, CART-SHED, BUILDINGS, and GLASS-HOUSES erected thereon, viz.:—Iron-framed Chrysanthemum-house, 47 feet by 22, and 13 feet high; Iron-framed Span Roof House, 62 feet by 12, with Propagating-house, 12 feet square at end, and 40 feet of heated frames at side; Wood-framed House, 52 feet by 12, in three divisions; Wood-framed House, 30 feet by 15; Wood-framed House, 40 feet by 14; Iron-framed House, 45 feet by 12; and Wood-framed House, 21 feet by 12. Six of the Houses are built on brick and concrete bases, and are of modern and unique construction, and glazed with large squares.

The Houses are heated by two powerful boilers, and about 1,900 feet of 3 and 4-inch piping.

The Nursery is well stocked with fruit trees, and is situate in close proximity to the Cosker Beck, from which a constant supply of water is obtained by means of an American pump, connected with which is a tank estimated to hold 500 gallons.

The Messuage or Dwelling-House, on the ground floor two Sitting-rooms, Kitchen, and Small Room (the latter used as an office); on the first floor five good Bedrooms, approached by front and back staircases.

Adjoining is an excellent 3-stalled Stable and Cartshed, with large Loft over.

The Property may be viewed, and further information and particulars may be obtained, on application to the Auctioneers; Mr. T. B MORTON; Mr. J. T. HALL, 44, High Row, Darlington; Mr. GEO. WEBSTER, Solicitor, Houndgate, Darlington; or, WILKES AND WILKES, Solicitors, Middlesbrough and Darlington.

Market Place, Darlington, March 6, 1890.

Nevill Court, Tunbridge Wells.

To FLORISTS and MARKET GARDENERS.

By order of the Executors.

MESSRS. BRACKETT AND SON (having sold the Estate) are instructed by the Executors of the late Mrs. Elizabeth Byass to SELL by AUCTION, on the Premises, as above, on WEDNESDAY, March 26, 1890, commencing at 11 o'Clock, a quantity of Outdoor Effects, FARMING STOCK, HAY, GARDEN TOOLS, GARDEN SEATS, about 1300 GREENHOUSE and STOVE PLANTS, including Palms, Orchids, Crotons, Azaleas, Cocos Weddeliana, Dieffenbachia, Kentia australis, Dracænas, Caladiums, Eucharis, Areca, Hoya, Marantas, Rhapis, Humilis, Anthuriums, Pandanus, Gardenia, Pancratiums, Oncidiums, Vandas, Dendrobes, Aërides, Cycas revoluta, Cyatheas, Chamærops, Lycaste, Cypripediums, Amaryllis, Imantophyllum, Begonias, Alsophyla australis, Phœnix reclinata, Adiantums, Danallias, Blechnums, Calanthes, Allamanda, Stephanotis, Bougainvillea, Plumbago capensis, Solanums, Deutzias, Callas, Grevilleas, Genistas, Pelargoniums, Cyclamen, &c.; about 3000 choice BEDDING PLANTS, FIG TREES, and about 90 superior FINE-APPLE PLANTS.

On view the day prior to and morning of Sale. Catalogues may be obtained of the Auctioneers, 27, High Street, Tunbridge Wells.

WANTED, a FLORIST'S NURSERY, with Shop, in leading thoroughfare; rent about £30. Stock and incoming must be low.—Reply, GIDDY, Sunningdale.

WANTED TO RENT, some GLASS, suitable for Growing Cucumbers, Tomatos, and Cut Flowers for Market, with Dwelling house.

C. H., Pale House, Framfield, Sussex.

FOR SALE, a compact NURSERY, 7 Houses nearly new, and specially adapted for growth of Orchids, Palms, and other Foliage Plants. 12 years' lease. Good Dwelling attached. Rent £15. Full particulars.

J. PREWETT, Swiss Nursery, Hammersmith, W.

East Retford, Notts.

TO BE SOLD, by Private Treaty, a first-class NURSERY (glass only), consisting of 6000 square feet, in full working order. A splendid opportunity for a good man. Retford is within a short distance of Newark, Sheffield, Doncaster, Leeds, Bradford, and Lincoln Markets.—For full particulars, apply, F. W, HODSON, Grovelegh Nurseries, Retford.

The Ivies, Winchmore Hill.

Situated on the northern heights of London.

COMPLETE and COMMODIOUS DETACHED RESIDENCE for small family. On two floors, comprising six Bed-rooms, two Dressing-rooms, Bath-room, heated Linen-room, Box-rooms, Drawing-room with Verandah, large Dining-room, Library, Pantries, Kitchens, Larders, Wine Cellars, &c. Double Stabling, Coach-house, Harness-room, Wash-house, and Sheds, with Coachman's or Gardener's Cottage, and well-paved Yard. Hot and Cold Water, and Gas laid on everywhere, with numerous Hydrants for Garden and House in case of fire. Whole premises in perfect condition and repair. Delightful Garden, 1¾ acres, beautifully laid out, with five Glass-houses, many frames economically worked by one Boiler, with duplicate if needed. 9 acres of Meadow, fine Tennis Lawn, Kitchen Garden, Cowshed, and Pond. Half a mile from G. N. R. station, half an hour from Broad Street or Moorgate Street. Sixteen years' lease. TO BE DISPOSED OF, Rent £120. 9 acres, £20 per annum. Reasonable premium required.

Photos at 20, Cheapside (Messrs. DEBENHAM), and at 8, Pall Mall east, S.W. (Messrs. HAMPTON).

FLORIST'S First-class Old-established BUSINESS, same hands twenty years; splendid corner position, west, midst of squares, close to Parks, and Kensington Gardens; pretty and commodious Glass Frontage; Stabling, with Offices, &c. FOR DISPOSAL through death of proprietor; good contract and out-door business, employing ten men in the season; certain money-making genuine concern; rent low, only £55, long lease, excellent repair.

Apply, W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Gardeners.—Vineries near London.

FOR SALE, TWO FREEHOLD VINERIES, and 3 Acres planted with Muscat, Black Hamburgh, Gros Colmar, and Alicante Vines (Army Colonel ordered abroad) will sell at great sacrifice. Price £1500. Reasonable deposit. Balance in instalments.

Apply, HERBERT H. FULLER, Surveyor and Auctioneer, 15, Serjeant's Inn, E.C.

TO BE LET or SOLD, a 6-roomed COTTAGE, with about 1 Acre of Land, the Stock being of miscellaneous description, and suitable for supplying the requirements of Town or Suburban Business.—Apply to Mr. JOHN EMBLETON, Suffolk House, New Hampton.

TO BE LET or SOLD, Aylestone, near Leicester, a valuable and most eligible FREEHOLD and FLORIST'S NURSERY, consisting of a well-built Bay-windowed Villa Residence, 7 large Greenhouses, and a good Garden well-stocked with Fruit Trees, having a river frontage, and situated 2 miles from Leicester on the main road to Lutterworth, known as Aylestone Park. Rent £60 per annum. No stock. Trams pass the door every 10 minutes.

Apply to S. WALKER, Aylestone Park; or HARRISON AND SONS, Seed Merchants, Leicester.

London, S.E.

TO BE LET, or Freehold SOLD, an old established (22 years) NURSERY BUSINESS near Putney. About an acre of Ground, capital frontage Dwelling House, Stabling, Coach House, Sheds, &c., and about 12,000 feet of Glass. The whole is in substantial repair and forms one of the most compact properties which can be found near London. Apply:—PROTHEROE AND MORRIS, 67, Cheapside, London, E.C

TANSLEY WITT, 40, Chancery Lane, London, W.C.

TO LET, near Worthing, about 1140 feet of GLASS HOUSES, suitable for Tomatos, Cucumbers, and Grapes. 2½ miles from Worthing; 1 mile from nearest goods station. Apply to

ARTHUR HENTY, Esq., Broadwater Hall, Worthing.

To Florists, &c.

SUITABLE LAND at Edmonton and Woodford TO LET. Freeholder will assist a practical man who has a little capital.

Apply, to view, SEARS, 1, Graham Road, Edmonton; DYER, Woodford Bridge; or, for particulars, to FREEHOLDER, 33, Dorset Street, Portman Square, W.

To Amateurs of Horticulture.

TO LET, on Lease (nearly thirty years unexpired), DETACHED RESIDENCE (drainage perfect), containing, on Ground-floor, three Reception-rooms of excellent dimensions; on First-floor, five Bed-rooms and Bath-room, with two Attics above; good Domestic Offices, and excellent Wine-cellar, Coach-house, Stabling, &c. Situated within a mile from Herne Hill Station, on high ground, with Garden (1 acre extent), slightly sloping west, surrounded by parkland and gardens. Garden entirely transformed during last twenty-five years by present tenant—leaving London. Conservatory, Stoves, Greenhouses, and Brick Pits, comprising together 116 square yards Glass, furnished with choicest varieties, hundreds each of FERNS, AZALEAS, including all Van Houtte's and others' newest, best, CAMELIAS, and others. Similar quantities and highest class outdoor ROSES, flowering Trees and Shrubs, Perennials, Alpines, with over ten dozen sorts CONIFERS (two large Cedrus Libani on Lawn, 50 yards long). Most extensive collection of choicest trained most productive FRUIT TREES, including long row on south wall. Constant Water-supply through whole Garden, which is most productive in Vegetables, separated from Lawn by Rhododendron ridge of choice sorts.

Additional Ground obtainable, possibly several acres.

Rent, £140.

Address, by letter, A. C. F., No. 17, to Bacon's Library, 10 Tulse Hill, S.W.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease, for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

AGENTS WANTED, for the SALE of NATIVE GUANO. The Best and Cheapest Manure for Garden use.—Address, THE NATIVE GUANO COMPANY (Limited), 29, New Bridge Street, Blackfriars, London, E.C.

ORCHIDS.
THE LIVERPOOL HORTICULTURAL CO.
(JOHN COWAN), Limited,

Are offering a fine lot of newly imported Dendrobium Wardianum Lowii, D. Bryneriannum (true long bulbed variety), and many other fine Dendrobes and Orchids, also an immense stock of Established Orchids. LISTS with Prices and particulars post-free on application to the Company.

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."

First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet-shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 5s. of each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser, G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

THE BIG SALE

Embraces General Nursery Stock.
RHODODENDRONS, Standards and Dwarfs.
AZALEAS, Named and others.
ANDROMEDA FLORIBUNDA.
ERICA CARNEA or HERBACEA.
A few fine Trained FRUIT TREES.
Hardy EVERGREENS of most kinds.
Requirements are solicited,
As Everything is Offered at a Reduction.
CHARLES NOBLE, Bagshot.

Special Cheap Offer.

WILLIAM BARRON AND SON, LANDSCAPE GARDENERS and NURSERYMEN, offer the following special bargains:—

NAMED RHODODENDRONS, all the best varieties grown in loam, fine healthy plants, 1½ to 2 feet high, most kinds well set with bloom bud, 27s. per doz., £9 per 100.
ABIES MENZIESI, 3 to 4 feet, 35s. per 100.
CUPRESSUS LAWSONIANA, 7 to 8 feet, extra transplanted, 40s. per dozen.
,, ,, ERECTA VIRIDIS, 1½ to 2 feet, 30s. per 100.
,, ,, GRACILIS PENDULA (the finest form of a green Lawsomana), 4 to 5 feet, 21s. per dozen.
PICEA NOBILIS, 1 to 1½ feet, 30s. per 100; 1½ to 2 feet, 40s. per 100.
PINUS AUSTRIACA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet, 30s. per 1000.
,, LARICIO, 9 to 12 inch., 35s. per 1000; 12 to 15 inch., 45s. per 1000.
FOREST TREES and QUICKS of all sizes, very cheap.
The finest Collection of Hardy EVERGREEN TREES in the Midland Counties.
Plans and Estimates furnished for the Improvement of Public and Private Parks or Gardens.
Descriptive CATALOGUES on application.
Elvaston Nurseries, Borrowash, Derby.

QUICKS—QUICKS—QUICKS.
Strong transplanted Quicks, large quantity.
10s., 12s., and 15s. per 1000. Samples on application.
JOHN PERKINS AND SON, 52, Market Square, Northampton.

1000 FLOWERING BULBS of Galanthus Elwesii, Chionodoxa Lucilliæ or Chionodoxa Sardensis, are offered for 12 francs by FRANZ SCHLOSSER, Nurseryman and Florist, Smyrna, Asia Minor. Orders not later than the end of the month of April.

To the Trade.
CHOICE VEGETABLE SEEDS.

H. AND F. SHARPE'S Special Priced LIST of VEGETABLE SEEDS comprises all the best varieties under cultivation of 1889 growth, and of the very finest quality. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

FORBES' CATALOGUE of FLORISTS' FLOWERS for 1890—(116 pages),
Is the Largest, Best, Most Reliable, and Complete ever issued on Florists' Flowers. It gives accurate descriptions of thousands of varieties of Florists' Flowers that cannot be had elsewhere, besides a very full List giving Colour, Height, Month of Flowering, and Price of nearly One Thousand Perennials and Hardy Border Plants, with a mass of other useful information indispensable to all who would excel in the Cultivation of Flowers.

This Catalogue forms a most useful and convenient Reference Book on all sections of Florists' Flowers that should be in the hands of all who love a Garden. Free on application.

JOHN FORBES, Nurseryman, Hawick, Scotland.

STRONG FOREST TREES, &c.
ALDER, 4 to 5 feet, and 5 to 6 feet.
ASH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet.
,, Mountain, 3 to 4 feet, and 4 to 5 feet.
BEECH, 2 to 3 feet, 3 to 4 feet, 4 to 5 feet, and 8 to 10 feet.
BIRCH, 2½ to 3 feet, 3 to 4 feet, and 4 to 5 feet.
ELM, Wych, 3 to 4 feet, 4 to 5 feet, and 5 to 6 feet.
FIR, Austrian, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet.
,, LARICIO, 2 to 3 feet, and 3 to 4 feet.
,, Scotch, 1½ to 2 feet, 2 to 2½ feet, and 2½ to 3 feet.
,, Spruce, 1½ to 2 feet, 2 to 2½ feet, and 2½ to 3 feet.
OAK, English, 3 to 4 feet, and 4 to 5 feet.
PRIVET, Common, 2½ to 3 feet, and 3 to 4 feet.
,, OVALIFOLIA, 2 to 2½ feet, 2½ to 3 feet, and 3 to 3½ feet.
All these different sizes are stout, good, well-rooted plants, and the prices quoted will be very reasonable in order to clear.
JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

"Now is the Time to Plant Trees."

ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street planting. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.

The Nurseries, Trinity Road, Wandsworth Common.

FERNS.—FERNS.—FERNS.—Strong Plants, Pteris cretica cristata, 4s. per box, containing about 100 plants. Cash with order.
R. T. CHILDS, Blenheim Nursery, Rye Lane, Peckham, S.E.

B. R. DAVIS'S New, Rare, and Beautiful BEGONIAS.
The best Illustrated Descriptive CATALOGUE, with Cultural Directions, sent free on application. Begonias for Exhibition, Conservatory, Greenhouse, and Bedding, Double and Single.
B. R. DAVIS, Begonia Grower, Yeovil Nurseries, Yeovil, Somerset.

JOSIAH H. BATH offers the following varieties of SEED POTATOS:—

Old Ashleaf	Vicar of Laleham
Rivers' Royal do.	Fortyfold
Myatt's Prolific do.	Imperator
Snowdrop Kidney	Magnum Bonum
White Elephant	Early Rose
Beauty of Hebron	Regent
Snowflake	Schoolmaster

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All applications must be made on a proper Printed Form, Copies of which may be had Gratis of the Hon. Secretary, or any of the Local Secretaries. Such Form must be correctly filled up, duly signed, and returned to this Office not later than WEDNESDAY, April 23.

A. F. BARRON, Hon. Sec.
Royal Horticultural Society's Gardens, Chiswick, S.W.

THE BRITISH FRUIT GROWERS' ASSOCIATION, PRESIDENT—LORD BROOKE, M.P.
Conferences have been arranged to be held during 1890 at Leicester, Brighton, the Crystal Palace, and the Royal Aquarium. Committee meetings will be held monthly in the Horticultural Club Room, Hotel Windsor, Victoria Street, S.W.—Programmes and all particulars can be had, post-free, from the Hon. Secretary, Mr. LEWIS CASTLE, HOTHAM HOUSE, Merton, Surrey.

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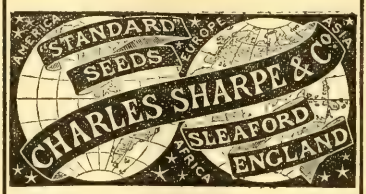
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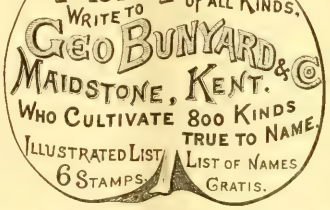
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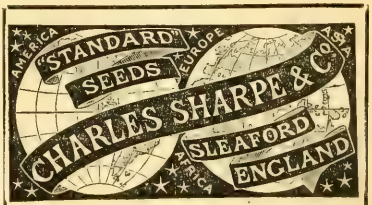
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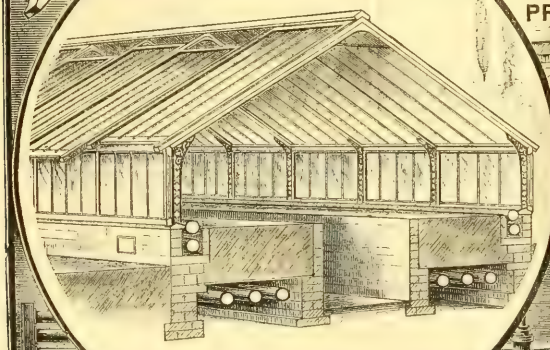
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THE
Gardeners' Chronicle.

SATURDAY, MARCH 15, 1890.

EMPIRICISM, OR RATIONALISM.

An incidental remark to the effect that a certain statement was, in our judgment, "too absolute," has happily served to elicit one of the most valuable, as it certainly is one of the most interesting, discussions on matters horticultural, that has ever occupied our columns. If allowance be made for variation in the use of terms, and especially for differences in the point of view, it will be found that, in spite of superficial appearances to the contrary, and of differences in minor points of detail, all our correspondents are in substantial agreement! The stoutest advocates of empiricism use rational means when they can, and do so far more often than they think. The most rational or theoretical of cultivators are compelled to admit the supreme importance of experience, while judicious experiment is nothing other than a strictly scientific procedure. In discussing this question, it may be well to repeat the sentence which has served as the nucleus round which so many valuable expressions of opinion have collected. "Horticulture," says Mr. Dyer, "is essentially an empirical art. Botanical science can afford but little *à priori* information as to the cultural conditions which any plant will require, or will tolerate; these, for the most part, can only be found out by trial or experience." This proposition is obviously, to a large extent true, and as such is upheld by all our correspondents who have favoured us with their remarks, but that it is far from being wholly so, is shown more particularly, and with great significance, by those cultivators like Mr. Elwes, Mr. Burbidge and others who have had the advantage of foreign travel and observation of plants under their natural conditions. Not one of this class but acknowledges that a knowledge of natural conditions is helpful to the cultivator, and this view also is taken by him whom Mr. Ewbank hails as the prince of gardeners. Mr. Dyer, in support of his proposi-

tion, favoured us with a remarkable article, which, coming from a distinguished biologist, and the head of the most important botanical garden in the world, is invested with peculiar authority. It is none the less valuable or interesting, because some of its statements are, or appear to be, paradoxical.

Mr. Dyer starts with the case which presents itself so often to the gardener—that of a new comer to the establishment, one of whose peculiarities, structure, habits, and conditions of life little is known, and that little likely to be misleading. How is such a plant to be dealt with? Tentatively, experimentally, says Mr. Dyer, with perfect justice—or, to use his own word, "empirically." The word empiric is here used as the antithesis to "rational," but not in a bad sense, as the equivalent of quackery, as some correspondents have erroneously supposed.

Such complete ignorance is happily very rare; almost always we do know something about the plant, something of the country whence it came. It bears on its face more or less conspicuous indications of the kind of climate to which it has been subjected, and almost always, if sufficient time, patience, and skill be forthcoming, we can find out something in the conformation and minute structure of the plant which will give a clue to the circumstances under which it has been living, and those under which we may reasonably expect to be able to cultivate it in our gardens. Life, however, is short, time presses, and the ordinary gardener can hardly be expected to give much time to minute research, such as would be necessitated for this purpose. This latter point, however, in such an establishment as Kew, with its Jodrell laboratory, with every facility for bringing the resources of anatomy and physiology to the aid of the cultivator, offers less difficulty than elsewhere. The division of labour, and the differentiation of skill, can there be carried out to the reciprocal advantage of cultivator and man of research, in a manner impossible in ordinary gardens.

But, continues Mr. Dyer, if we had all attainable knowledge of this kind, it would be of little relative use—(1) because we cannot imitate the conditions under which the plant grows naturally; (2) because we have to grow the plant under an entirely new and artificial set of conditions; (3) because in Nature plants do not grow under the circumstances and condition most propitious to them, but rather where they can find room amid the crowd of competitors, and where they are not elbowed out by other and more powerful claimants.

All these statements contain much that is true, but not one of them is absolutely true. Objections and exceptions can be raised to each one of them. For instance, except in comparatively few cases, no intelligent gardener attempts to imitate Nature servilely. He knows full well that it is not to be done; or, if it could be, that it would not be desirable. The most successful gardener is he who knows how to make the plant grow, not as Nature wishes, but as he wishes it to grow with the means and under the circumstances at his disposal, and one who can adjust the balance between the several conditions such as light, heat, or moisture acting simultaneously, or alternately on the plant as growing in our gardens. Mr. Watson gives to the roots of his Narras, in the space of a few cubic feet, all the moisture it requires under a Kew temperature and a suburban illumination. In Nature the root has to go 100 feet or more in search of moisture. The conditions under which the plant grows at Kew, however artificial, do not seem to us to be absolutely different or new, the principle is the same, the details, and especially the proportions, are different.

That Dean Herbert was perfectly correct in many cases in saying that plants grow where they can, rather than where circumstances would seem most propitious to them, is borne out by several of our correspondents. The fact is, that in such localities the conditions are even more favourable to some rival, and one, perhaps, which has obtained possession of the ground beforehand, and has established itself so thoroughly that competition becomes a matter of difficulty, or perhaps of impossibility, till the cultivator comes in, and by a slight modification of the conditions, or by exterminating one or more of the competitors, gives the others a chance.

Proceeding with his argument, Mr. Dyer disparages Nature as a gardener: "Nature is at best a very poor gardener," says he. Well, we are inclined to ask, does she want to be a gardener? Is that her object? We should not have thought of disparaging Dame Nature for not being what she does not wish nor attempt to be. The objects and aims of the gardener in cultivating plants are one thing, as we have said, the object compassed by Nature in the wild state is often quite different. Were it necessary for Nature to be a gardener, no doubt she would attain a degree of proficiency that the bestowal of no Lindley Medal could adequately reward. Again, but for a certain hibernicism of paradox, we should say that we had often seen specimens of Nature's gardening surpassing all that man can effect. But this is a digression.

Mr. Dyer goes on to say, and this we take it is the point he particularly wishes to emphasise, that the conditions under which plants exist in Nature afford very little real information of value to the cultivator. They represent the degree of toleration, or, as he puts it, the minimum, that the plant will tolerate, not the optimum under which the plant will attain its greatest degree of perfection. This, again, no doubt, is partially true; but here, again, we must remember that the objects of Nature and of the gardener differ widely. Moreover, it is certain that the defect above spoken of is less in the information itself, than in our power of turning it to account; as our knowledge increases and our power of applying that knowledge becomes greater, we shall hear less and less of the imperfections of Nature and of the inadequacy of the information she offers.

Mr. Dyer points to the fact that in many cases plants attain a degree of perfection under cultivation which they never attain in a wild state. That depends again on the way in which we look at things. A mammoth mangel may be perfect in the eyes of the advertiser who has seed to sell, or even in the opinion of the grazier who has stock to feed; it certainly is not so in the eyes of a physiologist. This it is, we presume, which leads Mr. Dyer to state that "cultivation and Nature deal with problems which have scarcely anything in common except the plants they operate upon," another statement which, we say it with all deference, appears to us too absolute. The machinery is practically the same in both cases, the means and springs of action are essentially the same. The working may be modified, enhanced, or diminished to meet altered conditions—but no new structure, no new method of work is introduced. It simply means a little more or a little less, a difference in degree and relative proportion, a difference in time and season. The principle remain unaffected, its application only differs.

In treating of the ideas represented by the words "adaptation," "elasticity," and "constitution," Mr. Dyer points out a weak place. Such words are often used loosely for convenience sake, without due consideration of their real meaning. Each plant is capable of existing within a certain range of conditions, the range may be very wide or very narrow, it has a power of resisting adverse influences up to a certain point, this power is very variable in different plants and possibly in the same plant at different times. This ability to thrive under favourable conditions and to resist adverse influences is, we take it, what is generally confused with adaptation. We may change the conditions under which the plant grows, and provided we do not exceed the limitations which Nature has imposed, we may cultivate it successfully, but *we* can hardly be said to adapt it, or to effect any change in the plant in the way of adaptation. We may be able to put the plant under such circumstances as will allow the natural machinery to work, but that is all. Aucubas were grown in the greenhouse when first introduced, we know now that they are as hardy as Hollies. This, therefore, is no case of adaptation or acclimatisation. Our predecessors did not know the limitations under which it was possible to grow their plants.

The question again crops up, are there any indications, other than those furnished by experiment, which will enable us to ascertain the limitations under which a plant can be grown? Mr. Dyer says no. Mr. Ewbank, Mr. Watson, and Sir Charles Strickland are of the same opinion, but the former gentleman has qualified his statement, and the practice of the others shows at least that they know how to adapt their creed to the exigencies of practice. Unfortunately in very many cases, in the present state of our knowledge, the indications are wanting, or we are unable to perceive or utilise them. There is nothing, whatever, so far as we know, that would indicate even to the microscopist, that Passiflora cœrulea, a native of Southern Brazil, to cite only one instance out of hundreds, or perhaps thousands, would be hardy enough to survive our winters and ripen its fruits, and yet we know that it does so year after year near London. It is more especially in regard to the question of temperature that the indications, such as we have mentioned, fail. Rarely, if ever, do they give us any hint as to how little heat the plant will bear, or for how long a time it is able to resist a low temperature.

After reading the numerous articles, for which we are so greatly indebted to our correspondents on "A Gardeners' Problem," we are driven to the conclusion, which, in spite of some telling instances on the other side, was evident at the outset, namely, that our first attempts at plant cultivation must, as a rule, be empirical in their nature, and that too, even when treating for the first time plants of our own country. Here the differences are slight, but they include aspect, soil, water, and altitude; latitude and longitude not intruding at all, or at the most, very slightly into the question. The same points hold good for European plants generally, until we reach the extreme north or south of the Continent. The tropical or subtropical plants cause the most difficulty, owing to their cultivation being carried on necessarily under glass, and always in pots, tubs, or narrow borders—these of themselves exerting a dwarfing and enervating influence on the plants.

To show how, with plants now common in our gardens, we have made wrong starts in cultivation, and after years of partial failure have arrived at some approach to success, mention

may be made of certain species of trees. Those of us who are old enough to recollect the Conifer mania of forty years ago, will admit that many costly errors were made with these plants, and many species were planted which did fairly well for some years in many diverse parts of the country, but which, except in the most favoured parts of Ireland, Cornwall, Wales, and the Western Isles of Scotland, were sadly decimated by the winter of 1860.

These losses were partly due to our not knowing if the species were natives of mountains or plains, or if the knowledge on these points was at hand, it was disregarded by the planters. The positions; but these are not the only sites or soils, and there are doubtless many others in which a species of tree grows—in some badly, in others indifferently, and in others again where it reaches perfection of growth. From which of these has the collector taken plants, or collected seed? He does not say if he has seen the plant in more than one, and the gardener is able to find out the best soil, position, &c., only after long experimenting.

To pass from trees to herbs, everyone would imagine the Canadian Lobelia cardinalis to be perfectly hardy in this country, yet we know that it needs some slight amount of protection,



Fig. 48.—Eupatorium probum: flowers white; separate floret, and hairs, magn. 3 diam.; pollen grains magn. 300 diam.

locality was probably given by the collector, but not its altitude; and the plant whose habitat was in the warmer climate of the plain, and where it was sheltered by other trees, was killed by frost, whilst the hardier tree from the mountain range of the same latitude escaped all injury. Again, how would a collector, finding for the first time Abies pinsapo and A. cephalonica, Cedrus Deodara, Sequoia, Pinus austriaca, and others guess that these trees would arrive at fine proportions and remain in perfect health in a soil that mainly consisted of chalk; but which is nevertheless a fact that is demonstrated on several estates in the chalk districts of southern England. Other species of trees are found by collectors growing in certain soils and albeit our lowest winter's cold is 30° higher than that commonly felt in Canada. The blanket of snow is missing here; or, at least, it is not continuously spread over the earth. Instances might be multiplied a hundredfold, and they would surely prove that the gardener must, to a large extent, act in the first instance tentatively with foreign plants.

(To be continued.)

Neville Court, Tunbridge Wells.—The beautiful estate under the above name will soon come under the hammer, and will probably disappear as an intact property. Horticulturists should meet with sundry good things at the sale, the date of which may be found in our advertisement columns.

New or Noteworthy Plants.

Eupatorium probum, *N. E. Br., n. sp.** (*See* fig. 48).

It is very remarkable that so good a greenhouse plant as this appears to be should have been in cultivation for twenty years, and yet have remained undescribed until the present time! The history of it is briefly as follows:—It was introduced from Peru by Mr. Wilson Saunders about the year 1870, and in all probability the seeds of it were sent to him by Mr. Farris, who was collecting for him at about that period in Peru. A drawing of the plant was made for the *Refugium Botanicum*, but was never published, and is now preserved in the Kew Herbarium. I doubt if this plant is widely spread in cultivation, but a specimen of it has recently been sent to Kew by Mr. Ross, gardener to Sir George Macleay, Pendell Court, Bletchingley, who obtained the flower and shoot from Mr. Brown, gardener at Great Doods, Reigate, who had no idea whence the plant came. It is a soft-wooded greenhouse plant, and very free-flowering, and will be found quite as valuable for decorative purposes as E. riparium, E. micranthum (better known as E. Weinmannianum), and others of this class, although it has the disadvantage of being very viscid. *N. E. Brown, Herbarium, Kew.*

Arisæma anomalum, *Hemsley.*†

At first sight this is a very ordinary looking Arisæma, and yet it is the most remarkable species that I am acquainted with. The name given to it by Mr. Hemsley is most applicable, although at the time he described it he was unaware of its most remarkable peculiarities. In the first place, the rootstock, instead of being a depressed-globose or subcylindric tuber, as in the other species, consists of a moderately stout creeping rhizome, bearing on it numerous crowded short rhizomes, something after the manner of an Iris. In the second place it is evergreen—that is, although some of the short rhizomes loose their leaf, new rhizomes arise at all times of the year, so that the plant is never without leaves upon it. No other species known to me has either of these peculiarities. It is one of the smaller-sized kinds, and, as it can be freely propagated, will no doubt become somewhat of a favourite with lovers of this class of plants, on account of its evergreen habit.

Rhizomes about 1 to 1¼ inch long and ¾ inch thick, clustered at the end of, or along, a creeping rhizome, and each bearing but one leaf. Petiole, 8 to 10 inches long, terete, smooth, of a pale and somewhat translucent green, marked with white spots on the basal part; sheath exceedingly short, ¼ to ½ inch long; in the younger stages the base of the petiole is enclosed in a tightly clasping membranous sheath 2 to 3 inches long. Leaflets three to four, one of the lateral ones being sometimes divided into two, all stalked, the stalk of the middle leaflet ½ to ¾ inch long, and about twice as long as the stalks of the side leaflets; middle leaflet, 3½ to 7 inches long, 2 to 2½ inches broad, oblong-lanceolate or elliptic-lanceolate, somewhat abruptly contracted into a narrow point at the apex, which ends in a fine thread-like point ¾ to 1 inch long, base rounded, lateral leaflets a little shorter than the middle one, oblique, and semicordate at the base, all entire, bright

* *Eupatorium probum, N. E. Br., n. sp.*—The whole plant is everywhere clothed with soft glandular hairs, and is viscid to the touch. Stems herbaceous, at least in the upper part; very leafy. Leaves opposite, petioles ½ to 1 inch long, the blade ½ to 1½ inch long, ½ to 1¼ inch broad, somewhat triangular-ovate acute, rounded or somewhat subcordate at the base, somewhat bluntly toothed on the margin. Flowering branches each ending in from two to four flower-heads, forming a flat-topped corymb of moderate size. Peduncles an inch long, bearing from one to four linear bracts. Heads about ¼ inch in diameter, with from 80 to 100 flowers, white; involucre scales in one to two series, not imbricate, lanceolate acute, green, with membranous margins; pappus hairs few, scarcely barbellate. A native of Peru. Allied to E. glechomiphyllum.

† *Arisæma anomalum*, Hemsley, in *Journal of Botany*, 1887 p. 205.

shining green, paler beneath. Scape 6 to 9 inches long, arising from the same point as the leaf, (and sheathed by it at the very base for about ¼ to ½ inch), or from the apex of a rhizome from which the leaf has fallen, terete, smooth, pale and somewhat translucent reddish-brown, lined with paler, and towards the base sparingly dotted with white; the base is sheathed for 2 to 2½ inches up with three to four membranous sheaths marked with purple-brown lines and white dots. Spathe something like that of A. nepenthoides in form; tube 1¼ to 1⅝ inch long, cylindric, whitish inside, outside white at the base, the upper part marked with suffused stripes of lilac-brown or purplish-brown and whitish or pale green-ish, the mouth with a recurved margin ½ inch broad, bronzy-olive; the limb is 1¼ to 1⅝ inch long, 1 to 1⅛ inch broad, orbicular-ovate, cuspidate, ending in a short thread-like point, very strongly over-arching the mouth of the tube, slightly convex on the back with recurving margins, dull bronzy olive-brown with white veins on the back, and the inside with a green central area, and broad bronzy olive-brown borders veined with white. Spadix uni-sexual or bisexual on the same plant, exserted about half an inch beyond the tube; ovaries globose, bright green, with white stigmas, ovules three; male flowers of about four stamens united together, purple, as well as the few subulate neuter organs which are placed above or are mixed with them, and the part of the spadix which bears them; appendix slender tapering, curving forward at the apex, yellowish-green at the base, passing into yellow-brown, and then dull dingy green at the apex. A native of Perak. *N. E. Brown, Herbarium, Kew.*

A VISIT TO PROFESSOR FOSTER'S GARDEN.

A visit to this garden at Nine Wells, Shelford, during the third week of February, helped to confirm his statement, that "I always have some Irises in flower the whole year through," and I was somewhat surprised to find so many Irises and other plants in flower. It is impossible to visit the Professor's garden and not to glean much useful information about the genus of plants, for which he is famed; and he is moreover not one who hides his experience, but rather gives it freely and frankly.

The following is a list of Irises that were in flower at the time above mentioned:—I. fimbriata, green-house plant—a beautiful species, deserving general cultivation; I. Fosteriana; I. Histrio, a very distinct handsome, dark form; I. Kratensis, termed by Professor Foster the flower of winter; I. orchioides, flowering in a pot in the conservatory; I. persica var., said to flower more freely than the type; I. reticulata var. Nelsoni; I. Rosenbachiana, very variable, several varieties noted—Professor Foster told me that he has no less than twenty distinct varieties in his collection; I. stylosa, I. Zingiriensis, and I. tingitana.

Crocuses receive a good share of attention, making a very pleasing display, and amongst the most conspicuous were C. alatavicus, C. ancyrensis? C. ærinus, found to be not quite so hardy as the rest; C. Balansii, C. biflorus, C. candidus, C. corsicus, C. Imperati var. purpurascens, C. Koralkowii, C. luteus—this varies in shade of colour; C. sativus, C. vernus.

Freesias for conservatory decoration are well grown, and I was shown the true F. refracta which is not nearly so handsome as the varieties in cultivation. Professor Foster is trying to have darker coloured flowers amongst them, by crossing and selection; and to some extent his efforts have had favourable results. Primula floribunda is worthy of note, because it is quite distinct from that generally grown under that name; it is not so large, the flower-stalks are shorter, indeed it is smaller growing altogether, very floriferous and seeds freely. It has become popular in the neighbourhood of Cambridge. Professor Foster said that he obtained it from G. F. Wilson, of Weybridge. Narcissus minor and N. minimus forms near to, yet distinct from each other, and often confused by the trade, were also in flower. Some pretty forms of the Primrose were in flower, one of a pale lilac colour; also the blue form, Dianthus gallicus, a not particularly showy plant; Koralkowia Sewerzowi was coming into flower; also several good varieties of Cyclamen and Helleborus—H. fœtidus, near to the road, was a striking object. *W. Harrow, Botanic Garden, Cambridge.*

FOREIGN CORRESPONDENCE.

WINTER-FLOWERING PLANTS AT LA MORTOLA.

The La Mortola Garden has this year again given evidence of the possibilities of horticulture in the Riviera during the winter months. A list of more than 500 plants in flower during the last two weeks of December and the first two weeks of January, has been drawn up by the gardeners of Mr. Hanbury. Of course, we must take into account that Mr. Hanbury's is a huge collection, numbering more than 4000 decorative or economic plants; but the record is convincing evidence as to the favourable climate, once the barren and parched soil is brought under control.

There was but little rain in the last few months of 1889, and many plants in the garden suffered in consequence; but possibly this fact may account somewhat for the large increase in the number of plants in flower, as compared with the records published in the *Gardeners' Chronicle* in previous years. Also the winter has, on the whole, been mild; it is only since the beginning of February that there has been any definite amount of snow on the neighbouring mountains, whilst once only has snow fallen within the limits of the garden.

At present, each day shows the growth of the "second spring," for it has lately been a little over 60° F. in the shade, and shoots which produced leaves or flowers in November are often enough again covered in some profusion. Thus, it is quite novel, when accustomed to the regularity of a period of flowering and a period of growth, to see such plants as Templetonia in vigorous growth, and well covered with blossoms, when the pods of last November's flowering are not yet ripe.

The list of the 500 species that have flowered during the middle of winter may be analysed as follows, as to the natural groups of plants to which they belong, and the countries from which they have been introduced. The species are referable to some 200 genera, which are representatives of 80 out of the 135 natural orders of flowering plants grown by Mr. Hanbury. Of these there are nearly 30 polypetalous natural orders, containing but one or two representatives; whilst such families as Leguminosæ, Rosaceæ, Cruciferæ, Malvaceæ, and Rubiaceæ, show most prominently. The Crassulaceæ are also well represented. Of the gamopetalous natural orders, Compositæ stands at the head of all, with its gay masses of tree Dahlias, Diplopappus, Othonna, Senecio, Eriocephalus, its curious species of Kleinia and the like. Nor are Solanaceæ far behind in number, whilst certainly they are amongst the gayest.

We think this is a family especially cultivated at La Mortola, as evidenced by more than forty species of Solanum, by numerous bushes of the purple and magenta Iochroma, and of the glowing orange-yellow, or rich red, species of Cestrum; whilst other plants, as Streptosolen Jamesoni, with its exquisitely coloured flowers and graceful habit, Nierembergia, Lycium, Datura (of which D. arborea and D. miniata, have been most conspicuous) all confirm the opinion. We must here omit special mention of the decorative fruits of the Solanum, some of which have shown their rich scarlet or their golden balls persistently for the last three months. Among winter-flowerers Labiatæ and Scrophulariaceæ are also well to the front, but in the former case it is on account of the great number of the richly coloured species of the one genus Salvia, rather than on account of any number of genera which are decorative. Some score of other natural orders, among the Gamopetalæ, contain one or occasionally a few individuals which bear gay flowers; whilst Proteaceæ and Thymeleaceæ show abundant, and often highly decorative, representatives of their class.

Ephedra is the most interesting of the Gymnospermæ, growing luxuriantly in the damper places, or producing a great quantity of flowers and rose-coloured fruits, when its rich tresses of delicately-branched stems are allowed to cover dry banks or walls.

Monocotyledons are not so abundant as might have been expected. It is too dry or the soil is naturally unsuited for them; except for the pest Arum arisæmum, but few are to be seen in any quantity. Liliaceæ, Iridaceæ, and Amaryllidaceæ are represented by some score of genera; Canna, Musa, and Aponogeton being the most notable of other kinds in flower.

The countries which contribute to this display may be roughly grouped as follows, more according to the number of genera, than to the actual number of species mentioned in the list. It is necessary to note some such distinction as this, else, if each species were counted among the great number of Erica, Salvia, Acacia, &c., from one or another region, the relative proportions might be considerably changed. Rather more than 250 species were thus taken account of. Those from South America are about equal in number with those from South Africa and the Cape, each having approximately one-sixth of the total; Mexico and Central America together, show an almost identical total with the above, whilst Australia, India, and North Africa (together with the Canaries), severally yield but one twelfth of the whole. The proportion from China and Japan is yet a smaller one, whilst Asia Minor and also North America appear only to be represented to the extent of a fiftieth part! If we do not count in the indigenous flowering plants (many of which are grown in the garden), the proportion from Europe is the same as that from India. Space does not allow us to mention more than the very commonest or most attractive of these plants, which are, of course, so different from the few winter-flowerers grown in Britain. Only here and there about the garden may be seen Galanthus, Crocus, Eranthis, Helleborus, which occupy so prominent a place in the open air with you. Cyclamen, Primula sinensis, and Epacris in plentiful variety are grown in sufficient quantity to satisfy the Italian gardeners' desire for "bedding-out" plants; but—only think of it—sphagnum moss well manured is the compost in which they flourish! We think a good deal might be said on the use of this moss, and the adaptability of plants to various situations, or rather their indifference to surroundings so long as requisite warm nutriment is obtainable. Imagine a gardener in England setting about to place Epacris, Imantophyllum, Hardenberga, Swainsona, and a host of plants that might be instanced in other than sandy peat! Camellia of various species and varieties, Diosma, Correa (which deserves especial mention, inasmuch as it has been gay since October), Pimelea, Lasiandra, and Heliotropium have shown but a diminished profusion, or have flowered more abundantly as the winter has proceeded.

Yet these are not the especially noticeable plants among the large collection. We must instance Salvia in great quantity, Aloe (especially A. ciliares, with its spreading habit, and its thousand scarlet, spike-like racemes), Buddleia, of bushy or climbing habit; Echeveria, Cotyledon, Erica (E. blanda, E. barbata, E. arborea, and others); Begonia in abundance, Habrothamnus, Bignonia (even the gayest B. venusta), Hexacentris (Thunbergia), Bougainvillea (the rich B. spectabilis), Jasminum, Tecoma (T. capensis, T. stans), Sparmannia, Tacsonia, Fuchsia, and, above all, a great wealth of Roses, if we wish you to picture the garden's riches at all adequately. Nor should the yet more characteristic species of Hakea, H. eucalyptoides, with the spheres of flowers resembling nought so much as a

small red "sea-urchin" (Echinus); H. suaveolens, H. pugioniformis, nor Banksia, Eucalyptus, nor Grevillea be omitted. Even Acacias and Anemones then showed signs of their now resplendent brightness.

Amongst more curious plants the gay species of Citrosma, several species of Euphorbia, and Senecio, Agave, Dahlia Maximilliana and D. imperialis, Mocanera, Visnea, and Catha edulis might be mentioned.

In instancing the above somewhat at random, I have selected especially those known in our English greenhouses; but there is often a very great difference between the specimens there grown and those thriving here in the open air. Do what we may, we cannot have the continuous Riviera sunshine, and without this, however, a well regulated temperature will prove too often a futile condition. *Philip Sewell.*

Roses.

HYBRID PERPETUAL ROSES AND THE CONFERENCE.

In resuming the subject of Roses at the Conference, and the lessons all may gather from them, I have but again to repeat, and with even stronger emphasis, how much all rosarians are indebted to Mr. Wilks for the care he has bestowed in analysing the items sent in; for if this was apparent in the comparatively small class of Tea Roses, it is much more manifest in the returns of the hybrid perpetuals; inasmuch as the number both of voters and Roses is greater, we can easily conceive what a *caput mortuum* the whole thing would have been but for the energy and ability he threw into it.

The results are of a much more defensible and satisfactory character in this class than in the Teas and Noisettes, due to the fact that they are more generally grown, and that any one who grow Roses at all grows hybrid perpetuals. Teas may be to him an unattainable treasure; he may grow a Gloire de Dijon on some wall or outhouse, but he cannot venture, or thinks he cannot venture, to grow Teas, while there are some to whom the more brilliant colour of the hybrids has greater attraction than the chaste and refined tints of the Teas, hence you will see hybrids in all gardens—and yet withal it is somewhat remarkable to find what divergence of opinion there is as to the best twelve hybrids, and to find that no fewer than sixty-eight varieties have been selected. I have not cared to examine the lists very closely, so as to see who is credited with the several varieties; but I am at a loss to understand how any one could have put such Roses as Edouard Morren, Clara Cochet, Eugene Furst, or, above all, Baronne de Maynard, in lieu of any of those which take the highest place. These twelve are A. K. Williams, La France, Marie Baumann, Alfred Colomb, Charles Lefebvre, Ulrich Brunner, Gabriel Luizet, Merveille de Lyon, Baroness Rothschild, Etienne Levet, Louis van Houtte, and Duke of Edinburgh, and yet, high as some of these stand, and deservedly so, there are found a number of voters who do not include A. K. Williams in their list; while, stranger still, there are fourteen voters who leave Marie Baumann out in the cold; this is a matter to me quite incomprehensible. There is another fact worth mentioning, as showing how nearly these returns correspond with the actual facts. Mr. Mawley gave in a contemporary the analysis of the Roses shown at the metropolitan exhibition at the Crystal Palace in 1888—I do not take 1889, for it was such an exceptional year—and on comparing this analysis with these votes, I find that there are nineteen out of the twenty-four which take their position amongst the first twenty-four in the number of flowers shown. Of course, this does not altogether go on all fours, because some early flowering Roses come in at an advantage, and some late blooming ones at a disadvantage. I am, for instance, strongly of opinion that Victor Hugo at a later season of the year would attain a much higher position, while probably Gabriel Luizet would have gone somewhat lower down in the list. Then I cannot but think that if Mrs. John Laing had not been so new a Rose, it would have been oftener shown, as it is an incomparably better Rose than Her Majesty; the same remark applies to Earl of Dufferin, which I fully believe will take a higher rank when it becomes to be more generally grown.

The similarity of names, of which Mr. Wilks complains, and justly, as leading to confusion, is a matter for which I fear there is no remedy; raisers, and especially French raisers, like to dedicate their flowers to some of their relatives or friends, and as there are sometimes—as amongst the Verdiers—two distinct firms, this of itself leads to so many Roses bearing their names; while others are desirous of associating their Roses with the name of the place, call them by Gloire or Belle, and so on. We are not guiltless in this matter on our side of the water, as Mr. Wilks has shown, not only with Roses, but with other flowers also; thus amongst Auriculas, which comprises perhaps not more than 150 varieties, there are found two George Lightbodys, three Ne Plus Ultras, two Britannias, two Apollos, three Uniques, and so on. We must do the best we can, and in the meantime just remember how hard it must be to find suitable names for some fifty or sixty Roses year after year.

While, then, as I have said, there are some things which I cannot understand—as, for example, why Marie Baumann, or La France, should ever have been left out of any lists of the best twelve—yet, on the whole, we may safely abide by the decisions given, although individual fancy will place some in a higher position amongst the best twenty-four, and some in a lower place.

With regard to your correspondent "Rosa's" remarks on what I said with regard to two of the Tea Roses, I should like to reply. First of all, with regard to Marie Van Houtte and Anna Olivier, I have no wish to disparage the former, for I think, when caught at its best, with its lovely cream colour ground, and its faint pink markings, it is exquisitely beautiful, I merely wished to imply that I preferred Anna Olivier, because it had the true pointed shape, which I consider typical of the Teas, and in point of fact, Marie is much oftener shown than Anna, owing partly, I think, to the fact of its extreme vigour of growth, and the consequent greater number of flowers produced—but after all, this is a mere matter of taste.

As to Homere, I must still maintain my opinion that it is not an exhibition Rose; I have never seen it on a good stand, and this not simply for its small size, but because of its roughness, it is very difficult to get it in good form; in this I am borne out by the analysis of Mr. Mawley, to which I have already referred—he gave the number of times certain Tea Roses were shown at the Metropolitan show of the National, and although he gives the names of thirty-one Teas, Homère does not appear amongst them. This I think, is conclusive, as to its position as an exhibition Rose—very pretty it is as a garden Rose, and this is I think its true position. *Wild Rose.*

HOW TO TELL THE AGE OF TREES.

The practical horticulturist has many methods of getting at the age of a tree without counting the rings, just as a mathematician can tell its height without ascending to the top with a foot-rule—and some of these methods I adopted when in California, to test the assumed age of the big trees by their rings, and in every case the enormous age was confirmed.

One of these methods was to take a blaze mark, the age of which was known, and count the number of rings that had been made on the outer edge since the mark was cut. I found these averaged about 16 to the inch. Counting those in the centre of a cut across stump, which must have been its early growth, I found them wider. The two together, and then averaged, would give a fair ratio of age per inch. If it took 24 of these to make an inch, which the cut on the outside proved it did, a tree 20 feet in diameter would be 1680 years old. We get at this much easier than by puzzling over obscure annual rings for half a day or more.

Another way to prove age is by noting the number of main side branches growing from the trunk in many coniferous trees, of which the white Pine and Norway Spruce are familiar examples. Looking at fine specimens of these trees, the branches seem stratified. This comes from the formation of the terminal buds at the apex of the growth of the leader. There is one very strong bud for the point, and three, four, or five strong ones beside it. All below are very weak buds. It is these strong buds that make the very strong horizontal shoots that afterwards give the stratified appearance to the whole tree. These in the white Pine of ordinary growth are about a foot or 15 inches apart, and even though the lower lateral branches die, they leave the "knots" by which their former existence can readily be seen. I saw Sugar Pines cut in California where a hundred or more of these branches or their knots would be readily traced, and the age fixed, and the rings of wood would exactly correspond.

But there is a method I have used that I have never seen referred to in print, and a method that has served me many a good turn when desiring to know the exact age of some fine specimen on the lawn of some place, when even the owner would declare he had forgotten when the tree was planted. It may be an evergreen with the branches growing close to the ground. The same principle I have referred to, of a strong branch pushing just below the terminal bud, and making a strong branch the next year, applies also to the lateral branches—indeed even more so, as very often the strong buds are the only ones that make a lateral during one season's growth. By counting the sections backward, I found the tree 25 years old, which I happened to know was its exact age. The height also is 25 feet, as I know by my shadow. I select a time when my shadow is exactly my height, and the tree's shadow will, of course, be the tree's exact height also.

Deciduous trees, equally with evergreens, have the strongest buds just beneath the apex of the annual growth, making stronger branchlets next year, by which the annual series may be determined; but as these leave no scars when they die away, it requires a practiced eye to determine where branchlets have been. But if a horizontal branch be in vigorous growth, the length of the last annual growth may be compared with the whole growth by a mean figure obtained between what we ascertain to be a good growth in youth, and the young growth before us. This, of course, is not an exact result, but one will be surprised to find, by the annual rings, how near it approximates.

Again, the age of many trees may be approximated by the rough bark. Old botanical text-books taught that the rifts in trees were mechanical. The bark split because the trees were pushing out. I believe it was left to me originally to show that this is an error. Every tree has its own distinct method of disrupting its bark, which could not be the case if the splitting were merely mechanical. The truth is, the splitting of bark arises from the growth of cork cells, and in each species these cells have a separate specific development, and usually at a specific age. In the Sweet Chestnut the bark commences to rift when 25 years of age, so that all above the junction of smooth and rough bark will be 25 years. I believe the Chestnut retains its smooth bark longer than any of those which eventually become rough. Some trees, like the Beech, never get rough, because the development of the cork cells begins and ends in a single year, and the bark exfoliates in the form of athin film. These kinds always have thin bark.

In these and other ways the practical man confirms the concentric ring theory, and is able to

assert, with considerable assurance, that the annual rings do mark the age of the tree.

I have found, when beaten out by these positive facts, that those who dispute them generally fly to other climes. They do not, they say, behave so in equatorial regions. They may or may not. I find people know so little of what happens in unfamiliar countries, that their failure to know about what is actually before them makes the assertion not worth an argument. *Thomas Meehan, Germantown Nurseries, Philadelphia.*

THE DECIDUOUS CYPRESS.

Our illustrations are taken from a tree at Sion of this elegant and remarkable species. The height of the largest specimen, shown in the photograph by Messrs. Byrne, of Richmond, is, we are told by Mr. Wythes, about 90 feet, so that it is not far short of the size attained by the tree in Florida. As it is perfectly hardy, and very distinct, it is a tree that may be planted in wet soils with great advantage. Even in the young state, its delicate foliage and elegant habit are very striking, and form delightful contrasts with trees of more massive contour and darker coloration. In nature it grows on the borders of rivers subject to periodic inundations, and at Sion it is planted in boggy soil near the edge of the lake. The trunk is stately, the foliage elegant and feathery, and, which is unusual among Conifers, deciduous, whence our American friends speak of the tree as the bald Cypress. In autumn the leaves turn of a reddish yellow colour, and not only are the leaves shed, but also many of the younger twigs, so that a natural process of pruning takes place. The beauty of the tree is spoken of in enthusiastic terms by travellers, while in other cases, the effect produced by the grey Tillandsia hanging in beard-like wisps from the branches of the trees, is weird and uncanny.

Bartram, in his *Travels through Carolina*, gives the following description of the tree: — "It generally grows in the water, or on low flat lands near the banks of great rivers and lakes, that are covered a great part of the year with 2 or 3 feet depth of water, and that part of the trunk which is subject to be under water, and 4 or 5 feet higher up, is greatly enlarged by prodigious buttresses or pilasters, which, in full grown trees, project on every side to such a distance, that several men might easily hide themselves in the hollows between. Each pilaster terminates under ground in a very large strong serpentine root, which strikes off and branches every way just under the surface of the earth; and from these roots grow woody cones, called Cypress knees, 4 to 5 and 6 feet high, and from 6 to 18 inches or 2 feet in diameter at their bases. The larger ones are hollow, and serve very well for beehives. A small space of the tree itself is hollow, nearly as high as the buttresses already mentioned. From this place the tree, as it were, takes another beginning, forming a great straight column 80 to 90 feet high, when it divides every way around into an extensive flat, horizontal top, like an umbrella, where eagles have their secure nests, and cranes and storks their temporary resting-places; and what adds to the magnificence of their appearance is the streamers of long moss (Tillandsia usneoides), that hang from the lofty limbs and float in the winds."

Mr. Montefiore recently published in *Murray's Magazine* an account of one of the typical features of a Cypress swamp:—

"It forms one of the most desolate scenes I have ever beheld. I have gazed on the black rocks of St. Paul's, standing almost alone in the Indian Ocean; upon the repellent rufous hills of St. Helena; the salt marshes of the delta of the Godavery; the cruel solitude of Cape Agulhas—but I do not think I have ever seen anything so dismal, so desolate, as the Cypress swamps of Florida. You enter them almost without warning; you hold your breath, as it were, while going through them, and the feeling of relief on leaving them is only less strong than the strangely morbid attraction they have for you, and which makes you visit them again and again. The white-barked Cypresses stand overhead, reaching to a great height, and spreading their limbs widely round, and yet there is not a leaf, not a single green leaf to be seen. From bough and branch and twig there hang long tails and festoons of Spanish moss, an air-fed plant, grey in colour, and looking for all the world like the dishevelled tresses of an aged woman. Everywhere you look, these sad grey hairs are either hanging listlessly, or swaying mournfully in the breeze. The water which is often 4 or 5 feet deep, even in the paths, if paths they can be called, which are selected by your guide, is coloured a dark reddish-brown by the quantity of tannin exhaled by the spongy mass of vegetation which everywhere underlies it. As you ride slowly through this dismal scene in Indian file, as the horse slowly forges ahead, the water washes up to your stirrups, and a sharp eye has to be kept unless, by a momentary departure from the narrow track you cannot see, you are to get a ducking. This dark, muddy water, silent and motionless, save where your party is churning it into something like frothy beer, is made even more dismal by its perfect reflections of the ghostly desolation overhead. It reproduces with startling vividness the long white trunks of the Cypress trees, and the tangled grey hairs of the Spanish moss. Now and again the harsh piping cry of some lonely water bird accentuates the stillness; here and there the deadly mocassin coils about the spreading roots, black and grimy with the stagnant water, and adds by its very movement to the uncanny, the desperate desolation of it all. Such is a Cypress swamp in Florida."

The "knees" above mentioned are abundantly produced at Sion, as shown in figs. 49 and 50, to the annoyance of the mowers, but they have not as yet attained the large dimensions mentioned by American travellers. In our museums, however, are specimens showing the very large size which these growths attain. It might be supposed that these knees were abortive shoots, but no bud or shoot of any kind has been observed proceeding from them.

In Cryptomeria japonica and in Sequoia sempervirens we have seen similiar outgrowths from the root, but on a very much smaller scale, and these were provided with leaf-bearing shoots.

In the columns of our excellent American contemporary *Garden and Forest*, a discussion has of late been going on with reference to the use and purport of these productions. Dr. R. H. Lamborn contends that their function is to stiffen and strengthen the root, in order that a great tree may anchor itself safely in a yielding material. "When in a hurricane the great tree rocks back and forth on its base, and with its immense leverage pulls upon this odd-shaped wooden anchor instead of straightening out in the soft material as an ordinary root might; thus allowing the tree to lean over, and add its weight to the destructive force of the storm, it grips the sand as the bower anchor would do, and resists every motion. . . . . No knees are developed when the tree grows in upland upon a firm bottom, in which ordinary simple roots can obtain in the ordinary way the hold necessary to resist overturning forces." In support of this opinion, Dr. Lamborn cites the authority of Elliot and Newberry, to the effect that the tree does really resist the violence of hurricanes to so extraordinary a degree, that the overthrow of a living tree must be at least of very rare occurrence.

Professor Shaler, however, considers that the function of the knees is to supply air to the roots, otherwise cut off by the water which covers them during a considerable portion of the year from all connection with the atmosphere. The largest trees are found in spots which are never dry, so that it becomes a question how the seed is to germinate in perhaps several feet of water. As a matter of fact, seedlings are only found on the margins of swamps in comparatively dry ground.

The wood of the deciduous Cypress is light and soft, but largely used for constructional purposes. Those who prefer popular names may take their choice between bald Cypress, black Cypress, red Cypress, white Cypress, and deciduous Cypress. The closely allied Mexican species, T. mexicanum, attains still larger dimensions, but this species is not in cultivation [in this country as far as we know.

The Taxodiums were once widely distributed throughout Europe and North America, as their remains in miocene times show. The access of the glacial period destroyed them, so that now they only occur in the Southern States, with one closely allied species in China, and these being, as supposed, out of the reach of the great ice influx, have survived to this day.

CULTURAL MEMORANDA.

NICOTIANA AFFINIS.

Usually this plant is raised from seed sown at this season of the year for growing in pots, borders, beds, &c. As a plant for early flowering it is neglected, although admired in summer and autumn for its sweet flowers. For this purpose, make a sowing in the middle of the month of September; prick off the seedlings when fit to handle, potting them singly when a few inches high, and keep in a cool frame until frost renders a more secure place desirable. My plants, put on to a shelf in the greenhouse, &c., in a short time began to throw up flower-stalks, and these plants, with an occasional watering with manure-water, have been flowering well from the first week of February. The blooms last much longer than in warm weather, and keep well open during the day; their perfume is, however, not so sweet as in the summer months, but this species of Nicotiana is still worth a trial as a spring flower. The foliage keeps strong and healthy, and it is free from insect attacks.

VERBENAS.

Some years ago the Verbena was extensively grown in beds and pots, and numerous varieties were then to be found in trade lists, and of these Purple King, Crimson King, and White Queen were chiefly grown; for filling beds these three seemingly having stronger constitutions than most of the others. Mildew never did much damage to these, although, in some gardens in East Anglia, where I then resided, this disease was a reason that these plants became unpopular. The beds selected to plant with Verbenas were deeply dug, and well manured every year. Much of the old soil was also replenished with fresh loam, woodashes, &c., together with a liberal application of soot, all of which were made moderately firm. The plants grew strongly with that dark green colour in the leaves so much admired, and flowered well till very late in the season. Propagation was done chiefly in the autumn from the tips of unbloomed shoots, which were put to the number of twenty in a 6-inch pot, and placed in a Melon-frame from which the crop had been cut. There was no coddling of the plants practised, but they were grown as hardily as possible without exposing them to frost. There was, however, a good deal of trouble in keeping the plants in winter, and this led many gardeners to rear the plants from seed; these, however, do not produce plants of one colour or habit—still they make fine beds, and are robust and free-flowering. Seed should now be sown in frames or boxes, and if a little bottom-heat can be afforded them till the plants get nicely established, they will make nice plants, afterwards inuring them to outdoor treatment. *H. M.*

PHLOX DRUMMONDI.

For transplanting in the last week in May, seeds of this pretty and useful flowering plant may now be sown, it being essential to have good branching sturdy plants to sow early. The grandiflora type has much bolder blooms; but the old varieties are not to be despised. Sow the seed in pans on a soil that is somewhat light and sandy, pressing the soil firmly before scattering the seed evenly on the surface, and cover the seed over with soil just sufficient to hide it, pressing it down smooth with a clean pot. Water the pans gently and sprinkle a little dry sand over the tops. The pans should be placed in a

warmth of 60°, till the plants have made some progress, when they may be pricked off either into boxes or a frame, and affording them a slight bottom-heat. When the plants attain the height of 6 inches, the points should be pinched out, and in May the plants should be gradually hardened off prior to planting in the beds. The colours may be kept separate in the beds, or mixed to suit fancy, and the growth must be regulated and pegged out to produce the best effects. *H. Markham.*

Bertolonias.

The members of this genus are valued for their beautiful foliage, and are of easy culture, providing the gardener has a stove, and in which there is a place in it adapted to their growth. Perhaps the most handsome of all is B. Van Houtteana, which has ovate-lanceolate leaves about 4 inches broad at the widest part, and between 7 and 8 inches long, the ground colour of a rich olive-green, the principal veins of a bright magenta, the leaf being dotted all over minutely with the same colour, and from each of these dots arises a hair, and the petioles are likewise furnished with glandular hairs. The height of the full grown plant is 5 to 6 inches. It does best when kept in a shady part of the stove and under a bell-glass, as a protection against variations in the temperature, which cause the leaves to lose their remarkable lustre. Bertolonia marmorata and some others of similar characteristics are not nearly so tender as the one above mentioned, and are able to thrive unprotected by a glass. It should have ample drainage, and a compost of fibrous peat, sand, and some finely broken crocks mixed together. This is a good example of a plant that may be propagated from the leaves, and which is the easiest and readiest way. A few leaves may be employed for this purpose in spring and autumn, the plants raised taking the places of older ones, which in time become shabby. The leaves may be nearly matured, and should be placed upon pans of very sandy peaty soil, with good drainage beneath, the petioles being inserted in the compost, and the leaves cut along the midrib in one or two places and pegged down to the surface. A bottom-heat of from 80° to 85°, with a bell-glass over the pan, or a place in the propagating case, are necessaries for success in striking the plants. When the young plants can be handled, they may be taken off with the attached portion of the leaf and pricked off singly into pots of sandy soil, keeping them in a close case, and syringing them once or twice a day until they are established. A 4-inch pot is quite large enough for a well-grown specimen, and in this way the leaves are developed better than when two or three are crowded together into a pan. *W. Harrow, Botanic Garden, Cambridge.*



Fig. 49.—Tanodium distichum in winter, showing the "knees": see. (see p. 324.)

ALSTRŒMERIAS.

It is difficult to understand why certain hardy plants of merit are all but absent from gardens, whilst others of less value decoratively, quickly obtain popular favour, and find their way readily into every garden. The more hardy Alstrœmerias are some of the most beautiful but neglected of flowers; happily, however, we have of late years rarely seen collections of twelve or twenty-four bunches of cut blooms of hardy herbaceous plants, with the 1st prize attached, wherein Alstrœmeria aurea or A. aurantiaca (considered by some, but we believe improperly, synonyms) have not been conspicuous. There are some five distinct hardy species which are very easily managed. A warm sunny aspect should at all times be chosen for them, and, owing to the peculiar formation of the tubers, a deeply prepared and well enriched soil, with the qualification that it be light, and not of a stiff nature. Even though such a situation as suggested above is the best, it may nevertheless be remarked that A. aurea, if planted in a cool moist situation, will give a succession of bloom after those planted in drier soil have passed their best. Indeed, in gardens of limited extent, where the soil is of a somewhat retentive nature, this species may be relied on to succeed fairly well.

It may be well to add that the long fascicled roots, which strike deep, are not aided after planting by forking between the plants, hence it is the more imperative, if robust growth is to be ensured for a few years, to well prepare the soil previous to planting. Their peculiarly formed roots make the plant more liable than are roots generally, to injury by excessive winter rains, for which reason it is advisable to thatch the bed with straw, giving it a slope to shoot off the water, taking it away in February, and replacing it with a mulch of rotten farmyard manure. As the plants do little towards shading the ground, it is necessary that all who would succeed with these plants in a warm dry season should give the roots one or two thorough waterings.

The young shoots and foliage are subject to be eaten by slugs, but no insect pests in this country do any harm to the plant. It is necessary, therefore, and especially in old gardens abounding in these destructors, to be constantly on the watch for slugs. Plant the tubers from 8 to 10 inches below the surface.

Certain species are not so hardy as others, and must either be grown in pots, for which purpose their long roots render them unsuitable, or in pits or frames. I therefore give the names of such as are suited for outdoor culture only, and those suitable for conservatory or pit separately. Hardy border species comprise A. aurea, A. aurantiaca, A. braziliensis, A. chilensis (and its sub-varieties), charming dwarf forms; and the crimson or parrot-like A. psittacina.

Tenderer species consist of A. hæmantha, A. Peregrina alba (Lucas Lily), A. oculata, A. peruviana (in variety), A. Hookeri, A. sulphurea tigrina, A. tricolor, and A. violacea—to say nothing of Van Houtte's hybrids, obtained from Dr. Hooker's species and A. hæmantha. Finally, all who cultivate them in pots should choose the deepest form of bulb pot. Carefully keep the plants in full sunshine, else robust growth and good bloom are not probable results. *William Earley, Ilford.*

The Apiary.

SELF-HIVING ARRANGEMENTS.

It seems very early to be talking about swarms, but though the weather is bitterly cold at the time we write, it will pass away like everything else, and warm weather and the singing of birds will succeed. It commonly happens that ordinary mortals are too much occupied in these days with business matters to look after swarms, and if any contrivance can be secured which will prevent this waste of time, it is of great value.

Two persons have come to the front with appliances for preventing swarms flying away, though unwatched, and for compelling the bees to hive themselves. One of these is the great queen-rearer, Mr. Alley, of America; while the other hails from Lancashire. Mr. Alley takes two drone-traps, and puts one in front of a hive which is about to swarm, and the other in front of an empty hive prepared for a swarm. He connects the two drone-traps by a small, perforated, circular tunnel. The hives are placed side by side. When the bees issue there is

nothing for them to do but go through the tunnel prepared for them into the other hive. We see only one thing which may cause failure, but that is rather serious. It is well known that bees issue in immense numbers, and possibly the tunnel might be blocked, and a large number of bees—with, perhaps, the queen—would be suffocated. This would be fatal to success, although Mr. Alley expects no such catastrophe. He of Lancashire acts rather differently. He places the empty hive opposite the hive expected to swarm, with entrance of one opposite entrance of other. He then places a very much larger and wider tunnel than Mr. Alley's between the two hives, and leaves the bees to their own devices. As the tunnel is so much larger than Mr. Alley's, and there is nothing to hinder the straight flight of the bees, there is much less chance of failure. In the American contrivance the bees have to turn at once to the left or the right when they leave the hive. Now it is well known that when bees swarm they rush out in a straight line, and therefore Mr. Alley's seem to lack the first elements of success. If we valued our swarms at all we should not like to trust them to Mr. Alley's contrivance, but we see no reason why the English method should not be a success. It is, at any rate, well worth a trial, except you have time to watch your bees all day long. *Bee.*

Orchid Notes and Gleanings.

ODONTOGLOSSUM MAXILLARE.

A Mexican Highland species, requiring, says M. Linden, for its cultivation a cool, well-ventilated greenhouse, with relatively little moisture during the resting period. The flowers are star-shaped, with a lanceolate whitish segment, each with a purplish blotch at the base. The lip has a broad yellow stalk, streaked with red, whilst the blade is ovate-acuminate. *Lindenia*, t. 209.

Aërides Augustianum.

A coloured figure of this species is given in the *Lindenia*, t. 210.

Cattleya maxima var. Malouana.

A variety, remarkable for the deep purplish rosy colour of its segments. Only one plant is at present known—that in the collection of M. Warocqué. *Lindenia*, t. 211.

Rodriguezia refracta.

Flowers flushed with rose, sprinkled with purplish dots. *Lindenia*, t. 212.

Zygopetalum intermedium

is very like Z. Mackaii, but has a more rounded lip, deeply bilobed and pubescent, and with a less deeply lobed callus. The plant requires to be grown in a warm stove as near the glass as possible, but protected from the direct rays of the sun. As the plant is almost always in growth, the roots should be kept moist. *Lindenia*, t. 216.

Odontoglossum Rossi.

A correspondent kindly forwards an interesting flower, in which there are two additional lips, representing the two stamens of the outer series (a 2, a 3), which are usually suppressed. Traces of the third stamen (a 3) of the inner row are also present.

Houlletia Brocklehurstiana.

This remarkable and handsome species should, according to M. Linden, be grown in a well drained pot, filled with sphagnum with lumps of peat and crocks, and placed in a cool and well ventilated house. During growth, abundance of moisture should be supplied. *Lindenia*, t. 214.

Dendrobium Mirbelianum.

Although described sixty years ago, this species has not been introduced into gardens till recently, when it was imported from New Guinea by one of the collectors of the Horticulture Internationale. The segments are narrow, acute, greenish-yellow, streaked with green lines. The petals are similarly marked, but are much longer; the lip is three-lobed, the lateral lobes rounded, erect; the anterior lobe ovate acute, similar to but lighter in colour than the other segments, and with three keels.

Odontoglossum hastilabium

grows, says M. Linden, generally upon trees in the shade, and in spots exposed to constant evaporation. It is a plant requiring abundance of moisture and a temperature of 10° to 15° C. The young growths should never be syringed; the flowers are large, flat, star-shaped, with a yellow lanceolate segments, transversely barred with red, and with an ovate acute white lip flushed with rose. *Lindenia*, t. 213.

Cattleya labiata var. Rochellensis.

This is botanically a form of Cattleya labiata of the Warscewiczii group, and is remarkable for its flowers, which, with the exception of a yellow blotch in the throat, are pure white. The only plant known is in the collection of Mr. F. L. Ames, of North Easton, Mass. A very fine illustration of a noble variety is given in *Reichenbachia*, t. 85.

Odontoglossum triumphans.

A cool Orchid, of great beauty and value, as flowering in winter. *Reichenbachia*, t. 86.

Phalænopsis casteæ ×.

A supposed hybrid between P. Schilleriana, of which it has the leaves, and P. aphrodite (=amabilis, Lindley), of which it has the flowers. *Reichenbachia*, t. 87.

Oncidium tigrinum

produces its large branching racemes of bright yellow and tigery-blotched flowers at the dullest season of the year, when they are much needed, that is from the latter end of autumn to New Year's Day. Mr. Sander recommends culture in baskets for this species, of which a fine figure is given in *Reichenbachia*, t. 88.

Florists' Flowers.

THE AURICULA.

These lines were penned in the last days of February; it was then bitterly cold. An enthusiastic amateur wrote me more than a month before about the forwardness of his plants, stating that they were never so forward as then. Of course he had in his mind the National Auricula Society's show, which is fixed for April 22, and wondered if he would have plants in bloom when the show day came. I hinted to him that it was best to admit air to the plants in abundance, by removing the lights altogether in fine weather, and tilting them whenever there was no frost; the plants, which have been freely exposed to the weather, will be the better able to withstand the low degree of cold we may yet experience. Many growers have only a cold frame for their plants, and this should be double matted, the mats hanging well over the sides and ends of the frame. In any case, the trusses must not get frozen, and therefore single mats are not safe till the month of March is past.

The main portion of our collection is now in a house which may be heated, and no more heat is ever used than will just keep out the frost. Selfs and alpines are not injured by frost as are the green and grey-edged flowers. Trusses are not showing above the leaves yet, and we should take care to keep the plants cool and well ventilated. Another season's experience has brought conviction to my mind, that the usual spring dressing of some rich compost is not only unnecessary, but may sometimes be hurtful to tender plants. February and March are perhaps the best months in which to remove the offsets, and there is scarcely a failure when the potting is carefully done, and the plants placed under handlights. These offsets soon get established, and do over well in the following season. The old specimens of Auricula may be grown on for several years; but there comes a time when the vigour of the plants declines; the stem decays from base upwards, and fewer fibres and weaker trusses are produced; and if stock is wanted, these plants should be cut over at the ground level, and the crowns put into small pots of sandy soil, nursing them until a crop of offsets is produced. The offsets propagated in summer and autumn, and wintered in thumbs, may be repotted during March. These will push new roots in quantity into the fresh soil, and by careful culture they will make excellent plants, which will flower the following year. "How often may the plants be watered?" may be asked by gardeners and amateurs. The reply usually given, "When they need it," is too vague, and yet there is no other that can be given. The Auricula does not require large supplies of water at any time, and the soil should be dry before water is applied. Those who give water to the Auricula plants before it is needed cannot expect to be successful. The hand-glasses put over unrooted offsets should still be kept closed, but care must be taken not to let the offsets damp off; and it is, therefore, well to examine the plants frequently, and wipe off the moisture which condenses on the glass. *J. Douglas.*

Plants and Their Culture.

Stove Plants.—The operations of re-potting and dressing should now be completed, the inmates suitably arranged, the glass and woodwork cleaned, and fresh material used for the beds and stages—a point that is sometimes neglected. Cocoa-fibre refuse, fine gravel, or Derbyshire spar is of benefit to the plants when these stand over or near hot-water pipes. The temperature should be slightly increased, and should now range from 65° by night to 75° and 80° by day, allowing a few degrees' higher day temperature in bright weather. Not much air should be given, so as to assist the plants to make root and top growth. The house must be kept moist, and this will check the spread of insects, syringing several times daily the floor and walls of the house. The blinds should now be fixed up. The early potted Allamandas, Clerodendrons, and Bougainvilleas should be growing freely; also the Allamandas and Bougainvilleas should now get all the light and sun, but keeping the shoots clear of the glass. Another lot of these plants should be started, to succeed the earlier ones.

Dipladenias, if re-potted early, will be growing freely. These plants are difficult to keep in a healthy condition if overwatered. The shoots should be trained to string put up close to the roof, and only slightly shaded when the sun is very bright. If any re-potting is required at this date, the plants should be plunged afterwards in mild bottom-heat. Ixoras that were started early in the season will take water freely, and sometimes a good fertiliser as the pots fill with roots, syringing them freely, and pinching the shoots when new growths unduly take the lead. Young plants may be re-potted, using for the purpose the best peat, and in good-sized pieces, a small quantity of charcoal, and coarse silver-sand, shading them until they begin to grow.

A few plants of Gardenias may be placed in a cool house, to furnish late flowers. The flowers are improved in size and substance by liquid manure being often supplied to the plants. The house in which they stand should be kept thoroughly moist. A small pit or frame suits them if more warmth can be given them than the stove affords. Young plants produce the finest blooms, and it is best to strike cuttings every year in January or February. The cuttings should be strong ones, and be grown without check. The older or one-year old cutbacks are useful for planting out, if a pit can be afforded them.

Vincas are useful when they are well grown, and require to be frequently stopped to keep the plants in good form, growing them at the cooler part of the stove. Shrubby growing Clerodendrons should be well cut back, and started into growth shortly afterwards. Pinching of the shoots is also required by these plants and for the same end. Epiphyllums should get a place on a shelf at the back of the stove. We never shade these plants during growth. The early sowing of Torenias will be ready to pot off, and should not be allowed to make weakly growth.

Another sowing of these trailers should be made, likewise of Aphelandra aurantiaca Roezlii, a useful winter bloomer, whose scarlet flowers are generally admired. The main supply of Achimenes should now be started in boxes or pans; the plants being put into their blooming pans and baskets when they reach 2 inches high. Plenty of heat and moisture are necessary in the early stages. A few tubers may be kept for very late work, to be started in a few weeks hence. *G. Wythes, Sion, Brentford.*

The Orchid Houses.

East-Indian House.—The Phalænopsis should not be allowed to flower for too long a time, but should be cut and placed in tubes near the plants, or put into vases of cut bloom. Should late spikes push from P. amabilis, grandiflora, Sanderiana gloriosa, or Schilleriana, that have flowered much during the season, they should be at once removed. Growers of Orchids near London affirm that it is easy to grow Phalænopsis in the country, and forget that the fogs which they suffer from save the plants in many cases from being killed by over-flowering. One month is long enough for any of these plants to remain in flower.

The above Phalænopsis as they go out of flower should have all the old materials removed from the pot or basket, the roots rinsed in tepid rain-water, to remove every particle of decaying matter, and the whole packing material should be made good, clean potsherds, a few nodules of fresh charcoal, and sphagnum placed on the surface, and this last should not be in excess, as much sphagnum keeps the plants wet for too long a time, and it is much better to have less materials about the plants, and supply the plants with rain-water at frequent intervals.

As the days lengthen more moisture will be necessary, as many of the occupants of this house will be in active growth. Attend carefully to the shading of the Phalænopsis. The temperature may still remain at 65° at night, a rise of 10° or 15° by sunheat doing no harm. When a warm, sunny day is anticipated, the hot-water pipes should be allowed to cool, as hot sun and pipes highly heated are the cause of insects attacking the foliage of the plants.

Cattleya-house.—The potting of the occupants, as previously advised, and which may not have been done, should be pushed on with vigour. C. amethystoglossa and C. Trianæ, as they pass out of flower, should be attended to without delay. Dendrobium Falconeri, which may have been resting in cooler quarters, should be syringed overhead every day, even when at rest in a cool house. D. thyrsiflorum, D. densiflorum, D. Devonianum, &c., may now be brought into this house. The air not being so fully charged with moisture as the intermediate-house, it suits them better after a long term of cool treatment. A temperature of 62° at night will be sufficient, and if this can be maintained by the hot-water pipes, with a small amount of ventilation, it will be better for the plants. *A. G. Catt, Parkfield, Worcester.*

The Flower Garden.

Pruning and Training.—The pruning and training of climbers, Roses, &c., on walls, should be brought to a close, as, in many cases, from their position, growth has commenced. Cut out only the old and weak shoots of Tea Roses, laying in the best placed of the more vigorous shoots, removing only the unripe tips of these.

Magnolias require to be gone over carefully, and all shoots made secure to the trellis or wall; for the foliage being large, the winds have great power over them. Chimonanthus fragrans and Jasminum nudiflorum have finished flowering, and should be spurred in, training out the leading shoots if there is room to extend. Wistarias, Loniceras, Jasmines, Passion-flowers, &c., should all now be spurred in, and all fastenings examined and made secure. Those Clematis generally the early kinds that flower on the ripened growth, should only have their dead wood cut away; but the later-flowering Jackmani type of Clematis, which flowers on the new growth, may be cut back more freely, with a view to producing plenty of young and strong growth. *D. C. Powell, Powderham, Devon.*

The Hardy Fruit Garden.

Fruit trees have been beneficially checked by frosts of 15°, 17°, 17°, and 25° coming in succession. Sharp morning frosts will continue to be experienced all over the country for some time yet, and all material for protecting blossom must be got ready for use. In the next fortnight wall trees will make great progress, and thick coverings prematurely put up must be avoided, as this would only render them more liable to injury—a few degrees of frost does less harm.

Planting.—If any of this is still in arrear, the next fortnight should see the end of it generally; but such late planting is very hurtful to trees above the size of maidens. The latter will frequently thrive as well, if moved carefully about this time, as when transplanted in the autumn. Remembering the bad effects of exposing the roots of trees to dry air at this date, the trees should not lay about unprotected, but be heeled-in until planted. Trees sent in from nurseries should have moist materials put round about their roots, but if the ground is in a saturated state, a few shovelfuls of soil from under cover should be thoroughly worked and pressed firmly about the roots. If the soil is adhesive, the planting had better be deferred until it is drier. Planting late means more attention in watering, if the spring and early summer months should prove to be dry. Syringing overhead during sunny weather is beneficial, as it prevents shrivelling of the wood.

Strawberries autumn planted should be examined, and the plants made firm by treading the soil about them when the latter is dry. All vacancies should be made good. The old leaves which retain their green colour should not be trimmed off, as they form shelter for the new crowns and aid in the formation of surface roots. The first early forced plants should be saved for planting out for autumn fruiting, and must be placed in a cold frame as soon as the fruit is gathered, being gradually hardened off from that time. Vicomtesse Hericart du Thury, Laxton's Noble, Keen's Seedling, and La Gros Sucrée do well in this way. Where plenty of long manure is at command, the present is a good time to apply it to the bed. *A. Evans, Hyde Hall, Hasleniere.*

Fruits Under Glass.

Ventilation.—Under such circumstances as prevail in March, it is better to allow the temperature on days when the sun shines brightly to run up beyond the maximum, than to admit much of the keen air from without, which is certain to cause a sudden and injurious extraction of moisture from the air of the house, and resulting in drooping foliage and general distress. In a few cases, such as of plants newly potted, rootless Pine-suckers, young Melons, and Cucumbers, it may be advisable to give a very slight thin shade over them for an hour before and after noon; but all foliage should be inured to stand the sun as speedily as is consistent with safety. Plants that have hitherto received night ventilation will possess foliage capable of withstanding the treatment advised.

Pines.—The forwardest fruiters under increased temperature will soon show signs of ripening, and may be urged forward by shutting up early. As soon as colouring has commenced, gradually withhold water at the roots. Those Pines that are grown in pots have advantages at this stage over those planted out, besides, in these days of express speed, space is likewise economised. Less forward fruiters will be assisted by applications of warm liquid manure made of guano, soot, or sheep's dung, varied with occasional sprinklings of some sort of artificial manure. Plants that were moved about to prevent injury from a too strong bottom-heat may now have the tan pressed closely round the sides of the pot, the heat having probably subsided to a safe point. With successional plants maintain considerable moisture in the air to assist the foliage. Nothing is more injurious to Pine-apples than excessively warm pipes and bright sun acting together, such a state of things creating a parching air that is most trying to them. Every time that watering becomes necessary, give a handful of Peruvian guano to a 4-gal. can of warm water, and let it settle before decanting it for use. Rootless suckers potted in February into 8-inch pots will require but little water—comparatively; as if once over-watered, and the soil soured thereby, progress is very slow afterwards; it is, therefore, necessary to turn a sucker out of the pot now and then, and see what the soil is like. Any suckers growing on old stools, as soon as they have reached a good size, to be detached and potted.

The Vineries.—Growth will now be active, and where the trellis is fairly covered with foliage, the sub-laterals, with the exception of two, more or less, according to space, should be pinched clean out. Train in new canes where practicable, with a view to fruiting next year. Such canes will give lanky branches; but if Vines have all, or nearly all, their growth spurred close back every year they will decline in health, hence the necessity for some moderate amount of extension. Extension training certainly suits the Muscat of Alexandria, Madresfield Court, and other Grapes. Pot-vines and early started Black Hamburgh will soon show colour in the berries, and this brings forcing to an end, as time is a very necessary factor to good colouring, atmospheric moisture being also gradually withdrawn, and clear water supplied, manures given at this stage being adverse to perfect colouring. Keep a little top air on at night, and a pleasant warmth in the heating apparatus. Follow up the disbudding of mid-season Vines; push on the temperature daily where bunches are showing, which will add length and size to the bunches; thin out laterals rather more severely, and aim at securing foliage of good size and substance. Atmospheric moisture must not be carried to excess, otherwise air-roots and warty excrescences on the under-sides of the leaves will follow. Late Vines which had unripe wood, and which is always subject to bleeding, should have small Potatos stuck on to the ends of bleeding shoots. This is a good remedy. If any planting is in contemplation, the cutbacks for this purpose should be retarded for as long a time as possible, to be afterwards laid out on rafts or hamper lids, and covered with fine earth, till the borders are ready for them in May. *W. Crump, Madresfield Court, Malvern.*

The Kitchen Garden.

Asparagus Beds.—These having been properly cleaned of weeds, and mulched with farmyard manure in the autumn, should now be pricked over lightly and raked with a wooden rake, leaving plenty of short dung on the beds. If the soil is light, give it a dressing of salt or fish guano, which, besides acting as fertilisers, serve to keep the beds free of weeds, &c. In the case of new plantations, if the soil for the beds has not yet been prepared, no time should now be lost in getting it in readiness. The best time to transplant the roots will be found to be just as growth commences, which is usually at the beginning of the month of April. If the plants are to be raised from seed, drop the seed in threes at a distance of 15 inches apart. If very fine heads are wanted, the best results will accrue if 2 feet from plant to plant be allowed; and, should the soil be wet, do not sow until it is drier. Sow in drills thicker if for transplanting another year.

Peas.—Those sown in pots may, if hardened off, be transferred to trenches, choosing mild weather for the work. Shelter the plants with evergreen twigs, and draw a little earth up to them. The stakes may be put to the rows if they are in readiness. Ascertain if Peas sown outside in February have perished or suffered in any way; another sowing of the early Peas should at once be made if loss has been incurred. The seed may from now, and onwards be sown more thinly, especially of strong branching varieties.

Lettuce-beds on warm borders should have the gaps in them made good from the seed-beds. Trample round plants which may be loosened by frost, and use the Dutch hoe between the rows. A bed should now be planted of plants wintered in frames to follow up these Lettuces, selecting for its site a warm aspect; these should be taken up and planted with the trowel. Let the soil be made firm by treading before planting, and plant generally at about 1 foot apart. Sow seed out-of-doors, and sow at fortnightly intervals, or according to the demand.

Radishes.—Early Wood Frame should now be sown on ground in good heart, covering the bed until the plants appear with light litter, but raking it off directly the seed germinates.

Small sowings of Cauliflower, Brussel Sprouts, and Savoys, may be made. Spinach beds may be hoed in dry weather, also Cabbage and winter Onions. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, Mar. 20—Linnean Society.

SHOWS.

TUESDAY, Mar. 18 { Manchester Royal Botanic. Richmond, Surrey (two days.)

WEDNESDAY, Mar. 19 { Preston and Fulwood (two days). Bath Bulb (two days).

SALES.

MONDAY, Mar. 17 { Lilies and Greenhouse Plants, at Protheroe & Morris' Rooms.

TUESDAY, Mar. 18 { Roses, Palms, &c., at the City Auction Rooms, by Protheroe & Morris.

WEDNESDAY, Mar. 19 { Roses, Border Plants, Fruit Trees, Shrubs, Plants from Ghent, &c., at Stevens' Rooms. Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, Mar. 20 { Orchids in Flower and Bud, at Stevens' Rooms. Nursery Stock from Sample, at Protheroe & Morris' Rooms.

FRIDAY, Mar. 21 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—43°.

Caterpillars and Fruit Trees.

It is satisfactory to those who, like ourselves, have for many years past devoted attention to the subject of insect depredators, and to the means of dealing with them, to find at last that public attention is being aroused to the importance of the matter. At a meeting recently held at Evesham, the Mayor in the Chair, the subject was discussed at some length. The ways and customs of the caterpillars were described in a letter from Miss ORMEROD, as well as the various remedies proposed. Greased bands applied in October are very effectual, but injure the young trees. This injury is avoided by smearing the grease upon paper, or, as Mr. WILSON suggested at the Scientific Committee, on canvas, and not directly on the bark itself. Kerosene emulsions in the proportion of one pint of kerosene, half an ounce of soap, and four pints of water, to be used in the form of spray, were also recommended. But the most promising method is that which has been tried for many years in the United States and in Canada, and which, relying on the reports of such men as Professor RILEY and Mr. FLETCHER, we have earnestly pressed on the attention of our fruit growers for years past, but hitherto without avail. Either from our national slowness in adopting new processes, or from a fear of injury from the arsenical preparations, little or no progress has been made in this country with these valuable remedies; and yet the proportion used is so small that the risk to human life is too small to deter any person of ordinarily careful habits from making use of them.

Spraying with an arsenical solution should be done in the middle of April, when no fear need be entertained from the falling of the arsenic on to bush fruits grown under the Apples, though in the case of vegetables the case is somewhat different. The proportion of Paris green recommended is 4 oz. to 40 or 50 gallons of water (four ounces to forty or fifty gallons). In the 40 gallons there would be about 1 oz. of arsenic, and this would be distributed by the spray pump over, say, an acre of leaf-surface. The danger, therefore, is clearly not in the proper use of the arsenic, but in the careless handling of the poison by ignorant or stupid people, a contingency which has always to be provided for.

We extract from the *Evesham Journal* the following letter, showing more explicitly how these arsenical preparations are used:—

"To every 50 gallons of water, mix well, and keep well stirred while using 4 oz. of Paris green. For Plums, as they are tender, and as the leaf is glossy, add three tablespoonfuls of fine flour from Wheat to make it stick on the leaves. Get a pan or dish, and make a paste of either or both, with a little water, as it mixes better with a bulk of water, and test it. If too weak, use 4 oz. to 40 gallons. If the Paris is a pure article, this will be found enough. Use 4 oz. to 40 gallons of water for Apple and Pear trees. Cherries may be treated the same way. Two dressings will, as a rule, be sufficient—1st, when the blossoms are falling and fruit beginning to form; 2nd, in twelve to fourteen days. Use your best judgment on this by observation. As soon as blossoms have fallen off, and while fruit is nearly upright, get a force-pump fixed, good, short, and handy, and in a barrel on wheelbarrow or wheels that can be moved handy to any place. Have a rubber hose of 1 inch by 8 feet long, or longer for tall trees; fix this on a handy pole, so that a man may shower ordinary trees without a ladder, and shower trees where insects are, much the same as a fine watering-pot rose would shower. Test your pump beforehand with clear water to get it to work satisfactorily. A large garden syringe may be used, but would take too long. A fine shower is what is wanted. You want two roses or nozzles, one for short and one for long distance. The ordinary pail of water is enough for a large-sized Apple tree. If heavy rain should follow as soon as the poisoned water is showered on trees, you will have to shower again. I have never known fruit to be hurt or any harm done by this, if used properly. The quantity is so small, and the time so long before fruit ripens, that every trace is lost. In an orchard where there are cattle, sheep, &c., it would not be wise to let them graze for a few days after showering the trees with poison. If left for hay, this will not hurt the hay.

"As to the time for showering, I propose the morning, when the leaves are dry, or any time when dry, as the sun absorbs the water, and mineral poison settles. If the water is not sunned to near the same heat as the surrounding atmosphere, make a small fire and heat a few bricks before using, and temper the water in a tub, use a thermometer, and heat water to same degree as atmosphere. This is very important.

"Paris green is an arsenical poison. To shower when in bloom may do harm, and destroy bees. London purple, or arsenite of lime, is about equal to Paris green, and used the same way. Both are poisons, and should be used carefully. I recommend those that use one to use the other, and test them on separate rows of trees. Paris green or London purple costs here 1*s.* to 1*s.* 3*d.* per pound. This is the cheapest and most effectual way to destroy the pests by actual tests. As the young grubs eat a small part of leaf or fruit, a very small particle of this poison will kill, and save a great percentage of the fruit crop. I have used Paris green eight years, London purple two years, on fruit and vegetables." *Enoch Haines in Evesham Journal.*

LINNEAN SOCIETY.—The Society met on March 6, Mr. CARRUTHERS, F.R.S., President in the chair. Mr. S. LITHGOW was admitted, and Messrs. J. LANE, E. R. WAITE, and G. F. ELLIOTT were elected Fellows of the Society. Mr. THOMAS CHRISTY exhibited a dried specimen of Picramnia antidesma, the plant from the bark of which medicine known as Cascara amara is believed to be prepared, and which is a useful alterative in diseases of the blood and skin. A paper was read by Mr. D. MORRIS on the production of seed in certain varieties of Sugar-cane, the Saccarum officinarum. It was pointed out that, although well known as a cultivated plant, the Sugar-cane had nowhere been found wild; nor had the seed (caryopsis) been figured or described; it being the generally received opinion that having been propagated entirely by slips or cuttings, it had lost the power of producing seed. Spikelets, however, received at Kew, had been carefully examined and the seed found which was now for the first time exhibited by Mr. MORRIS. He anticipated that by cross-fertilisation and selection of seedlings, the Sugar-cane might be greatly improved, and much importance was attached to the subject, as it opened up a new field of investigation in regard to Sugar-cane cultivation. Mr. J. G. BAKER and Mr. CHRISTY concurred. A paper was then read by Mr. SPENCER MOORE on "The true Nature of callus: Part I. The Vegetable Marrow and Ballia callitricha." It was shown that the callus of sieve-tubes of the Vegetable Marrow gives marked proteid reactions, and since it is dissolved in a peptonising fluid, there can be no doubt of it being a true proteid, and not a kind of a starchy mucilage, as is usually supposed. The "stoppers" of Ballia also yield proteid reactions; but as inasmuch as they resist gastric digestion, the substance cannot be a true proteid, and may, perhaps, be allied to lardacein. Mr. MOORE maintained the view of RUSSOW, STRASSBURGER, and others, that callus is deposited upon the sieve, to be correct in the case of the Vegetable Marrow, since a peptonising fluid clears the sieve-plates, and leaves them in their pristine condition, which would not be the case if callus were formed by a swelling up of the sieves. A discussion followed, in which Dr. F. W. OLIVER, Dr. D. H. SCOTT, Professor REYNOLDS GREEN, and Mr. GEORGE MURRAY took part.

WILDSMITH MEMORIAL FUND.—In aid of the above Fund, the following sums have been promised:—

	£	s.	d.		£	s.	d.
The Hon. Emma L. Shaw Lefevre	5	0	0	Miss Potts	1	0	0
John Hargreaves, Esq., J.P.	5	0	0	Miss Markby	0	10	0
J. P.	5	5	0	Mr. W. Binder	0	5	0
Messrs. Sutton & Sons	5	5	0	Mr. H. J. Clayton	1	0	0
Mr. A. W. Sutton	3	3	0	Mr. W. Coleman	1	0	0
Messrs. J. Veitch & Sons	5	5	0	Mr. W. Crump	1	0	0
Mr. H. J. Veitch	1	1	0	Mr. A. Dean	1	0	0
Mr. P. C. M. Veitch	0	10	6	Mr. W. C. Davis	0	7	6
F. B. Marson, Esq., J.P.	2	2	0	A Friend, No. 1	1	0	0
G. F. Wilson, Esq., F.R.S.	1	1	0	A Friend, No. 2	1	0	0
				Mr. S. Kerry	1	0	0
				Mr. A. Maxim	1	0	0
				Mr. W. A. Searing	0	5	0
				Mr. T. Turton	1	0	0
				Messrs. W. Wood & Sons	0	5	0

Hon. Secretary, Mr. T. TURTON, Maiden Erleigh Gardens, Reading. Hon. Treasurers, Mr. A. W. SUTTON, Reading; and Mr. H. J. VEITCH, Chelsea.

DRIED FLOWERS AND THE INFLUENZA.—From our contemporary, the *Chemist and Druggist*, we gather the following items:—First, that one of the effects of the recent epidemic has been a considerable consumption of dried flowers popularly used for infusions, such as Borage, Corn Poppy, Marsh Mallow, Coltsfoot, and Linden tree flowers. The supply in stock, it is said, has run very low, and none



TAXODIUM DISTICHUM AT SYON.

can be expected before the coming season. Second, that with reference to the supply of camphor, the demand for which has much increased of late, that the mail reports from Hong-Kong state, that 250 piculs of Formosa camphor had arrived there, and had been shipped to Europe. It is further asserted that the quantity of camphor used in the manufacture of smokeless powder is exceedingly large, and that it enters into the composition of that article to the extent of 10 per cent. of the weight. In consequence of this there are now no old stocks, the manufacturers being compelled to refine the fresh arrivals, thereby losing about 5 per cent. on the weight.

"MANUAL OF THE BOTANY OF THE NORTHERN UNITED STATES."—We announce, with great satisfaction, the publication of the sixth edition of a book which is not only indispensable to botanists, but most serviceable to growers of hardy plants. The original work was constructed by the late Professor ASA GRAY, this present edition being revised and extended by Mr. SERENO WATSON, Dr. GRAY'S associate for many years; Professor COULTER, and others. All the newer discoveries are included, the Hepaticæ are inserted, and specially the limits are extended westward to the 100th meridian, where it connects with Professor COULTER'S *Flora of the Rocky Mountains*, which in its turn impinges on the flora of California. Many Canadian species are necessarily included, and the Dominion is otherwise provided for by MACOUN'S *Catalogue*, so that now we have a pretty complete flora of the North American Continent east of the Missisipi and north of Carolina and Tennessee. The number of plates has been increased, and an excellent index provided. Criticism on points of detail might, no doubt, be indulged in if it were worth while, but the botanist will feel much too deeply the value of the work as a whole to trouble about minor points on which difference of opinion might be entertained.

RURAL ECONOMY.—In February, 1884, Dr. J. H. GILBERT, F.R.S., of the Rothamsted Laboratory, was appointed by the electors of Oxford University to the Sibthorpian Chair of Rural Economy, the stipend of which is £200 per annum, and is tenable for three years. At the end of the three years Professor GILBERT was re-appointed for a second term of three years, which he brings to a conclusion during the present week. This final course of lectures, which closes on Friday have been on the 'Sources of the Fat of the Animal Body," "The Produce and Composition of Milk from Dairy Cows," and "Animal Food and Manure," illustrated chiefly from the investigations at Rothamsted.

BULB SHOW AT HAARLEM.—From March 21 to 25, inclusive, the large quinquennial show of flowering bulbs and tubers, will be held at Haarlem, especially of Hyacinths, Tulips, Narcissus, and Amaryllis. The show is under the auspices of the General Union for the Cultivation of Flower Roots, and this year it promises to be a very fine one. It will doubtless be of great interest to foreign amateurs and horticulturists, whose visits will afford great pleasure to the Dutch bulb growers and their Society.

BRITISH FRUIT GROWERS' ASSOCIATION.—This Association, which is well calculated to do good service in promoting rational fruit culture, is about to appoint local secretaries in various districts to commission lecturers and demonstrators to visit different parts of the country, and to hold various conferences during the course of the summer. Mr. LEWIS CASTLE, Hotham House, Merton, is the Honorary Secretary.

GALANTHUS NIVALIS SCHARLOCKI.—Mr. MAX LEICHTLIN of Baden-Baden, kindly points out a mistake we made in our issue of March 1, p. 268, in spelling the name of the [illegible] snowdrop. The plant was named by Professor [illegible] of Königsberg, in honour of the discoverer, Apothecary SCHARLOCK of Graudenz, and in consequence, it should be Scharlocki and not Shaylocki as we inadvertently put it.

THE MAYOR OF WORCESTER.—On the 5th inst. the foremen and clerks of the firm of RICHARD SMITH & Co., St. John's Nurseries, Worcester, to the number of thirty, were entertained at dinner by Mr. SMITH, the senior partner, in commemoration of his mayoralty of the faithful city, this year. The company sat down to an excellent repast, and the evening was pleasantly spent.

BOTANIC GARDENS, GLASNEVIN AND OXFORD.—The list of seeds for exchange has been issued. The list, especially in the case of Glasnevin, is a very extensive one.

MESSRS. SUTTON AND SONS.—The New Zealand mails bring full reports of this exhibition, which bids fair to be a great success. "The largest exhibitors," says the *Otago Daily Times* of January 1, "in the British section are Messrs. SUTTON & SONS, of Reading and London, whose display was agricultural as well as horticultural, and included vegetables, grasses, flower seeds, and models of pulse, roots, &c., executed with great fidelity. The exhibit includes also a number of cabinets of seeds arranged for educational purposes."

DUTCH HORTICULTURAL SOCIETY.—At the meeting of the Floral Committee of this Society on February 12, Messrs. E. H. KRELAGE & SON, Haarlem, sent a Narcissus tazetta Grand Emperor, but it not being considered an acquisition, a vote of thanks only was awarded them, a similar acknowledgment being made for a collection of bulb and tuberous plants. A commendation was made to the same firm for a collection of cut flowers of different varieties of Hellebores, and for H. Bocconi superbus. A fine Iris Bornmulleri, shown by the same firm, obtained a Second-class Certificate. First-class Certificates went to Mr. R. ZAANDOORDIJK, at Limmen, for a new Duc of Tholl Tulip, exhibited under the name of Cochenille Duc. This Tulip flowers, like the type, early in December; the colour of the flower is dark red, and the size is above the ordinary. Messrs. GROENEWEGEN & Co., of Amsterdam, received a First-class Certificate for Clivea robusta elegans, a plant of robust growth, with large well-shaped dark-coloured flower.

THE "BOTANICAL MAGAZINE."—The March number comprises coloured illustrations and descriptions of

Zamia Wallisii, a new Granadan species, with short trunk and broad plicate leaflets; t. 7103.

Satyrium membranaceum, a handsome terrestrial Orchid, with large carmine coloured flowers. It has been introduced from the Cape through the mediation of Mr. O'BRIEN, and flowered in the Cape-house at Kew; t. 7104.

Arisæma Wrayi is a remarkable Aroid, with pedate leaves, and a greenish three-lobed spadix, beyond which protrudes a long, slender, drooping spadix, according to the custom in the genus. It is a native of the Malay peninsula; t. 7105.

Lathræa clandestina, the beautiful parasitical plant, grown with so much success at Kew, and figured in our columns, May 25, 1889, p. 653; t. 7106.

Papaver rupifragum var. *atlanticum*, a Moroccan variety, with orange-scarlet flowers, each about 2 to 3 inches in diameter. Flowered in the herbaceous ground at Kew; t. 7107.

GHENT CHAMBRE SYNDICALE.—At the meeting on March 10, our special correspondent writes, that a Cattleya Trianæ, with fourteen superb flowers, shown by Messrs. VERVAET & Co., obtained a Cultural Certificate; another Cattleya, Reine des Belges, received an Award of Merit by acclamation. A like distinction was conferred on Cœlogyne cristata alba, a superb specimen of which was shown by M. JULES HYE, who also showed Odontoglossum Albertianum, and received a similar award. The same exhibitor showed a fine Odontoglossum and a Cypripedium macropterum. M. AUGUSTA VAN GEERT obtained a Certificate of Merit for a pure white variety of Cattleya Trianæ. A good variety of Odontoglossum triumphans from Messrs. VERVAET & Co. was awarded a Certificate of Merit, and a like distinction was accorded to Madame la Marquise de WARZIN, for Angræcum Sanderianum, of a pure white colour, and exquisitely fragrant. M. GHELLINCK DE WALLE showed a superb Clivea Van Houtte, with six very large trusses; M. MOENTJENS, a Seedling Clivea; Messrs. DESBOIS & Co., Xanthoceras sorbifolia; and JULES DE COCK, a fine form of Cypripedium hirsutissimum grande.

MR. VEITCH'S LECTURE ON HIPPEASTRUMS.—At the meeting of the Royal Horticultural Society on Tuesday last, the paper that was read by Mr. H. J. VEITCH on the origin of the Hippeastrum varieties raised at his nursery at Chelsea, was full of interest. Mr. Veitch gave a brief history of the various species of the genus, and of the experiments made by Dean HERBERT and others, in intercrossing these species. The early history of these crosses is given chiefly in the pages of the *Botanical Register* and in those of the *Journal of the Horticultural Society*. The introduction by PEARCE of Hippeastrum Leopoldi was shown to have exerted the most potent influence on the modern forms. The first step towards a flower improved according to the ideas of the florist, he said, was obtained in H. Gaveana, a seedling of H. Crocea grandiflora. This was followed by crossing the former with H. Braziliensis, and the resulting flowers were Empress of India and others like it. The flowers were of good form, substance, and fine colour, but with much green colour at the base of the segments; and while the segments were much broader than had formerly held good of species and hybrids, there was no commensurate broadening of the lower one, and crosses were attempted in which these blemishes should not occur. To this end Empress, and the species Ackermanni and Leopoldi were crossed indiscriminately, and to-day we have The Champion, the finest crimson hybrid yet obtained. The cultural details given were those pursued at Chelsea, and which year by year give such beautiful flowers as may be seen there at this time of the year. These matters have been fully detailed in our pages from time to time.

NARCISSUS POETICUS.—Mr. HARTLAND, writing on March 10, sends us flowers of Narcissus poeticus from the open ground near Cork. This is, we believe, the earliest period at which the flowering of this species has been recorded in the British isles. From the same gentleman we received flowers of N. maximus from bulbs collected in Spain.

THE DAFFODIL CONGRESS AT CHISWICK.—We hear that it is likely that the exhibition on April 15, 16, 17, and 18, in the Gardens of the Royal Horticultural Society at Chiswick, will be opened by H.R.H. the Duchess of TECK, well known for her sympathy with horticulture. Professor FOSTER will probably read the opening address.

THE STRAWSONIER.—We are informed by Mr. Strawson, to whom we applied for information, that Messrs. Hornsby & Sons, of Grantham, are manufacturing a small machine suitable for Kitchen and Flower Gardens as well as for fruit trees up to 25 feet in height. Such a machine will be a boon in market gardens.

FORESTRY.—A paper, entitled Forestry in the Colonies and in India, was read by DR. W. SCHLICH, late Inspector General of Forests to the Government of India, at a meeting of the Royal Colonial Institute, held in the Whitehall Rooms of the Hôtel Métropole, on Tuesday night, 11th inst., Lord Bury in the chair. The direct usefulness of forests, he said, in so far as they yielded timber or other produce, represented capital, and provided labour, depended upon many things, such as the means of communication in a

country and with other countries, the quantity and quality of substitutes for forest produce available in the country, especially iron and coal, the value of land and labour, and the returns which land yielded if used for other purposes, the density of population, and the amount of capital available for investment. The British Empire, although it was so frequently represented as possessing more extensive forests than any other nation, paid every year something like 12,000,000*l.* to foreign countries for timber alone. Here, then, was a broad fact which called for serious consideration, for under existing circumstances the imports of timber into the Empire would increase rather than decrease. There were certain reasons therefore, why State interference was more called for in the case of forestry than in most other branches of industry.

Podocarpus acutifolius (the Acute-leaved Totara) is an erect-branched shrub, from 3 feet to 6 feet in height, with pungent leaves. When growing in exposed places the branches are short and rigid, and the leaves close-set; but when in sheltered situations the branches are slender, with the leaves laxly arranged and spreading. Leaves green, three-quarters of an inch or more long, narrow-linear, coriaceous, pungent, making the plant very prickly to handle. The male catkins are about 1 inch in length, very slender, and may be solitary or in clusters of from two to five on a short peduncle. Female flowers solitary in the axils of the leaves. Fruit, a brown nut seated on a crimson pulpy receptacle. The flowers are produced in December and January, and the fruit is mature in April and May. The properties and uses of this species are unknown. *T. Kirk, in "Forest Flora of New Zealand."*

HUMEA ELEGANS.

This is a plant that one sees much less frequently in gardens now than some twenty-five years ago, and I am reminded of its grace and beauty by a photograph of a group, in a wild state, published in the last volume of the *Victorian Naturalist*. Early in the present century, in 1804, Sir James Edward Smith, the purchaser of Linnæus' collections, and the founder of the Linnean Society of London, started a new illustrated periodical, with the special object, as stated in the preface, of figuring plants not in cultivation in this country, though deserving the attention of cultivators and importers. This was, in a sense, an apology to the editors of the various existing periodicals devoted to the illustration of cultivated plants, for after all, the majority of the plants figured were already in cultivation though many were quite new to science, and described for the first time in Smith's *Exotic Botany*—a work that only ran to two volumes of sixty plates each.

The plant represented in the first plate was one of the many Australian novelties introduced about that period, and Sir James Smith named it in compliment to the lady in whose garden it first flowered in England. From its general appearance nobody would guess that it is a member of the Compositæ, as it much more closely resembles some of the Amarantaceæ; but it is one of the many instances in the vegetable kingdom of plants whose affinities can only be ascertained by an examination of the flowers. Indeed, it is so far different from the great majority of the Compositæ that the flowers, or florets as they are sometimes called, are usually solitary, and the showy part of the inflorescence consists of scale-like coloured bracts enclosing the solitary flower. Unlike most members of the family, too, these bracts increase in size upwards, the lowermost ones being very minute, whilst the upper are relatively large and showy.

Smith says:—"Specimens of this elegant plant have long since been sent to England from the neighbourhood of Port Jackson, New South Wales, but its appearance was altogether so new and extraordinary, that no botanist could determine its genus, or even its natural order. Its proper class in the Linnean system was not suspected till the summer of 1804, when Lady Hume, fortunately, had several plants in blossom in her choice collection at Wormleybury, Herts, from seeds communicated by the Right Honourable Sir Joseph Banks. The beauty of its wide-spreading, drooping panicle, and innumerable shining rose-coloured flowers (bracts), which sometimes vary to white, render this plant a great acquisition to the greenhouse, in which it succeeds without any peculiar attention. It is moreover desirable for its fragrance, which, though much too strong in the leaves, partakes in the panicle of the odour of the Hautboy Strawberry, with some resemblance to the Cedar-wood."

Much more might be said now of the value of Humea elegans in the open bed or border in the summer, but it has been repeated often enough, and is probably better known and understood by many others than the writer of this note, whose only object is to direct attention to an old favourite.

The photograph of a wild group of this plant, alluded to above, accompanies the narrative of a trip to Croajingolong in East Victoria, Australia, by Professor Baldwin Spencer and C. French, F.L.S. This is a hilly, still almost uninhabited district, rising in its northern part, bordering on New South Wales, to 3700 feet, not far from the locality in which the Humea was found in unusual luxuriance. The aspect of the plants in the very much reduced photograph is that of a number of persons draped in white from the head, and standing above the luxuriant Fern vegetation, which is distinctly shown in the foreground.

The writer of the notice now in question describing the country where they met with the Humea, says, "The scene is a very fine one. Right in front the Coast Ranges, nearly 4000 feet high, block the way to the north; to the right rises Mount Bungywarr, peaked, and crowned to its summit with forest; to the left we are shut in by lofty white Gums running up the mountain-side; and beneath us the hill runs down steeply to the densely wooded valley. The track descends rapidly, and after an easy day's march of 9 miles we camp at the base of Goon Murk, the highest in this district, close by a lovely group of Humea elegans, in full bloom, some of them being from 15 to 20 feet high."

Imagine Humea 20 feet high, with its hanging plumes of slender graceful branchlets so dense that the camera shows them only as ghost-like masses of white.

The colour of the flowers, or rather of the bracts, varies considerably from white or pale pink to crimson, and I doubt whether the deepest coloured variety has ever been in cultivation. In the Kew Herbarium there in a specimen from the Victoria Ranges, which even in the dried is of a beautiful bright crimson. *W. Botting Hemsley, Oak Ash, Cambridge Road, Chiswick.*

KEW NOTES.

Amorphophallus titanum.—There is no truth in the report that the large plant at Kew of this gigantic Aroid died immediately after, and in consequence of its flowering. The plant is now in fine condition in the house where it flowered last year, the leaf developed since December measuring 14 inches in diameter at the base, and 9 feet in height. All the roots perishing soon after the flower had been removed, the tuber was taken out of the soil, washed, and then weighed. It had lost 7 lb. in weight from the time when it was repotted, about two months before it pushed up the flower to the time when the flower was past. Apparently there is no reason why this plant may not flower again next year.

Godwinia gigas, which flowered at Kew last year, is again in flower there now. It will be remembered that previous to the discovery of the Titanic Amorphophallus by Dr. Beccari, the Godwinia was the acknowledged giant of the Aroideæ.

Arisæma speciosum is also represented by some very fine plants in flower, some of them having larger and darker spathes than is usual in this species. Several plants of Dracontium fœcundum, a near relative of the Godwinia, and not unlike it, except that the spathe is smaller, are also flowering in one of the stoves.

Taccarum Warmingianum, another large-flowered Aroid, related to the Amorphophallus, is pushing up a fine inflorescence. In the Cape-house there are some very large spathes of several species of Sauromatum. *W. W.*

FROST AT LA MORTOLA.

The neighbourhood of Ventimiglia, and especially the gardens of Mr. T. Hanbury at La Mortola, have been visited by sharp frost, and a heavy fall of snow, the frost prevailing for several nights. Such weather has not been known here for the last seven or eight years. With about 500 species of plants in flower, and large numbers of tropical and semi-tropical plants in all parts of the garden, I fully expected to see very great havoc, especially as the sun shone out in the middle of the day with all the brightness common in the Italian Riviera. Having spent a couple of days noticing the effect of the frost on the vegetation, I was more than surprised to find so very little damage to the plants. Begonias of the several species cultivated in these gardens are badly cut up, the soft, succulent leaves being amongst the first to collapse. Next to the Begonias, the Salvias have felt the frost the worst, especially those in any exposed position; but even here it is merely the outside shoots that are destroyed, and there are many plants of this genus flowering away again as gay as ever.

Ferdinanda eminens, Clerodendron fragrans, and several species of Wigandia have suffered in the young leaves. The genus Iochroma is rather puzzling in respect to its frost resistance; I. tubulosum has escaped with very slight damage, whilst I. coccineum has lost all its leaves. This latter plant presents a marked contrast to a huge bush of the double form of Sparmannia africana in full flower, which is uninjured, the Iochroma has its branches intermixed with those of the Sparmannia, and so the contrast is the more remarkable. Can it be that the dense pubescent leaves of the latter plant are more capable of resisting frost?

In another part of the garden, two other species show a marked contrast in their frost-resisting powers, these are Cycas revoluta and Aralia papyrifera, the latter plant has suffered very much, and the large tough leaves are falling; the Cycad has come through the frost as healthy and as glossy as ever. In both plants there is a similarity of texture, and a lanate development to protect the young growth. Here and there the shrubs of Heliotrope have been cut back, Tecoma capensis and Bomarea oligantha in close proximity are in full flower totally unaffected. Linum trigynum, Bougainvillea spectabilis, and Canarina campanula, show traces of the frost, especially the latter plant, but are flowering away as bravely as if they had not experienced several degrees of frost. Amongst the succulents—which are the glory of these gardens—there is very little damage indeed; Kleinia viridiflora and a large plant of Agave attenuata in flower are amongst the injured in this section. This immunity from frost injuries is the more noticeable from the fact, that the genus Mesembryanthemum alone is represented here by about ninety species, and the other genera of succulent plants in like proportion. The semi-aquatics have, with the exception of Caladium esculentum, escaped injury; this is interesting from the fact, that growing side by side are such plants as Cyperus papyrus, Richardia æthiopica, Philodendron pertusum, Bamboos of several species, and Azolla caroliniana. Canna indica, Cuphea eminens, and Dahlia Maximiliana show unmistakable evidences of the frost; Strelitzia augusta, S. reginæ, and that lovely Cape plant Othonna Athanasiæ, in full flower, on the other hand escape.

The Solanums, many with soft young growths, have, as one might expect, received a severe check; nearly all the species were carrying fruit; this, except in the case of S. betaceum, appears to be sound and unaffected. S. ciliatum var. macrocarpa, one of the most ornamental of the whole genus, does not show any trace either in the rich scarlet fruits or the leaves.

With very few exceptions, the species injured by the frost are those which have made a winter growth, *i.e.*, new growth since the previous autumn: as for example, the Solanums and Salvias. These plants have continued to grow all through the autumn and winter months. Such growth has not undergone the changes due to the excessive drought and summer sun, influences that render vegetation less liable to injury by a few degrees of frost.

This hypothesis is, I think supported by the fact that Palms, Cycads, Eucalypti, Banksias, Oranges, Acacias, and a host of other plants, that would be injured beyond recovery if exposed to a few degrees of frost in a more northern climate pass through a few degrees here, practically uninjured. *J. W. Odell, Ventimiglia, Italy, March 7.*

The Bulb Garden.

LILIUM AURATUM.

Few of the many roots imported from Japan survive the first season, the large crop of flowers usually produced being followed by a mass of stem-roots alone, which tend to the utter collapse of the bulbs, the few that survive being those which have emitted fresh roots at the base of the bulbs after planting. The great loss from decay on the voyage to this country is doubtless caused by sweating in bulk during the protracted voyage, may help to explain the cause of the loss of sound bulbs afterwards. I have asked myself the question why this particular species of Lily fails in so many instances to send forth roots at the base after importation; I mean those, of course, that survive the journey, and which seem fairly sound and plump when the cases are opened. Is it probable that the new basal roots were formed, but were cut off for the greater convenience of packing, prior to being embedded in the usual clay envelopment? If this be so, it is no wonder that a second lot of roots does not form, and that the bulb perishes. This, however, can hardly be the case with the earlier arrivals, and yet I have not observed that these are generally any better than those that arrive later, which makes it difficult to understand. The soil in which these imported bulbs are moulded before being packed, is of an adhesive nature, a fact which may not conduce to the health of the enclosed bulbs; in many instances it becomes quite a hard crust, rendering evaporation of moisture from the bulb well nigh impossible, and I incline to the belief that a decidedly lighter material, and dry, for packing purposes, with the use of perforated cases, might be found to answer perhaps better, the transit cost would be less, and basal roots, assuming these are already emitted, may then be left intact. A few importations would suffice to prove which of the two methods was the better. But, after all, it still remains a significant fact that some Lilies suffer to a greater extent than others during transit: for example, the varieties of Lilium speciosum and L. longiflorum arrive in better condition as a whole than L. auratum, while of the latter group the varieties platyphyllum and virginale come to hand in better condition, and do much better than the type; and L. Krameri suffers considerably, as do L. auratum rubra and L. a. vittatum. In potting newly imported bulbs the moisture contained in the soil will be ample for their needs for a time, and the bulbs should be plunged 4 or 6 inches deep in fine coal ashes or cocoa fibre in cold frames, or under some kind of protection that will keep off rain. Here the bulbs should remain until a few inches of growth has been made, and they should be examined closely for decayed portions before being potted. Where it is found that portions only of some scales are attacked, and particularly where these are not the outer scales, the decaying part only should be broken off, and charcoal dust sprinkled over the wound, which may have the effect of staying the spread of decay. The loss of a few scales, however, is not a very serious item as compared with the state of the base of the bulbs, as it is here that the mischief lies, and this fact has for some time led me to believe that the bulbs themselves have been subjected to a mutilating process. It should be stated in regard to Lilies generally that they do not require much shade, and some of the finest clumps of Liliums I have seen, while being shaded about their roots, were permitted to send their flower-heads up into full sunlight. *J.*

MONTBRETIAS.

The varieties of these plants have received effective and valuable additions of late years that are of service for decorative purposes for cut flowers. The spikes are graceful, and the flowers bright. For cut bloom, the best way is to grow them outdoors, they being nearly hardy, and the most suitable place is a narrow border alongside of a sunny wall, or front of the greenhouse. Here they should have a good depth of light rich sandy soil, and be planted 6 inches deep, the right time for doing this being the present, before the bulbs or roots start; and after the planting is done, it is advisable to scatter a few half-rotten leaves, or Cocoa-nut fibre over the top. Once planted, they require no further attention beyond the autumnal top-dressing, to protect them against severe frost. *J. S.*

SUBTROPICAL BEDDING PLANTS.

Preparation should be made to raise a stock of plants for the decoration of the subtropical garden. I propose to name some of the most useful in this respect, the best means of raising a stock, and also add a few suggestions as to the planting of each Acacia lophantha is easily raised from seed, sown in sandy soil in March, on brisk bottom-heat, the young plants grow quickly, and 4-inch pots are large enough for them previous to planting them. They should be allowed to grow with one upright stem. The finely cut leaves render this Acacia suitable for "dot" plants or mixing with other foliage or flowering subjects.

An effective arrangement where this plant is needed to form a mass is to plant it at about 14 feet apart, and fill in between with Perilla nankinensis, and by pinching the latter frequently the plants could be kept below the side branches of the Acacia, a very pretty effect is produced in this manner.

Grevillea robusta is best grown with a single upright stem, and its light feathery drooping leaves making it a very effective "dot" plant amongst Alternantheras or other dwarf plants. The seed should be sown at once on a gentle bottom-heat; the plants the first year will grow about 1 foot high and some of them rather more. If these are carefully lifted in the autumn, and potted and placed in a cool house for the winter, fine plants will be available for the next year that will be better adapted for mixing with tall plants than the young ones of this year. This Grevillea gives a good effect if planted in a mass and carpeted beneath with dark flowered Violas.

Abutilon Thompsonianum with its green leaves, golden blotched, is showy as a single plant, or three or five together, growing with others which harmonise with it in colour. For any purpose it is best grown with a single stem, and to effect this cuttings should be put in during September, four or five in a 3-inch pot, in which they soon root. These should be wintered in a cool house, and potting them off singly in March, all the while keeping them cool. Cuttings from old stock plants may be taken off during March — these are easily rooted in bottom-heat, and make nice plants by the middle of May; side branches will form during the summer. Whether these are removed or pinched at the first or second leaf is a matter of no moment, but in any case the leader should be kept intact; free growth should be encouraged, as the markings on the leaves are thus rendered more effective.

Ricinus in variety, are much in request in some places, a well grown plant having a fine appearance. R. Gibsonii, of a dark coppery colour, grows about 5 feet high, but may be kept to 3 feet by timely pinching out of the points of the shoots; Cambodgensis is another of the dark-leaved kinds, and capital plants 2 feet high may be obtained, rendering it available as a nice "dot" plant to put amongst light coloured Violas. R. communis or sanguineus has green leaves, and is effective when planted in a mass in the centre of a circular bed; for instance, having next to it a row of R. Gibsonii, finishing off in front with a row of Solanum marginatum, the colour of these two plants harmonising thoroughly. At the end of March or April is time enough to sow seeds of Ricinus, which should be done singly in small pots, standing them in a vinery where some heat can be given them, afterwards potting into 5-inch pots supplying the roots with abundance of water when well-rooted. The mistake in the growth of Castor-oil plants is sowing the seed too early, the consequence is, that long before the time for putting them out arrives, the pots are full of roots, which get sometimes very dry, the leaves turn yellow, and eventually fall off, the plants are then leggy, and have a poor appearance. At planting time they should not be more than 1 foot high, and have all their leaves intact down to the soil.

Melianthus major is useful to plant singly in the centre of a small bed, or in a mass in a larger one, and can be grown with a single stem, or in a branching manner. The glaucous leaves have a blue tint which adds to the effectiveness of the plant. Sow the seed at once in sandy soil on a gentle bottom-heat. If larger plants are wanted keep some of them in small pots during the summer and winter giving them a larger shift early in the spring to induce free growth.

Jacaranda mimosæfolia is a capital subject to grow as a "dot" plant for carpet-beds, its finely cut leaves have a light appearance, and the deep green colour of which associates well with almost any undergrowth. Cuttings inserted in a gentle bottom-heat in February quickly root, and grow into nice little plants by June; if larger are needed, they should be grown on in the cool greenhouse for a season, which will give them not only extra size but robustness.

Solanums are valuable annuals for the subtropical garden, as they can be grown to a large size in the same year from seed: pyracanthum has leaves not more than 2 inches wide, are long and semi-drooping, of a bronzy shade of colour. The long spines with which the leaves are covered, both on the upper and lower surfaces, render it attractive, placed where each plant will show its leaves clearly — that is, thinly in a mass in one bed, or as "dot" plants. The seed should have been sown about the middle of February. S. argenteum, or marginatum, grows in good soil, 3 to 4 feet high; the stems and leaves are silvery. Nowhere does this sort show to better advantage than when placed in the neighbourhood of dark-leaved Castor-oil plants. From the beginning to the middle of March is soon enough to sow the seed of this variety and S. robustum, as they both grow quickly, and are liable to get stunted in growth in the pots before planting time, if sown sooner. The last-named sort is the strongest growing of them all, producing large leaves bronzy-green in colour.

Eucalyptus globulus is generally appreciated for its deep glaucous green foliage, the perfume of its leaves, and rapid growth. A mass of it in the centre of a bed looks well, or mixed with other plants. It is time to sow the seed, the plants being grown on in a vinery for a while, until well established.

Dracæna indivisa as a "dot" plant is one of the best subjects we have. From the rootlets taken from the base of old plants in the spring nice strong

plants are obtained, if kept growing for a year in the greenhouse before planting them out.

Wigandia caracasana is a plant of dwarf growth, with very large leaves, dark green in colour, and which looks well on the outside of a bed where there is abundance of space to develop in. The middle of March is time enough to sow seed.

Salvia argentea is a plant that does not grow more than 1 foot high, and produces leaves as much in width, which are covered with silvery-white tomentum, which gives the plant a striking appearance when covered with drops of dew or raindrops. Planted alternately with the green fishbone Thistle as an edging to other subtropical plants, a pretty effect is produced. The middle of March is soon enough to sow the seeds.

Cannabis gigantea (common Hemp), is a coarse growing plant, and is fit only for the rough parts of the garden. It will grow in one season as much as 12 feet high; strong well-manured soil is required for it, especially where the situation is a moist one—sow in April.

Cannas are largely employed for the decoration of the garden, some few are attractive as flowering plants, but the bulk of them are admired for their foliage, which in some varieties is marked in stripes of a dark colour. When once a stock of plants is secured, little trouble is needed to keep up the stock. Early in October, the roots should be dug up and packed away in soil in a cellar or frost-proof shed, like Dahlias. Early in March, the roots may be divided, placed in either pots or boxes, given a little heat to start them into growth, and when rooted, cooler treatment is necessary to render the leaves firm, as they sometimes are disfigured by winds if the plants have been grown in heat for too long a time.

Chamæpeuce Casabonæ and C. diacantha, the green and the white leaved fishbone Thistles, are effective plants where dwarf plants are needed as edgings to taller plants. The white leaved Diacantha variety is largely employed in some gardens, planted singly in beds which are carpeted with Alternantheas or other low growing plants. It is now too late to sow seed, February being a better time. *S.*

THE FLORA OF QUEENSLAND.

In his report Mr. Bailey says:—"The results of the expedition to Wooroonooran, from a botanical point of view, have proved highly satisfactory; about thirty fresh plants have been added to the known flora of Australia, equalling in number those added to the flora of New Guinea by Sir William Macgregor's late expedition to the Owen Stanley Range, which is 8000 feet higher than Bellenden-Ker, and proportionately extensive in area. It being winter, a large number of the trees and shrubs were without flower or fruit, consequently could not be identified."

The whole range is clothed in dense tropical jungle from base to summit, there not being a single open space 50 feet square, except a patch of Ferns on the south spur at 2700 feet, and a few hundred yards of forest on the west spurs of Mounts Sophia and Toressa. Among the specimens collected were 110 different species of Ferns and twenty-six different Orchids. We found thirty-eight species of edible fruits, some of them very nutritious and of very agreeable flavours. The choicest of them will yet be cultivated, and run a close competition for popularity with the best of our civilised fruits. Among them is the Citrus inodorus, or scentless Lemon, named by Bailey, a tree with rich, dark-green foliage, bearing a fruit the size of a small Lemon, with a sharp, agreeable, acid taste, and very refreshing. We also found Acronychia acidula, or Scortechini's Crab, a form of which is found on the Logan, where attention was called to its usefulness by the late Rev. Father Scortechini. Among the smaller fruits were five species of native Grapes belonging to the genus Vitis, the wild Tamarind, two Quondongs, called Curroógi by the blacks, the Burdekin Plum, Bomban and Rancooran of the natives; five species of edible Beans, six Nuts, three Cherries, one Blackberry, one Raspberry, one Loquat, four Figs, one Geebung, and one Nutmeg. None of the large fruits were available except the Mangosteen, as the superb specimens seen on my first ascent in February belong to the summer months. We found the Herbert River Cherry, Antidesma dallachyanum, heavily laden with ripe fruit, which is pleasant to eat in the raw state, and can be turned into excellent jam or jelly. There also in great abundance was Davidsonia pruriens, or Davidson's Plum, a blue-black Plum the size of a duck egg, the interior a rich bright purple juicy pulp, a sharp acid, very pleasant flavour, a remarkably refreshing fruit, with the happiest effect in assisting digestion. It is a great favourite of the cassowary, who marches round daily to pick up the fallen fruit.

Principal of the Nuts is the Cóa, a round, clean Nut, as big as the largest Walnut, growing on a tree which attains an immense size. This Nut is often confounded with the Coi, a small red fruit growing on a Climber, and eaten by the Blacks after cooking on hot stones. In the first the accent is on the *o*, and in the second on the *i*. The Cóa is eaten raw, and is a palatable and nutritious fruit. The natives regard it with special favour. The Loquat, known as the Cooktown Loquat, Rhodomyrtus macrocarpa, is an edible red juicy fruit, eaten with gusto by all the frugivorous birds. One of the

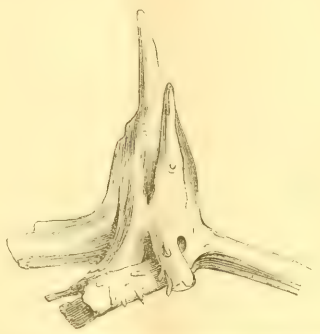


Fig. 50.—Cypress knee, much reduced. (See p. 324.)

Eugenias (cornifiora) bears all along the trunk a large pink and white fruit, called Murroo by the blacks, who eat it occasionally, though rather spongy and insipid. Another Eugenia (oleosa) bears a lovely bright blue fruit, that would have a charming effect in the decorations of a banquet-hall, or ballroom, or evening party. The Helicia Whelani, named by Bailey after Sergeant Whelan, bears a large Nut, extensively used for food by the blacks, in whose camps we found the shells or whole Nuts in considerable quantities. It is roasted and eaten without any maceration in water, apparently containing no poisonous principle. Chief of all the fruits is the Garcinia Mestoni, or Meston's Mangosteen, already described in a previous article. Mr. Soutter, of the Acclimatisation Gardens, is now trying to germinate the seeds of this and two other large fruits, at present unnamed, as only the seeds were found on the recent expedition. The true Nutmeg grows everywhere in abundance, and forms the favourite food of the Straits pigeons when down for the breeding season. It is smaller than the Nutmeg of commerce, but exactly the same in all other respects. Botanically the name is Myristica insipida.

All over Australia are palatable wild fruits, many pleasantly scented flowers, and birds that sing or whistle as sweetly as any in the world, the nightingale alone excepted.

Nearly all the flowers of the tropic north are perfumed, some of them diffusing a delightful odour. The Dracophyllum of Wooroonooran bears one of the most magnificent flowers in the world. Some of the Orchids bear deliciously fragrant flowers, and on the summit of the mountain is a handsome shrub bearing a small white flower, with a fascinating scent, such as I never met with before.

Among the perfume-bearing plants is the Orites fragans, named by Bailey, who describes it as "a most attractive plant, from the rich colour and fragrance of the inflorescence." The same sentence applies exactly to one of the Hollandæas found on the mountain, according to Bailey, "a most desirable tree for garden culture." One very handsome tree is named Cyanocarpus Nortoniana, after the Hon. A. Norton. The peculiar dome-topped tree, so often referred to in previous articles, is named Leptospermum Wooroonooran. Strange indeed if this extraordinary tree is found nowhere in this world except on the top of that mountain, the sole survivor of an ancient race. From the crest of Bartle Frere comes Melicope Chooreechillum, a small tree bearing a thick white flower. The Queensland climbling bamboo, named Bambusa Moreheadiana, after the present premier, is a most imposing plant, ascending to the tops of the tallest trees, crossing over to others, and hanging in splendid festoons of leaves 10 inches long and 2 inches wide from the overarching spaces. It is found in the densest and richest scrub. Some idea of the size of this splendid plant can be found in the fact that it attains a length of over 200 feet. Among the large trees of that district is the Ficus colossea, or Colossal Fig, a tall, handsome tree with straight, smooth, bright green trunk. From the enormous flanges of this tree, called Maccorah, the blacks cut their shields, and when dry it is tough and light, and stands a surprising amount of wear and tear. This is a favourite tree for the nests of the Calornis metallica, or bright metallic starlings, which build like the Baltimore oriole, and hundreds of these huge nests on one tree give it the appearance of having stopped a haystack flying round in a cyclone. On all the creeks up to 1200 feet we saw the Umbrella Tree, Brassai actinophylla, in magnificent perfection, with rich crimson flower-spikes 4 feet in length.

Among the 110 different Ferns are some stately and splendid specimens, and others small and delicately beautiful. Of the Tree Ferns, one of the handsomest has been named by Müeller after some damsel or matron called Rebecca. Hundreds of this glorious Fern were destroyed in cutting our tracks. The summit of Wooroonooran is the sole Australian habitat of the White-leaved Bristle Fern, found here for the first time. At 4000 feet we got the Wig Fern Tree, hitherto found only in South Africa, Brazil, and Java. There also is the lovely Hairy Fern, known previously only by a single frond obtained on the east side of Mount Toressa by Walter Hill in 1873. We saw Tree Ferns over 40 feet in height, said by Mr. Bailey to represent a great age. Among the new Orchids were Oberonia pusilla and B. Toressa, the latter named after my first-born, one found at 4000 feet, and the other at the Whelanian Pools, both flowering in June and July. Many of the Orchids were in flower, beautiful blossoms diffusing a rare fragrance, conspicuous among them being D. speciosum, summit of Charroógin, and Bailey's Orchid, which was flowering in splendid perfection at the Morehead Cataracts and Francesca Falls. The Orchids and Ferns seen in our gardens and summer-houses bear the same resemblance to their wild free brethren of the hot moist tropic jungles, that a caged eagle with half his tail gone, a foreclosed mortgage on his feathers, and a bilious headache, bears to the noble bird sweeping through the sunlit fields of air in all the glory and perfection of unfettered freedom.

Among the plants becoming naturalised and growing wild in that district are the Pa-paw Apple, Grandilla, Apple Guava, Red Pepper, Citron, Passion Fruit, Tomato, Tobacco, Castor Oil, and many grasses. Among the fibrous plants is one called Boorgay by the blacks, a ground plant with radiating, long, narrow leaves extending to 3 feet in

length. The leaves are about 2 inches wide, tapering to a point, and one of them would suspend 100 lb. The blacks use the leaves as rope, twist a couple into a band, and carry surprising loads, the weight all bearing on the band passed round the forehead. Of course only the skull of a myall or an alderman will submit to such a formidable strain. The botanical name is Gymnostachys anceps, a title about as tough as the plant. It was found on Chooreechillum up to 4000 feet. Among the large trees were Stavewood, Red Beech, Red and White Cedar, Tulip, Ivorywood, Bean tree, Red Sandalwood, Blue and Gray Gums, Bloodwood, Moreton Bay Ash, Box, Leichhardt, Beefwood, swamp and forest Oaks, stringy-bark Pine, Dammara and Kauri and She-Pines, and many giant trees not yet known or described, the local names ofwhich are only misleading to the inquirer.

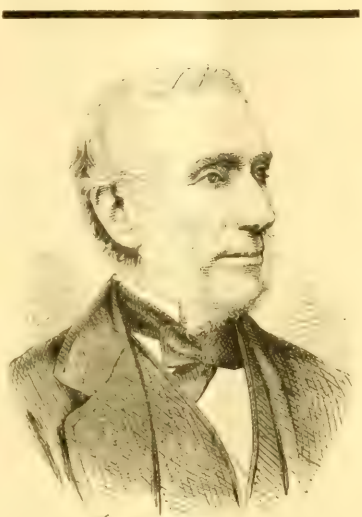
We found several plants known in other countries to possess more or less valuable medicinal properties, one of them being the Indian Wild Taro, the tubers of which are used as a potent fomentation in rheumatism. Among the Canes are the Midgen, and the large and small lawyer Canes, called "Yaplam" by the blacks. There were some magnificent Palms, two of them with leaves from 10 feet to 20 feet in length. We got over thirty specimens of grasses, some exotic and some indigenous. *The Queenslander, December* 21, 1889.

THE LATE MR. WEBSTER, GORDON CASTLE.

We take the following account of Webster's life from the *Banffshire Journal* of March 11, which in its turn copied the account, based on information supplied by himself, which appeared in the *Gardeners' Chronicle* of April 24, 1875: –

The announcement of the death of Mr. Webster, gardener, Gordon Castle, which occurred on Tuesday evening, will be received with feelings of deep regret by many in a wide district of country who held his name in high respect. Only a fortnight ago on Friday last, Mr. Webster presided at a meeting of the members of the local Horticultural Society. He caught influenza, which was epidemic in the district. For some time he had not been in very robust health, and the weakening malady proved too much for his impaired health.

Mr. Webster was born on December 8, 1814, at Blanerne, a small and beautiful estate on the banks of the Whitadder, one of the lower tributaries to the Tweed, in Berwickshire, where his father was then gardener to General Balfour, the proprietor. In the autumn of 1817 his father went to Manderston, about 3 miles distant, as gardener and general manager on the estate, in the service of General Maitland, father of the Earl of Lauderdale. Mr. Webster received his education at Duns, and having early formed a taste for gardening, was placed shortly after he was thirteen years of age to do light work in the gardens for three or four months during summer, when he again returned to school. He continued to do this until he was sixteen, when he went into the gardens for regular employment, with the object of making horticulture his profession. At Manderston Mr. Webster learned his profession in an excellent school. Grapes from the gardens gained several prizes at the shows of the Caledonian Horticultural Society in Edinburgh, and the awards, consisting of silver plate, are still heir-looms in the family. Mr. Webster left home about the age of eighteen, and went to Dalquharran Castle, in Ayrshire, as journeyman, under Mr. David Dick, and remained there until November, 1833, when he went to Whittinghame, in East Lothian, under Mr. William Rintoul. He derived considerable advantage during his services here from his having to assist in the laying out of a new flower garden, of which he had the principal superintendence. He was three years at this place, the last one as foreman. In November, 1836, he went to Claremont in Surrey, as foreman in the houses of the fruit department, under Mr. C. M'Intosh, author of the *Practical Gardener*, who was then in the service of the King of the Belgians. From Claremont, all the Grapes and Pine-apples had to be sent during the summer and autumn months for the supply of the Royal table at Lacken. In February, 1838, Mr. Webster went to Eartham, Sussex, as gardener to the Hon. Mrs. Huskisson, widow of Mr. Wm. Huskisson, M.P. for Liverpool, who was killed at the opening of the Manchester and Liverpool railway. His employer was a great admirer of Orchids, and during his long stay there,which was upwards of twelve years, Mr. Webster had an opportunity of getting together a choice collection. He was here successful in getting that shy flowering Orchid, Renanthera coccinea, to produce five large flower-spikes for a number of years in succession. In November, 1844, Mr. Webster was awarded a silver Banksian medal for one sent to the Horticultural Society's meeting in Regent Street, while two years later he had again a similar award for another spike which was one of five borne on the plant at the same time.



Mr. Webster was also in possession of a gold Banksian, received for six Orchids shown at Chiswick, in June, 1847, having been placed first out of seven competitors. These were the only occasions on which he competed in London.

Mr. Webster next engaged with the late Duke of Richmond to take charge of the gardens and forests at Gordon Castle. Mr. Webster came to Gordon Castle on November 30, 1850. One of his first duties on his arrival there was to lay out for the Duchess a new flower garden in the Italian style, which had at that time been commenced. While carrying out the work of the flower garden in an altered design, and completing it in its present form, which was the work of a number of years, Mr. Webster had the assistance of the late Sir Joshua Jebb, C.E., and also the guidance of the good taste of the Duchess, in deciding upon plans for the balustrades, fences, fountain, and ornamental work. The balustrading springs from each end of the Castle, which is 540 feet in length, and encloses a space 300 feet in breadth. The ornaments on the principal piers are large classic dogs, and on the others are deer in a standing position, while, on all the intervening piers, are placed vases of different sizes and forms. At Gordon Castle the gardens are about the most extensive, and it may be said with truth, among the prettiest in the North. The flower garden and the kitchen garden together extend to many acres, the latter alone covering 12 acres, and are a monument of the fidelity to duty and of the exercise of the best taste of a life-time. Mr. Webster lived the life of an ideal gardener. In constant contact with Nature's works, and daily increasing knowledge of her hidden marvels, Mr. Webster loved the profession with his whole heart, and his erudite acquaintance with flowers and plants placed him in quite a unique position in the North of Scotland.

Mr. Webster was an acknowledged authority in many departments of his profession. He was a frequent contributor to the recognised horticultural organs in the press, and his opinions were received with the weight attached to the utterances of men of skill. The results of interesting experiments which he made, or information as to the development of plants whose characteristics were little known, have frequently appeared in our columns. Only a few weeks ago an interesting item in horticulture appeared from his pen in the *Gardeners' Chronicle*, in whose pages were often found articles of the most interesting and useful nature over his signature. As a judge at flower shows, Mr. Webster was in great request, and his judgment was received as one of indisputable authority. Last year he devoted a good deal of attention to the cultivation of Plums, in the profitable propagation of which he took a lively interest. As a hybridiser, Mr. Webster was particularly successful, and especially so with hardy fruits. At the Edinburgh Congress, in 1889, he had a collection of forty varieties of Plums of his own raising, which were highly praised by the judges, and most favourably noticed by the horticultural press. Some of his seedling Apples are now standard varieties—Beauty of Moray and Northern Dumpling being greatly in demand. There is also a seedling Grape which gives every promise of becoming an excellent and useful fruit. With Mr. Webster herbaceous and alpine plants were also a specialty.

The community of Fochabers will greatly miss Mr. Webster's kindly presence. In movements having for their object the promotion of the social and intellectual welfare of the people, he took the deepest interest. A faithful servant in every respect, Mr. Webster was uniformly a just and upright master to those whom circumstances had placed under him. In him the Duke of Richmond and Gordon has lost an intelligent and faithful servant; Fochabers has lost a kind and helpful neighbour, and those under him an upright master. Mr. Webster is survived by Mrs. Webster, and by three sons and two daughters. Mr. Webster's remains were interred in the churchyard of Bellie on Friday.

LIST OF GARDEN ORCHIDS.

(*Continued from p. 257.*)

LÆLIA.

(9.) L. Digbyana, Benth., in *Journ. Linn. Soc.*, xviii. (1881), p. 314; Benth. and Hook. f., *Gen. Plant.*, iii., p. 534. *Brassavola Digbyana*, Lindl., *Bot. Reg.*, xxxii. (1846), t. 53; *Fl. des Ser.*, t. 237; *Bot. Mag.*, t. 4474; Warn. and Will., *Orch. Alb.*, vi., t. 241. *Bletia Digbyana*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 422.—British Honduras. First introduced into England in 1846, by Mrs. McDonnell, wife of the Governor of the colony, who sent plants to Mr. St. Vincent Digby, of Minterne, Dorsetshire, in whose stove it first flowered in July of the following year. Although long called a Brassavola, it has little affinity with that genus, and is far more naturally placed in Lælia.

L. × Digbyana-Mossiæ, Veitch = Lælio-Cattleya × Digbyana-Mossiæ.

L. × Dominiana, Rchb. f. = Lælio-Cattleya × Dominiana.

L. Dormaniana, Rchb. f. See Lælio-Cattleya × Dormaniana.—I am not at all satisfied about the systematic position of this plant. Accounts of it are certainly contra-

dictory, but from a recent examination of a living plant with a solitary flower, I am inclined to think it is not a natural hybrid at all, but a true species of Cattleya, allied to C. guttata and C. porphyroglossa.

L. × elegans, Rchb. f. = Lælio-Cattleya × elegans.

L. × elegans, vars. alba, Schilleriana, and Stenzliana = Lælio-Cattleya × Schilleriana.

L. × euspatha, Rchb. f. = Lælio-Cattleya × Schilleriana.

(10.) L. × Euterpe, Rolfe, in *Gard. Chron.*, 1888, pt. 2, p. 533. A hybrid raised by Mr. Seden, for Messrs. Veitch, between L. pumila Dayana ♀ and L. crispa ♂. A very handsome little plant.

L. × exoniensis, Veitch = Lælio-Cattleya × exoniensis.

(11.) L. Eyermaniana, Rchb. f., in *Gard. Chron.*, 1888, pt. 2, p. 91; also pp. 74, 109, fig. 12.—Mexico. A supposed natural hybrid, which appeared with Messrs. F. Sander & Co., of St. Albans, and is dedicated to Mr. J. Eyerman, of Easton, U.S.A. Reichenbach speaks of L. autumnalis and L. majalis as the possible parents, though I cannot see the slightest evidence of the latter, either in the figure cited, or in a specimen sent to Kew by Sir Trevor Lawrence, last October, and which I suppose to be authentic. I should prefer to think of L. autumnalis and L. albida, though the original plant flowering in July is somewhat perplexing, unless, indeed, it was flowering somewhat out of course through being newly imported. The petaloid bract which is represented in the figure, and which attracted much attention when the plant was exhibited at the Royal Horticultural Society, has already proved to be an abnormal and inconstant character.

L. × felix, Veitch = Lælio-Cattleya × felix.

(12.) L. × flammea, Rchb. f., in *Gard. Chron.*, 1874, pt. 1, p. 599; *Id.*, 1876, pt. 1, p. 394; *Flor. and Pomol.*, 1874, p. 133, with plate; Warn. and Will., *Orch. Alb.*, v., t. 217. *L. Veitchii, Fl. and Pomol.*, 1874, p. 116. A hybrid, raised by Mr. Seden, for Messrs. Veitch, between L. cinnabarina ♀ and L. × Pilcheri ♂ (the latter a hybrid derived from L. crispa ♀ and L. Perrinii ♂). The colour is quite unique among Orchids, and the plant one of the most striking hybrids yet raised.

(13.) L. flava, Lindl., *Bot. Reg.*, xxv. (1839), *Misc.*, p. 88; *Id.*, xxviii., t. 62; Warn. and Will., *Orch. Alb.*, v., t. 226. *Bletia flava*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 431. *Lælia caulescens*, Lindl., *Bot. Reg.*, xxvii. (1841), sub t. 1. *Bletia caulescens*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 431.—Brazil. Native of the Sierra de Piedade, in the Province of Minas Geraes, also of the Serra do Frio, in the Diamond district, and other localities, always at a considerable elevation. It was introduced in 1839, and flowered in the autumn of the same year in the collection of Sir Charles Lemmon, at Carclew, in Cornwall.

L. furfuracea, Lindl. = L. autumnalis var. furfuracea.

L. gigantea, Warn. = Lælio-Cattleya elegans var. *R. A. Rolfe, Herbarium, Kew.*

(To be continued.)

Trade Notice.

Mr. H. J. Jones, who has for some years past been in partnership with Mr. N. Davies, at Camberwell, has commenced business on his own account at the Ryecroft Nursery, Hither Green, Lewisham.

Trade Prosecution. — We understand that on the result of the late prosecution of a salesman coming to the knowledge of his Grace the Duke of Bedford, he forwarded a cheque for the amount of the solicitor's bill of costs. Whilst we consider this highly satisfactory as relieving the prosecutors from any liability for the cost of the prosecution, we still consider that it would be for the benefit of the trade that the fund we suggested should be raised.

Home Correspondence.

The Wildsmith Memorial.—Permit to appeal to all the late Mr. Wildsmith's old friends and visitors to Heckfield, and the usual legion, for a contribution towards the Memorial it is purposed to raise to his memory. Unselfish and singularly free and good natured, taking specially deep interest in the welfare of the Gardeners' Orphan Fund, there is special fitness in the proposal now made to promote a memorial to the deceased gardener in the shape of funds to place a special child on the orphan fund, to be termed the "Wildsmith's Memorial Orphan." To this end, a child in whose future Mr. Wildsmith took deep interest, having prior to his lamented death promised the widowed mother that he would do all in his power to secure the election of the child on the orphan fund, and who is now four years of age, it is hoped that the sum of £130 may be raised, which will amply suffice to place the little one on the fund till 14 years of age. The memorial thus has the merit of being terminable, and who can tell but that ere it expires some other good and honoured gardener may be found whose memory may be worthy of a similar mark of esteem. The list of subscriptions has been well started, and there should be no difficulty in raising the sum needed if all Mr. Wildsmith's old friends will respond. Mr. H. J. Veitch, in London, and Mr. Arthur Sutton, in Reading, receive subscriptions. *A. Dean.*

Schomburgkia humboldti.—When travelling in Venezuela in the Puerto Cabello and Valencia Railway, I and Mr. Hennis saw some immense masses of Schomburgkia Humboldti. One plant seemed to be at least 7 feet in diameter, and was covered with flower-spikes 6 to 7 feet long. The plants grow in full sunshine, on low trees and rocks, and in a swamp which seemed to be occasionally almost covered by the sea. There are from twenty to seventy flowers on a spike, some being of a light rose colour, others very dark; and, being in such large masses, they can be distinguished at a long distance, and look very fine. The plants are covered with ants, which can hardly be driven off by immersing them in water, their nests being apparently in the old pseudobulbs, which are generally hollow to about one-half. It is a pity the plant cannot be successfully cultivated in this country, but it seems to need the most intense sunshine to grow it well. *J. Charlesworth, Heaton.*

Planting perennials.—My thanks are due to your correspondent, "J.," for his assistance. I have arranged the border how it should be, but I have not as yet planted it, so I should like to know how "J." would purpose doing it. The border runs from east to west, and there are six trees planted in the border, two of which are Limes, two Chesnuts, one a Beech, and one a Scots Fir. These are on the north side of it, and under these trees I have planted Portugal Laurels, but the trees overhang most of the borders, which is raised 2 feet 6 inches above the path. The other border I intend to plant in groups of from 3 to 12 feet in diameter, according to size of plants, and I have thoughts of having a dozen of them sown with annuals this season; there will be a space of about 2 feet between each group so as to give easy access when weeding, watering, &c. I shall bear in mind the height to which each group of plants will grow, habit, and the time of flowering, so that there will not be a long gap between any of them; but the border will be gay throughout the season. I do not like the dotting plan at all, it is such a difficult job to find the labels after a frost, and after the borders have been forked over, and the ground gets so hard in front by treading. I feel sure that beds are best, and of which we have a few. We have now four beds of Hepatica triloba in full bloom at the present time, which are beautiful, each bed being mixed, single and double forms, and red, white and blue. *J. Paddock.*

Grammatophyllum speciosum.—In your last issue I saw an account of the above plant, and it may be of interest to some of your readers to know that the plant flowered in the famed collection at Nonsuch Park, Cheam (Gardener, Mr. Carson), about the year 1857 or 1858, and was supposed to be at the time one of the first plants which had flowered up to that time in England; at least that was the impression at the time. *A. Chitty*, 81, *Wellfield Road, Streatham.* [In an account of the flowering of the plant our correspondent mentions, *Gardeners' Chronicle*, Nov. 8, 1859, p. 809, is a remark by the Editor, to the effect that the plant had flowered earlier at Messrs. Loddiges, and was figured in Paxton's *Flower Garden*. Ed.]

Setting peaches and nectarines.—Writers and others have discoursed on the great advantages of having bees in a garden, and endeavour to show how necessary they are for the satisfactory setting of flowers, and some gardeners have even gone the length of introducing a hive into the Peach-house, while others again go to the trouble and spend much valuable time tickling the blooms with rabbits' tails in order to get the flowers to set. Without saying all this is quite unnecessary, for circumstances alter cases, I am clearly of opinion that bees and tails are not wanted for the fertilisation of Peach blossoms, but that a light, moderately dry, buoyant air and suitable temperature, with just a sharp shake of the trees will do more towards getting a good set of fruit, as all the aids above-named are apt to injure the stigmas. The sudden shake sets the pollen flying in clouds, and brings anthers and stigmas in immediate contact. I find I am not alone in these conclusions, as in visiting my friend, Mr. Wallis, just lately at Orwell Park, that he depends on the same method as myself, and his trees bear witness how well it answers, for every bloom seems to have set, and the shoots of both Peaches and Nectarines were simply crowded with fruit, although the house they are in is not well adapted for growing them, it being woody and not sufficiently light. *J. Sheppard.*

Eucharis amazonica.—I read your correspondent's description of this plant and its culture (p. 192), and I certainly agree with "D. F." p. 271, that the plants figured showed very high culture. The collection of Eucharis at this place is, I think, worthy of notice, as it consists of thirty plants averaging each a diameter of 5 feet, and a height of 4½ feet, all being clean and healthy. As regards watering, I agree with Mr. Bluck that many of the failures noted may be traced to the evils of too much water, too little heat, and too little shade. I find if these plants get copious syringings two or three times daily, they require very little else in the way of moisture, but it is best to examine the pots carefully, at least once weekly, to see that none are getting too wet or the reverse. They delight in plenty of heat, provided a humid atmosphere is maintained, and the foliage is kept well shaded. I do not practise resting the plants, and yet have a supply of flower all the year round by keeping them always growing. I am forced to repot them each third or fourth year, as if left longer than that the roots are apt to burst the pots. As under the compost employed is good loam, some ½-inch bones, a little of Thomson's vine manure, and plenty of charcoal broken up, they should not be shifted without disturbing the roots, as by doing so the bulbs soon get crowded into the centre, but the bulbs separated one from the other, and arranged all over the surface of the pot, allowing ⅔ of an inch between, and just enough soil to cover them. After potting stake up the foliage carefully, and keep it carefully syringed and shaded until established, and they will scarcely lose a leaf. *W. L. F., Kylemore Castle, co. Galway.*

Renovating and managing lawns. — A friend of mine, seeing the labourers at work here top-dressing lawns, remarked that the grass in his garden grows much too strong, and this no doubt is so in some cases; but in the majority of gardens there is a lack of vigour in the grass composing the sward, although not of the weeds amongst them. The most effectual way to deal with weeds is to use diluted vitriol, in the proportion of two-thirds water to one of vitriol, and this may be applied over a large space by a boy in one day. A good deal of care must be exercised by the boy, so that the liquid does not touch his skin or clothes, and an earthen vessel should be used to contain it. The plants may be cut or not, and some vitriol dabbed on them, when they will soon die, and the grass will occupy the places. The most expeditious way of eradicating moss is to strew fresh-slaked lime over the lawn, giving enough to whiten the surface. Where there is a lack of fine grasses, it is a good plan, when the moss and weeds have been killed and raked off, to sow seeds of an approved mixture of lawn grasses, such as nurserymen prepare for the purpose, and immediately afterwards dress the lawns with fine soil, wood-ashes, and

soot mixed together, to cover the seed and stimulate the growth of the grasses in the old turf. As soon as rain comes the roller may be applied, and afterwards the machine mower, which we know will travel much easier without the moss. To have it always in first-rate condition, the grass should never be allowed to get long, but mown once a week all through the growing season, and using the roller once a fortnight at other times. *J. S.*

BRUGMANSIA SANGUINEA.—This is a highly ornamental plant for a conservatory where space can be given it, and flowers freely at this time of the year, if the house is kept moderately warm. The foliage is ample, and of a deep green colour, and the trumpet-shaped flowers are of an orange-yellow colour. In the conservatory at Rooksbury Park, Fareham, there is a specimen of this Datura which is fully 20 feet high and 15 feet wide, and the effect produced by the plant covered with flowers as I saw it on February 10 cannot easily be imagined by any one who has not seen a well-grown example. Early in March last year, this plant was pruned to within a few eyes of the old wood; it broke freely, and has grown and flowered ever since almost without intermission. A plant of this size requires a large quantity of water at the roots in summer time, and if it can be provided with a run in the border on which it stands, as has this one, its food supplies are well supplemented in this direction. Vigorous syringing overhead is essential in the summer months, else red-spider would rapidly work harm. *S.* [If grown in a pot or tub, the plant is best when put out-of-doors in the summer months, choosing a sheltered warm spot for it. Here it will continue to flower, and is easier kept clean than in a house. Ed.]

LILIES IN CASKS.—Mr. Elwes, p. 302, asks how long I have grown Lilies in sunk casks? My first cask was sunk and planted in March, 1889, but I have tried almost the same experiment, as far as the question he raises is concerned, since 1885, having grown choice Lilies in large wooden boxes above-ground in front of shrubs. This having answered well, I adopted sunk casks as being cheaper, and involving less watering. According to our experience, and in our soils, Lilies grow best away from the roots of trees and shrubs, except those of Rhododendrons and other plants which keep their roots more at home than some others, and give protection from early frosts. Mr. Ingram's experiments with old Apple barrels (p. 303) will be very interesting. *George F. Wilson, Heathebank, Weybridge.*

EARLY RHUBARB.—I shall be happy to show any of your readers my dwarf Rhubarb, wholly unforced, as it is now growing in the open, in my garden; requesting only a letter or post-card making an appointment, any day but Sunday. As the winter was so mild, the Rhubarb this year was somewhat later than usual, St. Valentine's Day. The first good gathering was on Feb. 22. Since then it has been, and is being pulled as required. Should this note fall under the eye of any of the persons to whom last autumn I supplied roots, I should like again to urge them (even if professional gardeners) to please to follow the cultural directions sent; which an experience of several years has proved to be important. *William H. Sewell, Vaxley Vicarage, Suffolk.*

FIRE-BLAST.—May not the "disease" mentioned under this name on p. 205 be *lightning?* Lightning is frequently called "wild-fire," and it is common to hear of trees being "lightning-blasted" and "thunder-blasted." I have heard lightning referred to as "fire" close by here, which is not far from Gaddesden, Herts (not "Goddesden"). I have never seen the true American "Fire-blight" in this country. *W. G. S., Benstede.*

GREEN CROPS AS MANURE. Ordinarily in gardens manuring is done so heavily and continuously, that soil sometimes becomes manure-sick, and crops are either subject to fungus, or decay from sheer plethora of nutrition. Where animal manure is scarce, leaf-soil is dug in so thickly, that the garden ground becomes so light and porous, it is not possible to ensure that firmness essential to the successful production of some crops. Beyond that, the getting into the ground loads of either manure or decayed leaves involves much labour and expense. A capital plan, not only to save labour but also to give the soil a sweet manure, which may prove to be specially acceptable to ordinary garden crops, is to sow on vacant quarters in the autumn, Rye, Tares, white Turnip or Rape seed, thickly, and thus produce quickly a body of green leafage, which, dug in deeply early in the year, soon decays, and is very rapidly incorporated with the soil. The plan is found to be a good one in stiff soils for late crops, as the green manure proves to be retentive of moisture during hot weather. It is valuable for earlier crops in very light garden soils, and offers a healthy change from the usual dressings of animal manure or leaf-soil. Corn is probably the best for a green crop, because the cereal rapidly utilises from the ground elements ordinary vegetables have left unchanged; and then in the form of green grass and leafage these elements have become readily adapted food for Potatos, Beans, Peas, and other largely grown crops. The mere pointing over of vacant soil in the autumn, sowing it thickly with seed to produce the green crop, then digging the same crop in deeply in February or March, is all the labour involved, whilst the product will more than equal a heavy dressing of manure. *A. D.*

CYPERUS ALTERNIFOLIUS.—Every one knows what a very useful thing this is for table decoration and for furnishing vases in rooms, but few perhaps are aware how different plants are that are raised from seed as compared with those obtained in the ordinary way by division or cuttings. The contrast between the two is so great, that on seeing them at Orwell Park the other day, I took the seedlings to be a distinct variety, so slender and refined were they in their several parts, but Mr. Wallis showed them me in different stages, and convinced me that they were both the same, and the seedlings are by far preferable, as they possessed a lightness and elegance not attained by the others. It need hardly be remarked that they were the green form, as the variegated kind does not come from seed, and can only be increased by dividing the plants, and this has to be done with care so as to secure the white portion free from the green. *J. Sheppard.* [Cyperus distans, a newer introduction, is superior to the above. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

March 11.—The meeting held at the Drill Hall, James Street, Westminster, was a bright and interesting one, and, what must have been very gratifying to the friends of the Society, it was very well attended by the public in general, a proof among others that the whereabouts of the Society's meetings are at last become better known. Such flowers of the season as Narcissus, Cinerarias, Azalea mollis, were shown in some quantity; Orchids were fairly abundant, some nice specimens of Dendrobium nobile and D. Wardianum being amongst these. Ferns from Mr. H. B. May were an attraction of some extent. The Director of Kew exhibited some plants which are still rare in gardens, and which ought to be taken in hand by the gardeners more generally, although they would find a difficulty in getting houses full of them, as they now do with Pelargoniums, Primulas, &c.

Mr. H. J. Veitch, at 3 o'clock, began to read his paper on the history of the Hippeastrum (Amaryllis) as it has been effected by the continuous efforts of his firm through a long term of years. The facts set forth were of much interest, and were well illustrated by flowering bulbs of the various species employed, and some of their progeny, the array being topped by The Champion, one of the finest flowers yet produced by the firm. The lecture was attentively listened to throughout.

A paper by Mr. J. Douglas on the same subject, and which was to have been read, was elected to be printed in the *Journal* of the Society instead, Mr. Douglas being unavoidably absent.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. R. Dean, B. Wynne, W. Holmes, T. Baines, Ch. Jeffries, C. T. Druery, H. B. May, G. Nicholson, H. Herbst, J. Walker, H. Cannell, Ed. Mawley, T. W. Girdlestone, H. H. D'Ombrain, Ch. Noble, J. Fraser, G. Paul, and H. Turner.

The leading exhibit in this section was a group of interesting plants from the Royal Gardens, Kew. The most striking feature was a flowering example of Godwinia gigas, with a spathe of deep brown, and over 2 feet in length. Arisæma speciosum was also shown with some few spathes. The brilliant crimson and blue of the flowers of Æchmea glomerata are very attractive. Other plants were Tacca artocarpifolia, with several long leafless flowering scapes, about 6 feet or more in height. The prominent leaves are borne on petioles some 2 feet long, bearing blades of 2 or 3 feet in diameter. Euphane toxicaria (the poison bulb), with a large head of flower; Arisæma præcox, Strelitzia Nicolai, Acer oblongum, showing a fine brown hue on the young leaves. Also Rhododendrons arboreum, roseum, nilagiricum, grande (argenteum), and formosum; Acacias retinodes, leprosa, verticillata, and pulchella; Brownea ariza, Rondeletia amœna, and examples of the root stocks of the Arrowroot, Maranta arundinacea.

From Mr. H. B. May, Dyson's Lane Nursery, Upper Edmondon, London, was an elegantly arranged bank of decorative Ferns and fine foliaged plants. Draccenas and Crotons, some half-a-dozen different Aralias, and such like plants were included with various crested forms of Pteris serrulata including P. s. nobilis, Adiantum farleyense, Polypodium aureum with an edging of Isolepis gracilis.

Messrs. Barr & Son, 12, King St., Covent Garden, contributed a collection of cut blooms of Daffodils, embracing many popular varieties, the most conspicuous being Golden Spur and Horsfieldi, the whole being relieved by bunches of Anemone fulgens, Scillas, and Crocus.

For the purpose of practically illustrating the remarks made by Mr. H. J. Veitch in his lecture on the Amaryllis, there was an extensive collection of bulbs in flower from the Royal Exotic Nursery, Chelsea, in which the progress of the hybridiser was well demonstrated. There was a truly superb flower in The Champion, large, regular, good substance, and of the most bright rich scarlet. The flower measures some ten or eleven inches across. Other notable varieties were Cicero, dark red; Irma, salmon-red, flaked on white; and Purepa, white, with two bands of brick-red on each segment. From the same source came well-flowered Boronia heterophylla and B. megastigma, with Azalea mollis varieties, and finely-grown examples of Andromeda japonica: also a pan of the Chinese "Sacred Lily."

Messrs. H. Cannell & Sons, Swanley, Kent, contributed a group of Cinerarias in pots—a dwarf compact strain, with well-formed flowers, in a variety of pleasing colours.

Plants of that continental novelty Carnation Madame A. Warocqué were contributed by Messrs. J. Laing & Sons, Forest Hill, and were certainly of dwarf habit, but the flowers were not fully developed.

From Messrs. W. Paul & Son, Waltham Cross, came a dozen boxes of cut Camellia blooms, in well-known varieties. Mathotiana was conspicuous by its size and depth of colouring; also C. M. Hovey, L'Avenir, Cap of Beauty, &c.—a very showy exhibit.

A new Camellia was sent by Mr. C. Turner, Slough. It is pure white, hardy, and has a full flower, with imbricated and reflexed petals; the name is La Vestale.

Mr. J. O'Brien, Harrow-on-the-Hill, sent Phœnix Roebelenii. It is a native of Siam, and is a dwarf or pigmy plant growing only 2 feet in height. The plant was about 20 or 30 years. Full particulars will be found in our issues for Oct. 26 and Dec. 28 of 1889, and an illustration is given in the first-named place. It is an exceedingly elegant Palm, and is certainly decorative.

Mr. T. Gilbert, Dyke Bourn, sent "Ye Primrose Dame," primrose deep yellow; and well-grown Crown imperials.

A few plants were sent by Messrs. Paul & Son, Cheshunt, who had pretty objects in Polyantha rose grandiflora and double white Lilac, Amaryllis Dark Beauty, the very dark segments having a prominent green nerve.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair, and Messrs. J. O'Brien, Maxwell T. Masters, F. A. Philbrick, F. G. Tautz, Lewis Castle, H. Williams, E. Hill, J. Douglas, F. Sander, H. M. Pollett, H. Ballantine, and J. Dominy.

Messrs. F. Sander & Co., St. Albans, staged a group of well grown specimens, comprising several rare species. The most showy were some large plants of their importation of Dendrobium nobile, which exhibited fine quality and great variety. A specimen plant of Dendrobium Wardianum was also a striking object, and two plants of Phaius tuberculosus with several spikes exemplified the success of Messrs. Sander & Co.

with the culture of this plant as described in the *Gardeners' Chronicle* last issue, p. 299. Messrs. Sander also staged Dendrobium lituiflorum superbum; Maxillaria Hubschii, like a small M. grandiflora; M. tabularis, yellow with chocolate crimson markings on lip and petals; Oncidium heteranthum, the rare O. cruciatum; a new and handsome Lycaste with bright yellow flowers, the lip and petals spotted with orange (referred for determination to Kew Herbarium); Cypripedium Schomburgkianum, a species near to C. caricinum; Ipsea speciosa and other species.

Messrs. B. S. Williams & Son, Upper Holloway, had a pretty group, principally of Odontoglossoms, well set up with Ferns and palms. There were several good forms of Odontoglossum crispum and O. Pescatorei; O. Sanderianum, O. Hallii, O. facetum O. luteo-purpureum, several fine O. cirrosum; a many-spiked plant of the white Dendrochilum glumaceum; the curious white-flowered Epidendrum lanipes; Lycaste fulvescens, with seven of its singular cinnamon-coloured flowers; Calanthe Regnierii, and the still handsome C. Williamsii, with its rich crimson labellum.

Phaius Cooksoni × a very interesting hybrid between Phaius tuberculosus and P. Wallichii, raised by Norman C. Cookson, Esq., Wylam-on-Tyne, very caused considerable notice. It is handsome, and in the general appearance of its flowers much resembles P. tuberculosus, but the flowers are larger than in that species. The sepals and petals are of a rosy hue tinged with buff; the ample corrugated and crimped lip, yellow at the base, rose colour in front, marked with crimson of various shades. The plant, which is only three years old, exhibits a much stronger constitution than P. tuberculosus.

Another much admired exhibit was Lycaste Skinneri, Young's var., sent by Reginald Young, Esq., Fringilla, Linnet Lane, Sefton Park, Liverpool. It may be described as similar to the best form of Lycaste Skinneri alba, but the labellum and the petals in a less degree are tinged with a lovely hue of pinkish apricot colour. The variety is unique, and there was no two opinions about its beauty.

Messrs. Jas. Veitch & Son, Royal Exotic Nursery, King's Road, Chelsea, exhibited Cypripedium Numæ ×, a hybrid between C. Stonei and C. Lawrenceanum. Its flowers vividly call to mind those of C. Rothschildianum, but the leaves have narrow green veinings, as in some of the varieties of C. barbatum. One effect of the cross is to almost do away with the fold under the pouch as seen in C. Stonei.

Messrs. Veitch also exhibited a superb Dendrobe, D. Aspasia a cross between D. aureum and D. Wardianum. Its pseudobulbs are stout, like those of D. Wardianum, its flowers in form are like D. Ainsworthii, the sepals and petals white tipped with pink; the labellum rich yellow at the base, marked with a chocolate-crimson blotch, the front portion white tipped with pink in the same manner as the petals. Also Dendrobium micans ×, and Cymbidium eburneo-Lowianum ×, both of which had previously received First-class Certificates, and Cypripedium Othello (C. hirsutissimum × C. Boralli).

From Messrs. Geo. Paul & Son, The Nurseries, Cheshunt, came a small group of several fine forms of Cœlogyne cristata; and from the Duke of Northumberland's Gardens, Sion House, Mr. G. Wythes brought a spray of Cœlogyne cristata, Sion var., which the Committee decided was C.c. intermedia, it is near to C. c. Lemoniana, but has an orange spot at the base of the lip. Mr. Wythes also brought cut flowers of Cypripedium villosum. F. G. Tautz, Esq., Studley House, Goldhawk Road (gr., Mr. Cowley), exhibited the unique Odontoglossum Pescatori melanocentrum. It is a singular and pretty variety with white sepals, petals, and lip, the only colour being a purple blotch on the crest and base of the lip, no yellow being exhibited as in ordinary forms. Mr. Tautz also sent Cypripedium selligerum rubrum ×. G. Appleyard, Esq., Saville House, Saville Road, Halifax, sent a pretty form of Odontoglossum hebraicum near to O. h. lineoligerum, and which was ticketed Appleyardianum—this was too much! H. Marks, Esq., Cheriton, Albemarle Road, Beckenham (gr. Mr. W. Cross), sent a well-flowered plant of Oncidium tetracopis. J. Larkin, Esq., Derriville, Highbury New Park (g., Mr. Rann), exhibited a supposed hybrid Oncidium between O. Marshallianum and O. Gardnerianum under the name O. Larkinianum! It had flowers much like those of O. Gardnerianum, but with lip wholly yellow as seen in O. varicosum; the sepals and petals were chestnut brown edged with yellow.

Messrs. Hugh Low & Co., Clapton, exhibited a natural hybrid Angræcum between A. citratum and A. hyaloides, sprays of which were sent for comparison. The new form resembles A. citratum in point of beauty, but in the spur following the line of the foot stalk of the flower and in other particulars, it gives evidence of the influence of A. hyaloides. The lip is quite ovate.

Messrs. John Laing & Son, The Nurseries, Forest Hill, staged Cattleya Trianæ marginata, a form with finely expanded crimson lip prettily edged with white.

C. Ingram, Esq., Elstead, Godalming, gr. Mr. Bond, sent a profusely flowered plant of Cattleya Trianæ "Louis Ingram."

G. Firth, Esq., Manningham Thorp, Bradford (gr. Mr. Collier), staged a richly coloured Cattleya Trianæ in the way of C. T. Normani. A cut spike of Cattleya Trianæ fulgens, a finely formed variety with glowing crimson labellum.

From the gardens of Sir Trevor Lawrence, Bart., M.P., were exhibited the pretty Dendrobium signatum, a species with clear yellow flowers, and the singular D. Smillieæ.

A cut flower of a striped form of C. Trianæ also came from Major Mason, the Firs, Warwick, and of three good forms of Odontoglossum Rossii majus from Mr. J. W. Wilson, South Cave, East Yorks.

Fruit Committee.

Present.—Sir C. W. Strickland, Bart., in the chair, and Messrs. R. D. Blackmore, H. Weir, T. F. Rivers, G. W. Cummins, W. Bates, G. Cliffe, T. J. Saltmarsh, W. Warren, J. Wright, W. Denning, G. Wythes, J. Hudson, F. Q. Lane, H. Balderson, P. C. M. Veitch, G. Bunyard, J. Willard, J. Cheal, and Dr. Hogg.

Mr. G. W. Cummins, The Grange Gardens, Carshalton, Surrey, sent a collection of Apples and Pears, about 30 dishes of the former. They were well kept samples, including Pine-Apple Russet, New Hawthorden, Nelson's Codlin, Lord Derby, and Lawe's Prince Albert; of Pears, Uredale's St. Germain and Catillac. Mr. Miller, gr. to Lord Foxley, Ruxley Lodge, Esher, sent a basket of Mushrooms from outdoor beds, fine samples; other exhibits do not call for any mention.

Awards were made as follows:—

By the Floral Committee.

First-class Certificates.

To Phœnix Roebelenii, from Messrs. F. Sander & Co.; and from Mr. James O'Brien.

To Amaryllis The Champion, from Messrs. J. Veitch & Sons.

To Camellia La Vestale, from Mr. C. Turner.

Award of Merit.

To strain of Cinerarias, from Messrs. Cannell.

By the Orchid Committee.

First-class Certificates.

To Phaius Cooksoni ×, from N. C. Cookson, Esq..

To Lycaste Skinneri (Young's var.), from R. Young, Esq.

To Dendrobium signatum, from Sir T. Lawrence (5 to 4).

To Dendrobium Aspasia ×, from Messrs. J. Veitch & Sons.

To Cypripedium Numa, from Messrs. J. Veitch & Sons (7 to 3).

Awards of Merit.

To Oncidium Larkinianum × from J. Larkin, Esq.

To Cattleya Trianæ marginata, from Messrs. J. Laing & Sons (9 to 1).

To Odontoglossum Pescatorei melanocentrum, from F. G. Tautz, Esq.

To Cattleya Trianæ var. fulgens, from H. B. Mildmay, Esq.

To Cœlogyne cristata var., from Messrs. Paul & Son.

Botanical Certificates.

To Cypripedium Schomburgkianum, from Messrs. T. Sander (3 for).

To Angræcum × (new hybrid), from Messrs. H. Low & Co.

To Dendrobium Smillieæ, from Sir T. Lawrence, Bart.

Medals.

Silver Banksian, to Messrs. W. Paul & Son, for cut Camellias.

Silver Banksian, to Mr. H. B. May, for group of foliage plants and Ferns.

Silver Banksian, to Mr. G. W. Cummins, for collection of Apples and Pears.

Silver Banksian, to Messrs. B. S. Williams & Son, for group of Orchids.

Silver Banksian, to Messrs. F. F. Sander & Co., for group of Orchids.

Bronze Banksian, to Messrs. Barr & Son, for collection of Daffodils.

ROYAL AQUARIUM.

March 12 and 13.—This was the first of the series of shows announced by the Company for this year. Exhibits were fairly numerous, the display being made chiefly by the nursery trade. Daffodils were the great feature, the collections being very extensive.

The prizes offered for a collection of Daffodils (excluding Tazettas) brought out a wealth of bloom. Mr. T. S. Ware, Tottenham, Messrs. Barr & Son, Covent Garden, and Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, London, E.C., were respectively 1st, 2nd, and 3rd, each showing comprehensive collections. The best collection of Cyclamen (unlimited) was from St. George's Nursery Co., Hanwell, which had small sized plants in a good variety of colours, and well flowered. Mr. J. Odell, Florist, &c., Gould's Green, Hillingdon, was a fair second, his plants showing less flower. In the smaller class for 36 plants, the same order of merit obtained.

The leading prizes for bulbous plants were carried off by Messrs. H. Williams & Son, Finchley, London, N., who showed in their usual good style. The Hyacinths were very fine, embracing good spikes of La Grandesse, Gigantea, King of the Blues, and Macaulay. A collection of Lily of the Valley from this firm comprised well-flowered roots, and added one more 1st to Messrs. Williams' list. Mr. R. Dean, Ealing, had a collection of Primroses and Polyanthus vars., for which he justly received 1st prize. There were in this lot some brilliantly coloured Ferns, such as Lord Randolph, a carmine with a tendency to develop a petaloid calyx; Messrs. J. Laing & Sons, Forest Hill, S.E. had the best group of plants.

LAW NOTES.

PLANTS IN UNSALEABLE CONDITION.

M. August Van Geert *v.* Messrs. J. Carter & Co.—An action was heard at the Western County Court on Wednesday, which was brought by M. August Van Geert, of Ghent, against Messrs. James Carter & Co., of High Holborn, to recover the price of some Camellias supplied in the autumn of last year, and which it was stated reached Messrs. Carter & Co. in an unsaleable condition, the leaves and buds having fallen from the plants; and as M. Van Geert would neither make any allowance nor replace the plants, Messrs. Carter & Co. were compelled to defend the action.

The defence involved the important question as to who was responsible for the damage, as the plants were sent to the Agents of M. Van Geert, in the City, and the defendants had no knowledge of the carriers or the route by which they were sent from Ghent, although they appear to have paid the freight to the carriers in a lump sum with their charge for bringing the plants from M. Van Geert's agents to Messrs. Carters' warehouse in High Holborn, and upon this fact, coupled with the statement in a printed catalogue of M. Van Geert's that "all plants travel at the expense and risk of purchasers" it was decided by His Honour Judge Bayley that the defendants were liable.

Obituary.

Dr. Ralph Ainsworth.—The older generation of orchidophiles are one by one disappearing, and we have now to add to those who have joined the majority Dr. Ralph Ainsworth, of Lewes, Broughton, Manchester, who died at his residence, "The Cliff," on Thursday morning, 6th inst., after a very brief illness. He had attained the ripe age of 79, being born in one of the centre streets of Manchester in the year 1811. He was an active supporter of, and sat at the council board of, the Manchester Royal Botanic Society, interesting himself up to the end of his life

in all matters horticultural, being scarcely absent from a council meeting for years. As an orchidist he in time past took a foremost position, being ably seconded in his efforts in that way by Mr. Edward Mitchell, his gardener, who has served under him for a period of thirty years. We well recollect the marvellous specimen of Aerides Schroederi which was tabled year after year, the many excellent specimen orchids in grand style with superb leaves and equally superb branching racemes of flowers Indeed the most difficult one of all to grow. P. Grandiflora was for many years remarkable in what was called "The Doctor's" collection, and so were Saccolabiums and a great many of those distichechons leaved orchids that are found so difficult to cultivate, at least to go on cultivating with success year upon year. Some 15 or 18 years ago we well remember the excitement over the splendid specimens of Dendrobium Ainsworthi × and Ainsworthirisum, an exhibition which did great credit to Mr. Mitchell as a hybridist as well as a cultivator in those days when most of the hybrids had their origin in the Veitchian establishment. The strength of the doctor's collections as markedly in East Indian orchids, and when the immense quantities of Odontoglots and Masdevallias from cooler regions were introduced, and plants used to be bedded out to make a formidable show, the doctor comparatively retired.

Thomas Harrison, Senr.—It is with regret that we record the death of Mr. Thomas Harrison, in his seventy-fifth year, and who until within the last few years was senior partner in the well-known firm of Harrison & Sons, seed growers and merchants, Leicester. The deceased gentleman had for some time past suffered from delicate lungs, but considering his age he enjoyed tolerably good health throughout the whole winter up to the last few days, when he caught a chill; congestion of the lungs and bronchitis ensued, and he succumbed on Tuesday evening, March 4.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this contained result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Accumulated: Above (+) or below (—) the Mean for the week ending March 8.	Above 42°, for the Week.	Below 42°, for the Week.	Above 42° difference from Mean since Jan. 1, 1890.	Below 42° difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths		Inch.		
1	3 —	2	43	+ 18	— 42	7 +	50	11.1	17	16
2	1 —	7	43	— 3	— 28	2 +	39	6.5	27	22
3	2 —	7	35	— 14	— 45	2 —	36	3.6	28	20
4	5 —	4	48	— 31	+ 11	1 —	40	3.7	29	27
5	4 —	8	41	— 24	+ 15	3 —	35	4.2	31	23
6	5 —	6	43	— 6	— 10	1 —	34	4.5	28	24
7	1 —	8	28	+ 5	— 38	0 av.	43	10.6	26	18
8	3 —	4	30	— 5	— 25	1 —	42	6.1	20	22
9	5 —	8	33	— 14	+ 45	4 —	40	7.3	43	28
10	0 av.	13	26	— 14	— 10	2 —	46	6.4	27	22
11	2 —	15	23	— 13	+ 12	4 —	45	9.3	33	26
12	3 —	13	24	+ 49	— 2	1 —	45	7.2	40	33

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 8th, is furnished from the Meteorological Office:—

"The *weather* during this week has been characterised by great and sudden changes. At times the conditions have been very fair and extremely cold; at other times snow or rain has been general, and the air mild. At some of the Scotch stations the snow-fall has been heavy. Thunder and lightning occurred over the north of England and in some parts of Ireland on the 8th.

"The *temperature* has been subject to very frequent changes, but has been, on the whole, below the mean in nearly all districts. Soon after the commencement of the week it became exceedingly low for the time of year over England, and during the night of the 3rd—4th, the thermometer sank to the abnormally low value of 6° at Hillington, 11° at Rothamsted, and to between 13° and 17° at many of our other southern and south-eastern stations. The newspapers report that much lower values were registered in some parts of Kent and Surrey. In Scotland the absolute minima varied from 10° at Braemar to 18° at Glenlee, and in Ireland from 17° to 22°. Even at Jersey the minimum was as low at 21°. During the latter half of the week the thermometer over England and Ireland was much higher and minima were recorded ranging from 52° in 'England, N.W.,' to 57° in 'Ireland, N.,' and 'England, S.,' and 58° in 'England, E.'

"The *rainfall* has been more than the mean over the greater part of Scotland, and has just equalled it in 'Scotland, W.;' in all other districts, however, a deficit is shown.

"*Bright sunshine* does not differ materially from that recorded last week, the percentage of the possible amount having ranged from 16 in 'Scotland, N.,' to 31 in the 'Midland Counties,' 33 in 'Ireland, S.,' 40 in the 'Channel Islands,' and 43 in 'England S.W.'"

MARKETS.

COVENT GARDEN, March 13.

Our market is now supplied with a few samples of late Grapes, and a fair quantity of early forced vegetables, with prices generally lower. Imported goods include new Potatos and Tomatos. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Euonymus, in var., per dozen	6 0	18 0
Aspidistria, doz.	18 0	42 0	Evergreens, in var., per dozen	6 0	24 0
— specimen plants, each	7 6	10 6	Ferns, in var., doz.	4 0	18 0
Azaleas, various, each	2 0	3 0	Ficus elastica, each	1 6	7 0
Christmas trees, doz.	4 0	24 0	Foliage plants, various, each	2 0	10 0
Cineraria, per doz.	8 0	12 0	Genista, per doz.	8 0	12 0
Cyclamen, dozen	9 0	24 0	Hyacinths, p. doz.	6 0	9 0
Cyperus, per dozen	4 0	12 0	Lily of the Valley, p. doz. pots	18 0	24 0
Daffodils, doz. pots	8 0	12 0	Marguerites, doz.	6 0	12 0
Dracæna terminalis, per dozen	30 0	60 0	Palms in var., each	2 6	21 0
— viridis, per doz.	12 0	24 0	Pelargoniums, scarlet, per dozen	6 0	8 0
Epiphyllum, per doz.	12 0	18 0	Solanums, per dozen	6 0	12 0
Erica Cavendishii, per dozen	18 0	48 0	Tulips, doz. pots	6 0	9 0
— ventricosa, doz.	15 0	24 0			
Ericas, various, doz.	8 0	24 0			

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcissus, various, doz. bun.	1 6	6 0
Acacia (French) bun.	0 9	1 6	Pelargoniums, scarlet, 12 spr.	0 6	0 9
Azaleas, doz. sprays	0 6	1 0	— dozen sprays	1 0	1 6
Bouvardias, per bun.	0 8	1 0	Primroses, 12 bun.	0 6	1 0
Callas thiopica, 12 bl.	3 0	5 0	Primulas, double, 12 sprays	1 0	1 6
Camellias, white, doz.	2 0	4 0	Roman Hyacinths, Eng., doz. sprays	0 6	1 0
— various, per doz.	1 0	2 0	— (French), 12 bun.	3 0	4 0
Carnations, 12 blms.	1 0	2 0	Roses, Tea, per doz.	1 0	3 0
Cyclamens., 12 blms.	0 4	0 9	— coloured, dozen	2 0	4 0
Daffodils, doz. blooms	0 3	0 6	— French, dozen	1 0	2 0
Eucharis, per dozen	3 0	5 0	— red, per dozen	4 0	6 0
Gardenias, 12 blooms	9 0	18 0	— Safrano, dozen	1 6	2 6
Heliotropes, 12 spr.	0 6	1 0	Spirea, doz. sprays	0 6	1 0
Lilac, white, Fr., bun.	4 0	6 0	Stephanotis, 12 spr.	9 0	12 0
Lilium, var., 12 bl.	2 0	6 0	Tuberoses, 12 bums.	1 6	2 0
Lily of the Valley, doz. sprays	0 6	1 0	Tulips, doz. blooms	0 6	1 0
Maiden Hair Fern, 12 bun.	4 0	9 0	Violets, 12 bun	1 0	2 0
Mignonette, 12 bun.	2 0	4 0	— French, bunch	1 0	2 0
— French, per bun.	1 6	2 0	— Parma, bunch	3 0	4 0
Marguerites, 12 bun.	3 0	6 0			

Orchid-bloom in variety.

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6	7 0	Lemons, per case	12 0	20 0
— Nova Scotia, brl.	12 0	25 0	Pine-apples, Eng., lb.	1 0	1 6
Cobs, per 100 lb.	140 0	—	— St. Michael, each	2 0	6 0
Grapes, per lb.	2 0	5 0	Strawberries, oz.	0 9	1 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0	—	Mustard and Cress, punnet	0 4	—
Beans, French, lb.	2 0	—	Onions, per bunch	0 5	—
Beet, red, per dozen	1 0	2 0	Parsley, per bunch	0 6	—
Carrots, per bunch	0 6	—	Rhubarb, per bundle	0 6	—
Cauliflowers, each	0 3	—	Seakale, punnet	2 0	—
Celery, per bundle	1 6	2 0	Shallots, per lb.	0 6	—
Cucumbers, each	1 0	1 6	Spinach, per bushel	6 0	—
Endive, per dozen	2 0	—	Sprue, per bundle	1 6	—
Herbs, per bunch	0 4	—	Brussel Sprouts, pr lb.	0 3	—
Leeks, per bunch	0 3	—	Tomatos, per lb.	1 0	—
Lettuces, per dozen	1 6	—	Turnips, per bunch, new	0 4	—
Mushrooms, punnet	1 6	—			

Potatos:—Old Potatos continue to fall in value. For ordinary and inferior goods prices rule, 30s. to 80s.; best samples, 60s. to 80s. per ton. The supply of Canary New Potatos is not so heavy—prices firm and the same as last quoted. *J. B. Thomas.*

ENQUIRIES.

"He that questioneth much shall learn much."—Bacon.

Andromeda japonica.—A correspondent asks the probable reason why this plant does not flower with him. It is planted in peat, and is in good health.

NOTICES TO CORRESPONDENTS.

Blood Manure: *J. K.* Powdered clay would absorb the blood, and be afterwards dried artificially. Probably it would, when dry, absorb once again.

Books: *Unlucky Fungologist.* Cooke's *Illustrations of Fungi*, parts 1 to 59, form 6 vols., with titles and indices; parts 62 to 72 constitute Vol. VII., for which title and index are given in part 73. Then Vol. VIII., or supplement, will contain parts 41, 60, 61, 73 to 75, with index and titles, completing the work.—*J. C. & Co.* The best we know in English is Wm. Paul's *The Rose Garden*, 5th Ed., Kent & Co., 23, Paternoster Row. There are coloured illustrations of fine varieties of the Rose.

Business Conditions: *J. L.* Messrs. Sutton have the full right to impose what conditions they please especially as they make no secret of the matter.

Ferns in Bushey Park: *A. B.* Pteris aquilina—common bracken.

Fungus on Roots of Fruit Trees: *Enquirer.* Yes, tree-roots are often attacked by fungi which may or may not be bred on decaying wood and other vegetable matters in the soil. Do not plant a fresh tree before searching for the roots of the old one it will replace. It is not certain that these will form breeding places for fungi injurious to the fruit tree, but they might; indeed if all decaying vegetation of the nature of tree-roots did so no plant would be safe for any length of time. A half wet state of the soil of the fruit border is a prolific cause of fungus growth, both above and below; whereas thorough saturation in autumn, winter, and spring, is good for the trees and tends greatly to the retention of the fruit buds, as well as drowning out fungus. Whenever it can be done, the new fruit tree stations should be trenched early in the autumn, not planting the trees till February.

Grafting Wax: *A. S. D., and others.* Beeswax, 8 ozs.; mutton suet, 10 ozs.; powdered resin, 1 oz. Make warm, and mix well together. If it be sticky add a little more suet. This kind of grafting wax must be kept warm when being used, in a glue-pot with hot water, or better still, with a small lamp beneath it like a food warmer. Mastic, "Homme Lefort," is sold ready for use by florists and nurserymen. Either is good for Roses, stove and greenhouse plants; but fruit trees have the grafts more economically covered with the ordinary clay and chaff mixture.

Hedge in Shade of Trees: *A. C.* Thuia occidentalis, T. sibirica (plicata), and common Yew. If the shade is not very dense, Symphoricarpus racemosus (Snowberry), Yellow-flowered Ribes and Holly. Cornus mas makes a capital hedge in shady places, and bears cutting well for a great many years.

Kainit for Potatos: *C. M. P.* At the rate of 3 cwt. to 5 cwt. per acre.

London Pares: *A. B.* There is much information on the parks around London scattered through our volumes since the commencement of the

Gardeners' Chronicle, but we have no time to look up such matters. Consult the file at the British Museum. We could supply numbers not older than ten years.

MAGGOT IN CHRYSANTHEMUM LEAVES, AND ALSO ON CELERY: *S. C.* A leaf-miner, Tephritis onopordinis. There is no means known of catching the fly which lays the eggs in the substance of the leaf, but the pupæ which descend into the earth, may be destroyed by turning it up in frosty weather. All leaves affected with the maggot ought to be gathered as soon as observed, and burnt.

NAMES OF PLANTS: *C. Thompson.* 1, Primula erosa, P. denticulata var. erosa—a Himalayan Primrose resembling a depauperated form of P. denticulata; 2, P. verticillata, the Abyssinian Primrose—a common greenhouse plant, and not hardy. Neither resembles P. amœna, which has flowers as large as an English Oxlip. *C. W. Dod.—R. W. H.* 1, Aspidium dilatatum; 3, Ceterach officinarum; 5, Blechnum, or Lomaria spicant; 2 and 4, labels detached—one is Polypodium vulgare. Please send other specimens.—*A. W.* Dendrobium undulatum.—*H. Bazeley.* 1, Begonia Prince Wallenstein; 2, B. hydrocotylefolia; 3, B. subpeltata var.; 4, B. metallica; 5, B. fuchsioides; 6, Aspidium vulgare var. prolifera.—*L. C., Rugby.* Merely a bright form of Cattleya Trianæ.—*C. de B.* Abutilon insigne.—*A. H.* We cannot name garden varieties.

NURSERY RATING: *A. F.* See *Gardeners' Chronicle* for March 8, 1889, p. 308, "Nursery and Seed Trade Report," the latest decision on the above matter.

PANSY BURNT BROWN COLOUR: *Chiswick.* It may be obtained of florists dealing in pansies.

PEARS ON EAST WALL: *A. F.* Napoleon, Brown Beurré, Winter Nelis, Marie Louise d'Uccle, Fondante d'Automne, Jersey Gratioli, Eyewood, Beurré d'Aremberg, Vicar of Winkfield, Thompson's, Sommer France Real, and Jean de Witte.

RICHTER'S IMPERATOR POTATO: *A. P.* It may be obtained through Messrs. Vilmorin Andrieux & Co., whose agency is in Mark Lane, E.C.

SCOTCH FIR: *F. H.* The leaves are affected with a fungus, Peridermium pini. Remedial measures are not likely to be of any use, but affected trees should, if possible, be burnt, and all the groundsel in the neighbourhood destroyed as far as possible. See Marshall Ward's *Timber and its Diseases* (Macmillan), p. 257.

SHRUBS TO BLOOM IN WINTER: *A. C.* Daphne mezereon, Lonicera Standishi, Forsythia suspensa, F. Fortunei, F. viridissima, Jasminum nudiflorum, Rhododendron dahuricum, Erica carnea, E. herbacea. The last three are peat plants. Arbutus unedo often retains its bloom till the winter.

SLUGS IN ORCHID HOUSE: *H. A.* Pieces of Carrot laid about on stages and floor entice them; tiles and slates, raised about half an inch from the floor, these forming favourite hiding-places for the creatures, and should be examined daily. Toads are of much use in a glasshouse. Plants much liable to be injured by slugs may be elevated over pans of water, or finely broken glass may be placed in a ring round them.

CATALOGUES RECEIVED.

H. AND F. SHARPE, Wisbech—Agricultural Seeds.
B. L. COLEMAN, Sandwich, Kent—Farm Seeds.
VILMORIN-ANDRIEUX & Co., 4, Quai de la Mégisserie, Paris—Seeds of Trees and Shrubs.
W. H. HUDSON, West Green Road, Tottenham, London—Dutch Bulbs.
J. P. WILLIAMS & BROTHERS, Heneratgoda, Ceylon—Bulbs, Tubers, and Orchids.
H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, London—Ferns and Foliage Plants.
E. P. DIXON & SONS, Seed Merchants, Hull—Agricultural Seeds.
J. CARTER & Co., 237 and 238, High Holborn, London, W.C.—New Chrysanthemums.

COMMUNICATIONS RECEIVED.—Our Swiss Correspondent (best thanks).—Our New York Correspondent.—Our Belgian Correspondent.—Our Russian Correspondent.—A. E. R., Leamington.—F. H. W.—J. L.—W. B. H., Cork.—Dr. B., Oxford Botanic Garden.—P. W.—D. M.—W. W.—H. M. W.—F. W. B.—J. J. J. (next week).—N. V.—C. Raffill.—Amateur (Poinsettias next week).—I. W.—R. A. R.—Hugh Low.—H. L.—C. Wood.—W. L.—C. W. D—E. C.—P. E. N.—A. B.—G. Woodgate.—H. W. W.—J. D.—R. D.—Fox—A. D.—G. A. B.—W. B.—J. E. J.—J. A.—B. S. W.—F. W.—H. H., and G. C. L. (next week).

GERANIUM CUTTINGS. — Raspail, best double scarlet, good cuttings, 3s. 6d. per 100, 30s. per 1000; also 800 strong stock plants of Raspail to offer, cut back, in 7-inch and 8-inch pots; could be shaken out and sent cheaply by rail. Will sell cheap. No reasonable offer refused.
CRANE AND CLARKE, The Nurseries, March, Cambs.

FERNS in THUMBS.—Extra good lot of Pteris Tremula and P. C. Crestata to offer at 12s. per 100, cash with order.—R. PENGELLY, Dyson's Lane, Edmonton.

HARDY BRITISH FERNS.—Rigida, Montana, Beech, Oak, Parsley, D. C. 20 large Rockery Roots, 2s. 6d.; 50, 5s.; 100, 8s.; 24 lb. Hamper, Botanically named, Carriage paid.—G. CARRADICE, Monument Place, Kendal.

To the Trade.

FERNS—FERNS—FERNS.—In twenty most saleable sorts—ADIANTUM CUNEATUM, POLYPODIUMS, CYRTOMIUMS, PTERIS, &c., at 12s. per 100, packed free for cash. PTERIS CRETICA CRISTATA, few other kinds from stores, 6s. per 100, 50s. per 1000.—J. SMITH, London Fern Nurseries, 140, Loughborough Road, Brixton, S.W.

TREE CARNATIONS.—Well-rooted, and fit for immediate potting. Choice named sorts, such as Andalusia, Zouave, Purity, White Swan, The Mikado, Catherine Paul, Valencia, &c., 4s. 6d. per dozen. Special price per 100 on application.
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PALMS.—Leading decorative sorts in many sizes, great quantities, and in finest health.
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey; and Flower Market, Covent Garden, W.C.

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PEAT FOR SALE.—Good Brown Fibrous Peat, Black Fibrous ditto, Light Sandy ditto for Orchids, Azaleas, Rhododendrons, Heaths, &c., or for general purposes. Also good yellow gravel for drives, concrete, gravel, screenings, yellow sand, &c.—For particulars apply to Mr. J. ASTRIDGE, Brackendale Lodge, Camberley, Surrey.

TO ORCHID GROWERS, &c.—Splendid Orchid and other PEATS, selected Hardwood CHARCOAL, and fine fresh Sphagnum MOSS, SPECIALITIES. Send for complete List of all Garden Sundries.—G. H. RICHARDS. 1, Belvedere Crescent, Lambeth, London, and at Ringwood, Hants.

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1 Cwt., and Oil Mixture, Free to all Stations.
Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.
LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C. BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

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To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST AND SON, 152, Houndsditch, London

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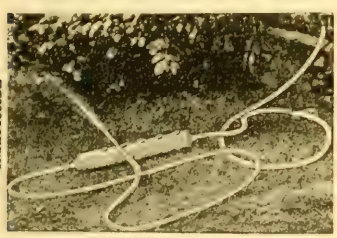
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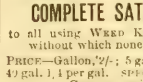
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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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Prepared only by
DUNCAN, FLOCKHART & CO., Chemists to the Queen, Edinburgh.

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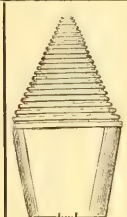
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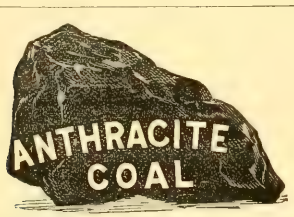


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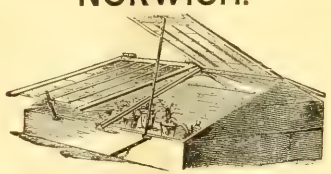
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GARDENER (HEAD WORKING).—Age 34, married, three children; thoroughly practical in all branches; nineteen years' experience. Good reference.—HEAD GARDENER, Winsley Hurst, Ripley, Yorkshire.

GARDENER (HEAD WORKING).—Age 30, married, no family; fifteen years' practical experience in good places. Excellent testimonials, F., 41, Wellington Street, Strand, W.C.

GARDENER (HEAD WORKING).—Married, no family; thoroughly practical in all branches. Good personal character. Six years in present place.—7, Roberts Gardens, Highley Manor, Balcombe, Sussex.

GARDENER (HEAD WORKING.)—Age 32, married, four children; thoroughly understands the Management of a good Garden. Nearly five years' good character.—Rose Cottage, Falfield, R. S. O., Gloucestershire.

GARDENER (HEAD WORKING).—Age 36, married; eighteen years' experience in all branches of Gardening. Can be well recommended.—T. E., Potter's Cottages, Benhill Street, Sutton, Surrey.

GARDENER (HEAD WORKING).—Age 33, married, no family; seventeen years' experience in all branches of the profession. Four years as Head. Highly recommended. Left through death.—H. MUSTOW, Yellington, Budleigh Salterton, Devon.

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GARDENER (HEAD WORKING).—Age 33; eighteen years' practical experience in all branches. Well up in Forcing Vines, Peaches, Cucumbers, Melons, &c. First-class references from past and present employers.—Abstainer.—F. LANE, Alma Road, Reigate, Surrey.

GARDENER (HEAD WORKING).—Age 40; offers his services to any Nobleman, Lady, or Gentleman requiring a thoroughly competent man in Orchids, Vines, Ferns, Stove Plants of all kinds, Early and Late Forcing; good Kitchen Gardener; good reference; abstainer.—E. D., The Gardener, The Old House, Betchworth, Surrey.

GARDENER (HEAD WORKING).—H. GILBERT, late Head Gardener to Sir M. W. Ridley, Bart, Blagdon, Hull, Northumberland, is open to treat with any Lady or Gentleman, requiring a good all round man. First-class Testimonials.—H. GILBERT, 121, Denmark Road, Camberwell, S.E.

GARDENER (HEAD WORKING); age 33, married.—R. CALLAGHAN, for the past six years Head Gardener to G. Burt, Esq., J.P., Purbeck House, Swanage, is open to treat with any Lady or Gentleman requiring the services of a thorough, practical, all-round Gardener; excellent testimonials from past and present employers.—Address as above.

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GARDENER (HEAD WORKING), or good SECOND.—Age 31, married, no family; thoroughly experienced in Vines, Stove, &c. Good testimonials.—RIVERS, 23, Charlton Road, Harlesdon, N.W.

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JOURNEYMAN, in the Houses.—Age 20; five years' experience; two years in present situation — H. AMOR, The Gardens, Lockerley Hall, Romsey.

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JOURNEYMAN, in a good Establishment.—Age 19; five years' experience. Excellent character from previous employers. Bothy preferred.—H. A., Lewis Dunbar, Nurseryman, Hemel Hempstead.

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JOURNEYMAN, in the Houses, or SECOND where two or three are kept.—Age 18; has had good experience. Can be highly recommended. Six and a half years in present situation.—F. CURTIS, The Gardens, Oldown, Almondsbury, Glos.

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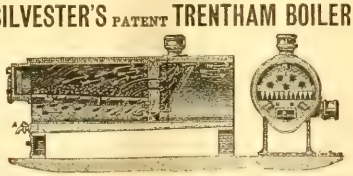
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THE GARDENERS' CHRONICLE IN AMERICA.

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ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.

FIRST EXHIBITION of SPRING FLOWERS, WEDNESDAY NEXT, March 26. Gates open at 2 o'Clock. Band from 2.30 to 5.30.

Tickets to be obtained at the Gardens only by vouchers from Fellows of the Society, price 2s. 6d. each.

CRYSTAL PALACE, SATURDAY, March 29.

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LEICESTER ABBEY PARK FLOWER SHOW and GALA, TUESDAY, August 5. For Schedules and particulars, apply to—

JNO. BURN, Hon. Sec., Abbey Park.

CLAY CROSS HORTICULTURAL SOCIETY.

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See also Advertisement on outside back cover page.

SALES BY AUCTION.

Thursday, April 17.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, April 17, and he will be glad if Gentlemen desirous of ENTERING PLANTS for this Sale will PLEASE SEND LISTS AS SOON AS POSSIBLE.

Thursday Next, March 27.

Valuable ESTABLISHED ORCHIDS, many in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 27, at half-past 12 o'Clock precisely, a fine COLLECTION of ESTABLISHED ORCHIDS, many in Flower and Bud, including some fine specimens and varieties, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

10,000 grand Bulbs of LILIUM AURATUM and many other LILIES from Japan, in splendid condition, also PEARL TUBEROSES, from America, TIGRIDIAS, &c., &c.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W. C., on THURSDAY NEXT, March 27.

On view morning of Sale, and Catalogues had.

Wednesday Next, March 26.

1000 Standard, Half-Standard, Dwarf, and Climbing ROSES, from one of the most successful English growers, including most of the best show varieties of Teas, Noisettes, Hybrid Perpetuals, and others, together with some of the very newest sorts in cultivation; a consignment AZALEA MOLLIS and BEGONIAS from Ghent. Also Pyramid, Standard, and Dwarf trained FRUIT TREES, in large quantity; Hardy Ornamental SHRUBS, EVERGREENS, and CONIFERS, BORDER PLANTS, a fine collection; LILIUM AURATUM, PEARL TUBEROSES, GLADIOLI, and many other BULBS and ROOTS.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 26, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Monday Next.

Various LILIES, from Japan; a large assortment of English-grown LILIES and hardy BULBS, 500 Hybrid GLADIOLI, American PEARL, TUBEROSES, BEGONIAS, GLOXINIAS, TIGRIDIAS, 200 CALLA ALBA MACULATA, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 24, at half-past 12 o'Clock.

Wednesday Next.

1200 LANCIFOLIUM ALBUM KRŒTZERI, 1050 L. SPECIOSUM RUBRUM, and a large assortment of various LILIES from Japan, 150 AZALEA MOLLIS, RHODODENDRONS, 40,000 LILY OF THE VALLEY, German Crowns; HERBACEOUS PLANTS, Standard and Dwarf ROSES, Greenhouse and Stove FERNS, PALMS, and other DECORATIVE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY, March 26, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY NEXT, March 27, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Asc t.

CLEARANCE SALE of a Portion of the well grown NURSERY STOCK, by order of Messrs. John Standish & Co., the land being required for other purposes.

MESSRS. PROTHEROE and MORRIS are instructed to SELL by AUCTION on the Premises, the Royal Nurseries, Ascot, about 1 mile from the Ascot Railway Station, on THURSDAY, March 27, at 12 o'Clock precisely, a Portion of the well-grown NURSERY STOCK growing on that part of the land being required to be cleared, including 32,000 Conifers, 1 to 6 feet, many of them good specimens, suitable for effective planting; 1500 Flowering Shrubs in variety; 1500 Aucuba japonica, 2000 Box, 2500 Berberis, 3000 Green and Variegated Hollies, 5000 Austrian, Weymouth, and other Pines; 7000 Laurels of sorts, 2000 White, Purple, and Persian Lilacs; 500 White Broom, 1500 oval-leaved Privet, 200 named Rhododendrons, well budded; 350 Standard Ornamental Trees, large specimen Tea Roses in pots, 200 good Flowering Plants of Erica Wilmoreana, and other Stock.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 67 and 68, Cheapside, London, E.C.

Friday Next.—Splendid Importation, CATTLEYA MOSSIÆ.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander, St. Albans, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 28, at half-past 12 o'clock, a splendid importation of this, one of the finest of CATTLEYAS. The Consignment is in splendid condition, and extra large masses among them, one having over 400 bulbs.

On view morning of Sale, and Catalogues had.

Friday Next.

CYPRIPEDIUM SPECIES.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 28, at half-past 12 o'Clock, a splendid species of CYPRIPEDIUM, one of which is in bloom, and resembles C. Rœbelenii or C. laevigatum. It is particularly bright and beautiful, and the best ever seen of the section; it is most elegant.

On view morning of Sale, and Catalogues had.

Friday Next.

GREAT TRADE ORCHID SALE.—WITHOUT RESERVE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, March 28, at half-past 12 o'Clock, a grand lot of showy and most useful ORCHIDS for cutting and decorative purposes, in large and small lots to suit all buyers, and absolutely without the least reserve, and we warrant that all plants offered not being in bloom have not flowered in Europe.

On view morning of Sale, and Catalogues had.

Tuesday, April 1st.

SPECIAL SALE.—ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE of ORCHIDS in FLOWER, will take place as above for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Sale of Nursery Stock from Sample

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SALE as above, will take place at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY, April 3.

Morton's Nurseries, Mowden, Darlington.

To NURSERYMEN, SEEDSMEN, FLORISTS, and OTHERS interested in the Horticultural Trade.

MESSRS. THOMAS WATSON AND SON, Auctioneers, will SELL by AUCTION, at the Darlington Auction Hall, Northumberland Street, Darlington, on TUESDAY, March 25, 1890, at half-past 2 o'Clock in the evening precisely, subject to such conditions as will then be read, all that VALUABLE WELL-ESTABLISHED NURSERY, about Two Acres in extent, known as and being the Mowden Nurseries, in the occupation of Mr. T. B. Morton, the world-famed Chrysanthemum grower, and situate about 1½ miles from the Market Place in Darlington aforesaid, with the MESSUAGE or DWELLING-HOUSE, STABLE, CART SHED, BUILDINGS, and GLASS-HOUSES erected thereon, viz.: One Iron framed Chrysanthemum-house, 17 feet by 22, and 11 feet high; Iron-framed House, 52 feet by 12, with Propagating-house, 12 feet square at end, and 10 feet of heated frames at side; Wood-framed House, 52 feet by 12, in three divisions; Wood-framed House, 30 feet by 15; Wood-framed House, 40 feet by 14; Iron framed House, 45 feet by 12; and Wood-framed House, 21 feet by 12. Six of the Houses are built on brick and concrete bases, are of modern and unique construction, and glazed with large squares.

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Market Place, Darlington, March 6, 1890.

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FOR SALE, Freehold COTTAGE, 6 rooms, 1 acre of Garden, Outbuilding, good Common right. Price £180. Apply on the premises, D. BATCHELOUR, High House, Guildford.

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To Market Growers.

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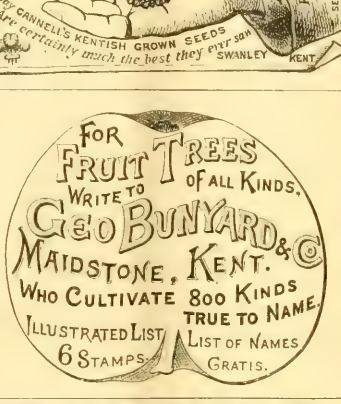
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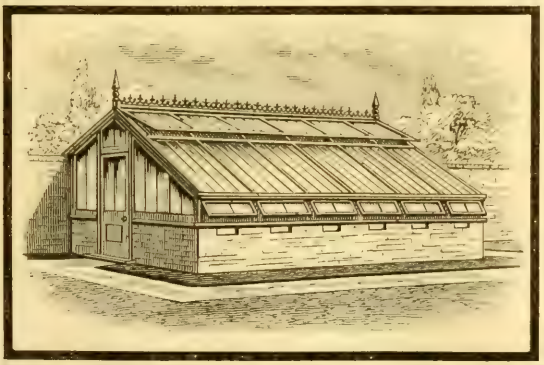
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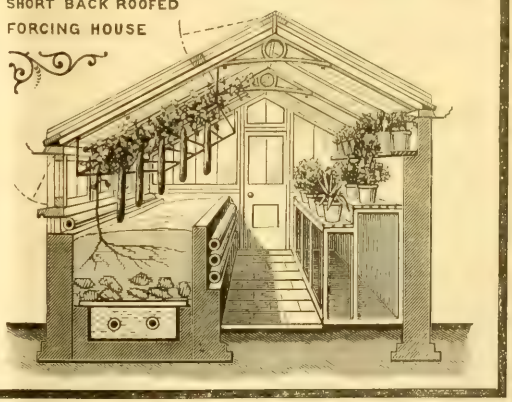
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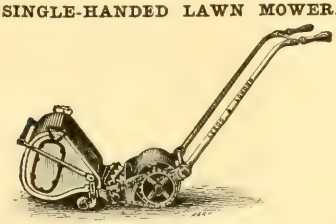
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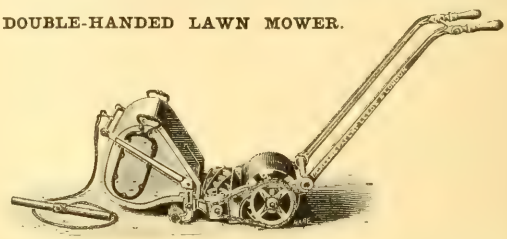
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Kintbury, Hungerford, April 20, 1883.

Sirs,—I shall be glad of a list of your Lawn Mowing Machines priced. I am glad to mention that I bought one of your 14-inch machines 22 years ago. It has had hard and rough usage *every year since*, and only on Monday was it put quite out of use by the snapping in two of the driving wheel under the hammer. It is surprising to think of the work it has done, and done well. Yours faithfully,
Messrs. Green, Leeds. ALFRED T. BAZETT.

Ivy Bank, Broadway, Worcester, April 13, 1884.

Gentlemen,—Some fifteen or sixteen years ago, I had from you one of your 12-inch Lawn Mowers which, I may say, has from that day to the present time given perfect satisfaction, and goes as easily, and does its work as well now as it did at first. I have recommended yours as the best machine ever since. I am, yours faithfully,
Messrs. Green & Son, Leeds. C. FRENCH HARTLEY.

Royal Gardens, Windsor, January 28, 1890.

To Messrs. Green & Son, Limited.

Dear Sirs,—In sending you the enclosed order for Lawn Mowers, I think it may be interesting to you to know that I am still using the Horse Machine you supplied in the year 1856; it is in perfect order even now, which is a proof that the workmanship is first-class, and speaks for itself.

As to your "Hand Silens Messor," no Lawn Mowers could give greater satisfaction either to myself or to the men who work them, they are unequalled.

During the season I have them in daily use in the Royal Gardens here, and never have the slightest trouble with them.

Your machines are also the only ones I have in use at the Private Gardens, Hampton Court Palace; the Royal Lodge, Windsor Great Park; Cumberland Lodge, and the Royal Pavilion Grounds, Aldershot.

I shall feel a great pleasure in recommending them to all my friends. I remain, dear sirs,
Yours very truly,
THOMAS JONES.

Wellingborough, February 4, 1890.

To Messrs. Green & Son, Leeds.

Gentlemen,—I have sent you our Lawn Mower for repairs, which please have done to it. I have used your machines for 25 years, and I find them more durable and do their work better than any other machines I have seen.
I am, gentlemen, yours truly,
DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).

Cottingham, Hull, February 13, 1890.

To Messrs. Green & Son, Limited, Leeds.

I am instructed by Arthur Harrison, Esq., of Northgate House, Cottingham, near Hull, who has had one of your 36-inch Horse Mowers in use over 20 years, and ask whether you think it advisable to send it for repair or have a new one, for it is as you may suppose now getting worse for wear. Kindly say per return, and enclose Price List.
I am, gentlemen, yours truly,
JOHN BAYNTON.

Mr. J. R. STIRLING, of the Royal Gardens, Buckingham Palace, writing under date February 24, 1890, says:—
"As regards the work your 42-inch Horse Machine does (which two years ago took the place of the one you supplied in '63), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your 'Hand Silens Messors' also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

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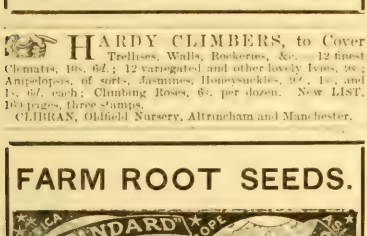
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,, Extra choice and new varieties ... 6 for 3s. 6d.	6 0
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,, **Double-flowered Zonal.** A splendid class of highly improved varieties. Fine named sorts, our selection ... ... 6 for 2s. 6d.	4 6
,, Extra choice varieties ... ... 6 for 3s. 6d.	6 0
,, Six superb new varieties of 1889, 7s. 6d.	
,, **Double-flowered Ivy-leaved.** A magnificent class. Splendid for pots, hanging baskets, vases, or for bedding out. Fine varieties to name ... ... 6 for 2s. 6d.	4 6
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CANTERBURY BELLS.—Grand new colours and new forms; double and single, telescopes, cup and saucer, and other varieties, 12 plants, to bloom well, 1s. 6d.; 25, 2s. 6d. Also Seed, 6d. and 1s. per packet.

THE BEAUTIFUL PURE WHITE and PINK MALVA MOSCHATA, one of the best hardy border plants in cultivation. Strong 2-year old plants, 12 for 1s. 6d.; 25 for 2s. 6d.; also Seed, 6d. and 1s. per packet.

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TOMATOS.—The best sorts in cultivation.—See Chiswick Great Tomato Trial. 1s. 6d. per dozen.

TWO GEMS, PRIMULA CORTUSOIDES and PRIMULA CASHMERIANA.—Gardening papers say it would be difficult to find more beautiful plants for the Rockery, Borders, or Greenhouse than these, 2 each, 1s. 6d.; 4 each, 2s. 6d. Also Primula Sieboldi amœna, the Queen of Primulas, Geggie's International Prize, 3 distinct varieties named for 2s.

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STRAWBERRY PLANTS.—Selected Crowns for fruiting this year; British Queen, Pauline, Sabreur, Vicomtesse H. de Thury, Duke of Edinburgh, King of the Earlies, Sir Harry, Dr. Hogg, President, The Captain, and other new and extra sorts, 3s. per 100.

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THE

Gardeners' Chronicle.

SATURDAY, MARCH 22, 1890.

EMPIRICISM, OR RATIONALISM.

(Continued from p. 321).

IN continuation of our remarks, it may be said that, admitting that natural indications fail in a very large proportion of cases, they do not fail us in all. Political geography is, of course, of little or no use to us, but physical geography often yields the most valuable assistance. It is not of much consequence to us as cultivators whether a plant comes from Sahara or Sind, from Australian or African deserts, the conditions are the same in both cases. We may here mention a circumstance told us by Mr. Williams on visiting his nursery at Holloway recently, and relating to experiences with Heliconia striata aurea. No one has succeeded with it in a pot, and yet it is a plant of great promise from a decorative point of view, with bright looking, massive foliage, and of good habit. It had generally been grown in heavy loamy soil principally, and had grown very sparingly, never reaching much more than 1 foot or so in height, and the leaves, which greatly resemble those of a Musa, got brown first at the tips and gradually dwindled away, so that as a decorative subject it was useless. A friend in the Amazon region wrote to Mr. Williams that the Heliconia grew in humus chiefly, and was found in wet more often than in dry places, by the sides of streams, &c., and reached a good height. Here was a hint that was quickly made use of by the nurseryman, and with excellent effects.

Philodendron Lindeni is another plant of which the above remarks hold good—planted in heavy, sandy soil, it would make leaves about 3 inches in diameter, and its stems rambled very moderately. But put into a pot of light stuff, such as is employed for Orchids, and allowed to attach itself by its aerial roots to a conical pillar of the same materials contained within a framework of rabbit proof wire, the plant now makes leaves 10 times larger than before, and rambles quite as vigorously as do P. lacerum and P. pertusum when planted out in light mould.

*

Turning to the indications furnished by the plant itself, we find that the nature of the roots, the presence or absence of pseudobulbs, the formation of winter-buds, the evergreen, or deciduous character of the leaves, their texture, substance, and internal conformation, the characteristics afforded by their pubescence, and a host of other indications, often prove most valuable as guides to the cultivator, as pointed out by Professor Foster, and specially by Mr. Veitch in his classical lectures on Orchids and Orchid cultivation. They are not infallible, it is true, but they are so obvious, that every intelligent gardener acts upon them; but imperfectly, and this for two reasons, one that he does not know enough about them, the other because he does not know how to apply the knowledge he possesses.

But let us take another illustration and enquire what are the plants which are likely to thrive out of doors in a town garden, surrounded by manufactories, and veiled almost constantly in thick smoke, which is deposited even on the foliage of greenhouse plants like soot? We have had the opportunity of experimenting in such a garden for several years in succession, and we have a long list of successes and failures.

The natural indications show very clearly the reason of the success—we are alluding more particularly to evergreens. In almost all cases the epidermis is thick and glossy, so that the sooty deposit is washed off by the rains; the chlorophyll is unusually abundant, so that the leaves, in spite of the relative feebleness of the light, are deep green, and give the plants a degree of vigour not possessed by others. German Irises, Carnations, and hardy Bamboos, for reasons that will be obvious to the botanist, also do well. They possess, in fact, those "adaptive characters" which in Nature have relation to the needs of the plant in the struggle for existence.

It may be said, with reference to the experiments made by us in a town garden, that they were "empirical," that we proceeded tentatively and without reference to *à priori* considerations. But this is only partly true. We found that Hollies, Ivies, and Aucubas throve relatively well, and hence we deliberately selected plants from Japan, New Zealand, and Chili, possessing similar characteristics, and these plants have mostly succeeded in maintaining themselves, where others less well equipped for the struggle have refused to grow. There are exceptions, it is true. Rhododendrons whose leaf-structure would seem to render them suitable for our purpose, refuse to grow; they dwindle and die, more, as we think, from unsuitable soil than from any other cause. Hypericum calycinum, again, which we hoped might succeed, soon succumbed; but these failures do not invalidate the statement that the plants have a struggle to maintain under cultivation, and that, according to the nature of their organisation, they are enabled to hold their own with more or less success, just as is the case in Nature.

In cultivation, this struggle, in the opinion of Mr. DYER, is "in abeyance altogether." But is not this, again, too absolute? The struggle in which the plants are engaged in the Royal Gardens, Kew, against the smoke of Brentford, may not be precisely of the same character as that to which the plants were subjected in their native localities; but it is obvious that there is a struggle nevertheless, and a severe one too. It is not, as in Nature it so often is, an internecine conflict between plant and plant, but a resistance to the common enemy.

Mr. DYER throughout his article speaks more from the point of view of the practical gardener than from that of the biologist. He is, of course, amply entitled to choose his ground, and would be listened to with respect on whichever side he happened to plead. For our own part, if we may venture to say so, we should have been better pleased to see him occupying a judicial position in this matter. No one is so competent as he, no less from his personal ability than from his singular command of opportunities, to strike a fair balance between the arguments from empiricism and rationalism.

As it is, we fear the general impression from Mr. DYER'S teaching among the coming race of gardeners, will be that science and research go for nothing in gardening, that experience is everything, and that we shall have the old fallacy about an ounce of fact being of more worth than a ton of theory trotted out, all the more complacently in that it will be assumed to be supported by the high authority of the Director of the Royal Gardens at Kew.

Mr. DYER himself recognises such a possibility, but, of course, would not assent to any such proposition. The gardener, he says, "must know the meaning of what he is looking at." This, of course, implies some considerable amount of scientific knowledge; without it, how could he interpret a single iota of what he sees?

Mr. DYER has himself inadvertently furnished us with an excellent illustration of the value of rational knowledge, though he has used it for the opposite purpose. "A knowledge of osteology," says he, "will not enable a man to treat a case of typhoid fever." Of course it will not; but suppose the practitioner to be, as his forefathers were, unaware of the existence of Peyer's glands, he would be equally unable to treat the case rationally. On the other hand, suppose him not only to know of the existence of these structures, but to be aware of their fateful significance as regards typhoid fever, he could then treat that disease on rational principles. The modern practitioner does so in fact, and the diminished mortality shows with what good results.

In point of fact, it is not science or *à priori* knowledge that is helpless to us as cultivators, it is ignorance which blocks our road to success; positive ignorance of what is essential, as well as ignorance of the limitations imposed by Nature. This nescience it is which leads us to make efforts doomed of necessity to be futile, and which we shall cease to make the moment we know better.

How shall we combat this ignorance? For a long time to come, by empirical methods. We shall have no other resource. But, while bowing to necessity, let us not be oblivious that there is a better way to be found, and towards the attainment of which every gardener should, according to his means and ability, contribute. The services of the biologist, the traveller, the meteorologist, the chemist, the physicist, should each and all be enlisted and utilised as occasion demands or opportunity offers. Empiricism is at present in many cases our chief or our only resource, but we should only look upon it as a temporary expedient, destined to be superseded gradually but surely by ever increasing knowledge and ever augmenting power of turning it to account.

The essence of successful cultivation lies in the timely adjustment of the balance between different factors acting under varying circumstances, and operating on diverse structures. This at present is mostly arrived at by rule of thumb, haphazard procedures, or by transmitted experience originally founded on a similar unsatisfactory basis.

Much of the garden practice of our predecessors was sheer quackery, most of the practice of the present day is of necessity empirical. We acknowledge the fact, we bow to the inevitable; but we also recognise the truth, that every real advance in knowledge, however slight, every body of facts, rightly co-ordinated, tends to the overthrow of empiricism, to the consolidation and extension of a rational basis for horticultural practice, and to the extension of our control over plant life. The full attainment of the ideal must be beyond our powers—is Utopian—but every step towards it is a gain which begets others, and the result is not a mill-track circuit, but a real and constant progress.

NEW OR NOTEWORTHY PLANTS.

ZYGOPETALUM (BOLLEA) WHITEI, *Rolfe, n. sp.**

A PRETTY creamy-white Zygopetalum belonging to the section Bollea has been twice sent by R. B. White, Esq., of Arddarrock, Gairloch Head, Dumbartonshire, which I fail to identify with any described species, and for which I therefore propose the above name. It was introduced by Mr. White's collector from New Granada, where it was found growing amongst Cattleya labiata var. Mendeli. Judging from the materials sent, it seems to be a vigorous grower, but whether this arises from its having received the proper treatment, or from a more than usually robust constitution, it would be difficult to say. The species are generally considered difficult to cultivate successfully for any length of time, but it is to be hoped that this difficulty may in time be surmounted, for they are quaint in structure, and their somewhat unusual colours are in several cases very attractive. The creamy-white segments of the present one, and the golden-yellow disc, form an elegant contrast. It stands nearest to B. hemixantha, Rchb. f., which is described as having numerous small warts and styloid processes at the base of the lip. These are absent in the present species. *R. A. Rolfe.*

ODONTOGLOSSUM WATTIANUM, *Rolfe, n. hyb.?*†

THIS is a very handsome Odontoglossum, though whether a natural hybrid or a distinct species would perhaps be difficult to decide at present. On the whole, however, I incline to the former view. It bears so strong a resemblance to one or two natural hybrids which undoubtedly have O. luteo-purpureum, Lindl., for one parent, that I cannot help thinking it comes from the same species. The other parent is not so obvious, but from a variety of considerations, I think it may have been O. Lindleyanum, Rchb. f. The lip is stalked, the apex acuminate, and the column rather long, all of which charac-

* *Zygopetalum (Bollea) Whitei*, Rolfe, n. sp.—Leaves narrowly cuneate-oblanceolate acuminate, 10 to 14 ins. long, 1½ to 1¾ ins. broad. Scapes much shorter than leaves. Bract cuculiate, oblong, obtuse, ¾ inch long. Flowers 2½ ins in diameter. Segments linear-oblong, acute, a little undulate, the lateral sepals broader than the rest; colour creamy-white, with the adjacent halves of the lateral sepals light yellow. Lip broadly cordate-orbicular, the front margin reflexed, and the apex shortly and abruptly acuminate, colour light yellow, with large golden-yellow disc and about fourteen or sixteen indistinct keels, but no rugosities of any kind behind. Column ¾ inch broad at base, creamy-white deep golden-yellow at base in front.

† *Odontoglossum Wattianum*, n. hyb.?—Pseudobulbs ovoid, compressed, slightly furrowed, bright green when young, dull purple-brown with age, diphyllous. Leaves ligulate, acute, ½—1 foot long. Scape (at present) 16 inches long, slightly arching, and with four to five flowers. Flowers 3½ inches from tip of dorsal sepals to tip of lateral ones. Sepals lanceolate, acute, clear yellow, with large chestnut-brown blotches, smaller towards base. Petals a little smaller, and more acute; spots smaller, and more numerous. Lip broadly oblong, acuminate, crenulate, stalked, the stalk not quite parallel with the column, and the blade but little reflexed; colour creamy-yellow, with a large ovate chestnut-brown blotch above middle, and with numerous small blotches behind; crest consisting of two large irregularly toothed white keels, with several smaller ones. Column long, creamy-yellow, with red dots in front, wings elongate, acute, slightly toothed below. *R. A. Rolfe.*

ters would be expected to occur in such a hybrid, and as the two species grow together, such an one was likely to appear sooner or later. On the other hand, there are four or five plants which are said to have the same character, but these may be subdivisions of one original plant, or seedlings from the same seed-pod; otherwise, the fact might be cited as one that told against its hybrid origin. It was imported by Messrs. F. Sander & Co., of St. Albans, during 1888, and flowered in December 1889. It is dedicated by request to R. Watt, Esq., of The Briars, Chislehurst. The materials to hand consist of two pseudobulbs, a leaf, a single flower (carefully dried), and an excellent sketch with analytical details. I should not like to say that it may not prove a distinct species, as has been supposed, though at present the chances seem against it. I believe a figure will shortly appear in the *Reichenbachia*. *R. A. Rolfe.*

CULTURAL MEMORANDA.

THE BALSAM.

To grow this fine plant well, seed should now be sown singly in pots of a light rich compost of sandy loam and leaf-mould. The seeds may be put a quarter of an inch deep, the soil well watered, and then be placed in a mild hotbed. As soon as germination takes place, the pots should be brought near to the glass, air being admitted as liberally as the weather will permit, shifting the plants into larger pots as fast as the roots touch the side in quantity. The potting soil should consist of three parts loam and one part horse-droppings and leaf-mould, and the potting be firmly done. The plants must not suffer from want of water after the roots have taken good hold of the fresh soil; and all flowers should be picked off until within three weeks or a month of the time at which they are desired to be in bloom. Syringe the plants at closing time during growth, and even after that period (July and August), and afford them free ventilation day and night, so as to secure sturdiness, and keep them clear of red-spider.

ERANTHEMUM PULCHELLUM.

This pretty stove plant, with spikes of Phlox-like blue flowers, is one that is easily grown, but much neglected. Cuttings may be taken now, and put singly in 3-inch cutting pots filled with light mould with a surfacing of silver-sand, and placed in a Melon-frame, or any other place where there is a warm and moist temperature of about 70°. When rooted, the points of the shoots may be pinched out twice or thrice, shifting the plants into 48's and 32's as they require space. These spring-struck plants will be very useful for decoration in autumn and early winter. During the summer the plants may be grown very well in a shallow pit or garden-frame, keeping them close for a few days after each repotting, and damping them overhead when closing the frame for the day. When the pots become filled with roots, great injury will be done if the soil should get very dry. *H. W. Ward.*

EARLY MIGNONETTE.

If a pinch of Mignonette, of any approved variety be sown at once in a shallow and narrow box, having a few holes in the bottom with pieces of potsherds over them, filled with light mould, and if the seeds be covered slightly, the soil being pressed firmly with a piece of board, and placed in warmth, it will soon germinate.

As soon as the plants appear, the box should be put into a house or pit having a night temperature of 50° to 60°, and be given a position near to the glass. The seedlings should be pricked out into similarly prepared boxes 2 inches apart, before they get crowded, and should be shaded until the roots have taken to the soil, after which they should be gradually hardened off, and be transplanted carefully to a warm border at a space of 15 inches apart. Thus treated they will flower with great abundance, earlier than plants from seeds sown in the open air. *H. W. W.*

ANTIRRHINUMS.

Although the plants may be usually blooming a year after sowing in July and August, it may by sowing seed in heat at the present time, and pricking off the seedlings, be bloomed by the month of August next. The Tom Thumb strain is a useful one for small beds, and consists of numerous pretty colours. The best of these may be increased by cuttings, struck in a cold frame in the autumn, or in heat in the spring. Although Antirrhinums will flower when grown on the poorest soils, and on old walls, they do so with greater profusion in a soil that is fairly rich, and this is true especially of the majus type. An open, sunny spot, that is well drained, suits them. *H. Markham.*

LIST OF GARDEN ORCHIDS.

(*Continued from p. 334.*)

LÆLIA.

(14.) L. GLAUCA, Benth., in *Journ. Linn. Soc.*, xviii. (1881), p. 314; Benth. and Hook. f., *Gen. Plant.*, iii., p. 534; *Orchidophile*, 1889, p. 313, with plate. *Brassavola glauca*, Lindl., *Bot. Reg.*, xxv. (1839), *Misc.*, p. 47; *Id.*, xxvi., t. 44; Batem., *Orch. Mex. & Guat.*, t. 16; *Bot. Mag.*, t. 4033; *Orchidophile*, 1888, pp. 88, 89, with fig. *Bletia glauca*, Rchb. f., in Walp., *Ann. Bot.*, vi. (1861), p. 432.—Mexico and Guatemala. Originally sent to England by a Mr. Henchman, from the neighbourhood of Xalapa. Afterwards Hartweg met with it in the same locality, and sent plants to the Horticultural Society in 1837. Mr. G. Ure Skinner also found it in Guatemala, growing on Oaks, in company with Oncidium maculatum. (See fig. 52, p. 357.)

(15.) L. GOULDIANA, Rchb. f., in *Gard. Chron.*, 1888, pt. 1, p. 41; Sander's, *Reichenbachia*, ii., p. 23, t. 59. Warn. and Will., *Orch Alb.*, viii., t. 371.—Mexico. Recently introduced by Messrs. F. Sander & Co., of St. Albans, and named after Mr. Jay Gould. It was at first thought to be a natural hybrid between L. autumnalis and L. anceps, but the character of the former altogether preponderates, and I doubt whether it is more than a distinct variety of that species, which is certainly more polymorphic than at first supposed. It appears to have been imported in considerable quantity, but some plants of the importation have proved on flowering to be ordinary L. autumnalis.

(16.) L. GRANDIFLORA, Lindl., *Gen. & Sp. Orch.* (1831), p. 115. *Bletia speciosa*, Kunth, in Humb. & Bonpl., *Nov. Gen. & Sp.*, i. (1815), p. 342. *Bletia grandiflora*, Llav. & Lex., *Nov. Veg. Descr.*, ii. (1824), *Orch. Opusc.*, p. 17; *Cattleya Gradiflora*, Lindl., *Gen. & Sp. Orch.* (1831), p. 116. *Laelia majalis*, Lindl., *Bot. Reg.*, xxv. (1839), *Misc.*, p. 35; Id., xxx., t. 30; Batem., *Orch. Mex. & Guat.*, t. 23; Paxt., *Mag. Bot.*, xii., p. 1, with plate; Jenn., *Orch.*, t. 41; *Bot. Mag.*, t. 5667; *Gard. Chron.*, 1883, pt. 1, p. 628, fig. 101; Warn. and Will., *Orch. Alb.*, viii., t. 372; *Belg. Hort.*, 1869, p. 129, t. 9; *Lindenia*, iv., p. 95, t. 190.—Mexico. Introduced about 1837, being sent by Ross to Mr. Barker, of Birmingham, and by Hartweg to the Horticultural Society of London. It flowered in the collection of Mr. Llewelyn, at Penllergare, near Swansea, in 1839. It is widely distributed over Southern Mexico, generally occurring at a considerable elevation, and is called by the natives *Flor de Mayo*, or May Flower, in allusion to its time of flowering. The plant appears to have been known very early in the 17th century, as it is mentioned by Hernandez, in his *Natural History of New Spain*, in 1615. Singularly enough Lindley named the plant three times over. It and L. autumnalis were the two species on which the genus was founded, and yet the name L. grandiflora seems to have been quite lost sight of.

Var. ALBA, Rchb. f., in *Gard. Chron.*, 1880, pt. 2, p. 588. A pure white variety. See also *Gard. Chron.*, 1877, pt. 1, p. 790.

(17.) L. GRANDIS, Lindl., in Paxt. *Fl. Gard.*, i. (1850—51), p. 60, fig. 38; *Id.*, *Gard. Chron.*, 1864, p. 1202; *Bot. Mag.*, t. 5553; *Gartenflora*, t. 698; *Fl. des Serres*, t. 2473; Warn. and Will., *Orch. Alb.*, iii., t. 123. *Bletia grandis*, Rchb. f., in Walp. *Ann. Bot.* vi. (1861) p. 424.—Brazil. Introduced in 1849 by M. Pinel, from the neighbourhood of Bahia, in Brazil, plants being sent to M. Morel, at Paris. In the following year it was exhibited at one of the London shows. It appears to have been lost sight of again until 1864, when Messrs. Low & Co. received a few plants from their collector at Bahia; it was also received at Kew about the same time from the same port. It is believed to inhabit the hot and humid district around the Bay of Todos os Santos. *R. A. Rolfe, Herbarium, Kew.*

(*To be continued.*)

VEGETABLE PRODUCTS IN ADRIANOPLE.

In a recent report on the products of Adrianople, it is stated that the growth of canary seed is peculiar to Turkey in general, but especially to the district of Rodosta, and that it requires a deep but light soil. Owing to the remunerative results, a moderate yield being twenty-fold, it is extensively cultivated wherever the soil is suitable, and in many localities it forms the sole object of culture; whilst in others, notably Adrianople, a steady advance is visible. Great care has to be taken as to the choice of time for sowing, and a long drought proves fatal to the entire crop. Millet is grown extensively as a favourite food for horned cattle and fowls. A beverage called "boza" is also made from this seed. The yield is very abundant, reaching as high as forty to fifty, and sometimes a hundred-fold. Aniseed is grown in the Gallipoli region, and serves in the making of the native brandy, called "mastic." It is exported to France for mixing with various liqueurs, notably anisette. On account of the increasing demand, the cultivation of this plant is developing.

The cultivation of Tobacco is perhaps the most important branch of agriculture after that of the Vine, and is the most lucrative; whole districts are given up to its culture. In what is called the Adrianople district, three kinds or qualities of Tobacco are found, the first worth a little over 5*d.* per lb. to the grower, the second a little over 3½*d.* per lb., and the third at 2*d.* per lb. The annual produce is estimated at about 30,000 cwt., which does not comprise the contribution of Rodosta and Gallipoli, which is 6000 to 7000 cwt. The most famous leaf is that of Xanthe, which is not included in the above, and where about 30,000 cwt. are annually gathered; certain fields of known villages provide the finest qualities, and the owners of these fields are known in the same way as those of famed vineyards are known to the wine trade of France. The best Tobaccos are made up into very small bales called "Ghiobek boktellas," at a cost of about 3*d.* per lb. to the purchaser, to be exported to Russia, Austria, Roumania, and France; but the largest quantity is consumed in Turkey. Trials in the cultivation of Xanthe Tobacco are said to have been made in Russia and Asia Minor, but without success.

DAFFODIL SIR WATKIN.

In the first decade of the present century a mining captain named Byers came from Bideford, in Devonshire, into Merionethshire, to manage a lead mine near Dinas Mawddwy. He settled at a place called Pen Dyffryn, and brought with him from Devonshire some Daffodil bulbs, which he planted in his garden. These were of the kind now known as Sir Watkin, and persons are still living near Dinas Mawddwy who recollect the time when these grand Daffodils were known only in the little garden at Pen Dyffryn. By degrees a few appeared in neighbours' gardens, and when captain Byers, after leaving Pen Dyffryn, died at Dolgelly at the age of seventy-

five, about the year 1845, they were to be seen before many cottages near Dinas. In 1868, Mr. Pickstone went to live at Plas-y-bont, a villa four miles from Dinas. There he found some of these Daffodils in the garden, and when he went a few years afterwards to live near London, he took them with him, and sold the flowers to London florists; but he does not seem to have parted with any of the bulbs, and when he went to live at Maesmynan, near Caerwys, in Flintshire, he transferred them all to his new garden. After this he sent some of the flowers every year to Manchester, where they at last attracted notice. Mr. Alfred Dickson, of Chester, saw them in 1884, and at once entered into negotiation with Mr. Pickstone for as many bulbs as he would part with. Mr. Pickstone sold them all, 10,000 in number, and Mr. Dickson took possession of them when ripe, at the end of the summer of 1884. In the autumn of 1885 Mr. Pickstone sent 3000 more, which, as Mr. Dickson found, had been obtained from gardens near Dinas Mawddwy. Mr. Dickson, being anxious to obtain the whole stock sent in the following spring a foreman into Merionethshire to search for the bulbs whilst in flower, and in that year obtained 10,000 more, buying up all he could find. The total cost of becoming possessed of these 23,000 bulbs was nearly £1000. This is perhaps about the largest amount ever paid for the stock of one plant.

Such is the history, as far as it is known, of this famous Daffodil, which for the two qualities of size of flower and vigour of growth, is still unsurpassed in the incomparabilis section. The account here given may be accepted as authentic, as Mr. Alfred Dickson, of Chester, has very kindly supplied me with all the information he has, and has sent me some original letters in English and Welsh, from which I have collected these facts. Mr. Dickson also told me that of all the 23,000 he knows of only one which has varied from the type; this was one of a 100 sold to Mr. James Walker, and had a crown of orange colour. Mr. Dickson concludes that it was a sport, because although he has dusted the flowers with the pollen of many different Daffodils he has never been able to obtain a fertile seed from any pod of Sir Watkin. *C. Wolley Dod, Edge Hall, Malpas, March* 10.

THE APIARY.

BEES AND FRUIT BLOSSOM.

Much is said on this subject, but there still seems something to learn about it. We have come across two diverse opinions in the last week. First, the one for it. Mr. L. Wren, of Lowestoft, says that last year he had about thirty stocks of bees in a large garden at Beccles; there were many fruit trees in this garden. Just at the time when the trees were in full bloom came a very cold east wind, and the bees could only get a very little way from home. They, however, managed to get into the flowers close at home, that is, those just round the hives. The consequence was strange. All those trees which stood close to the hives were loaded with fruit, while those further off had very light crops. From this we gather that, the weather being warm, the bees would have worked all the blooms on all the trees, but, being cold, they could only work on those close at home. This seems to be very conclusive evidence, if any were required in favour of the bees.

The other instance comes from Kent. There, it seems, that a certain farmer wished to turn a poor woman (his tenant) out of house and home because, forsooth, her bees had been amongst his Strawberry plants, and of course done him a lot of harm. We should like to know what it is that does *not* work against farmers and farming in our days. It would seem as though all creation were united in one great effort to undo the farmer. I cannot say whether the farmer carried out his threat or not, but it only shows that ignorance is still rampant in many country places.

By the time this reaches the public eye, it will be time to begin gently feeding with *syrup* those stocks which are deficient in stores. It is generally quite safe to feed with syrup about the third week in March, but it is safer to go by the doings of the bees themselves than to do anything at fixed dates. If the bees are flying generally, that is most days of the week it is perfectly safe to give them syrup, otherwise it is unsafe, and probably, or at any rate possibly, dysentery may follow. Appliances ought to be looked to now, and preparations made for swarms, should they determine to issue, and other contingencies.

If the bees have enough food, let them entirely alone, as the less interference the brood nest has at the present the better. I have always found that those bees which do not require feeding at all give the best results. *Bee.*

LÆLIA GLAUCA.

Originally introduced into our gardens under the name Brassavola glauca more than fifty years ago, and since that time frequently brought over with other Mexican and Guatemalan Orchids, this fragrant species (fig. 52), has been received into most collections of Orchids at some time or other, but it cannot be said to have ever been a favourite, as under the treatment it was invariably subjected to, that is, placed in too high a temperature, it got in some gardens the name of being a bad grower, and in most of being a shy flowerer. In a few instances, however, where the plant has been grown in a basket suspended in the house with Lælia anceps, Lælia autumnalis, &c., it has grown satisfactorily, and produced its large flowers with freedom. These latter have pale green sepals and petals, and a pure white lip. Its pseudobulbs, or stems, are monophyllous, of a greyish-green colour, but they are not so distinctly glaucous as its larger growing and nearest ally, Lælia Digbyana, which also has an extraordinary development of fringing round the lip, and was the plant from which, by crossing with Cattleya labiata Mossiæ, Messrs. James Veitch & Son succeeded in getting their beautiful hybrid, illustrated in these columns, p. 657, May 25, 1889.

ORCHID NOTES AND GLEANINGS.

PHALÆNOPSIS HARRIETTÆ.

A two-flowered raceme of this beautiful hybrid has just been received at Kew from Erastus Corning, Esq., of Albany, U.S.A., and in spite of its long journey, is as fresh as if cut from the plant only the previous day, thanks to careful packing. The plant has gained strength under Mr. F. Goldring's care, and the flowers show a marked improvement since they were originally described and figured in these columns (July 2, 1887, p. 8, f. 1). It is certainly a great horticultural acquisition. It will doubtless be remembered that it was raised by Mr. Seden in the establishment of Messrs. James Veitch & Sons, of Chelsea, out of P. grandiflora by P. violacea. This is the original plant, but I believe there are one or two others in existence. Probably few hybrids show their greatest possible development on the occasion of their first flowering, the vegetative organs not having then attained their maximum development. *R. A. Rolfe.*

A Remarkable Phalænopsis.

There was recently in flower one of the grandest specimens of P. Schilleriana it has been my lot to see. The happy possessor is Fredk. Scholes, Brookland, New York, an ardent patron of horticulture, who gives the following description and history of the plant:—The original plant, which possessed one small growth when bought for one dollar eight years ago, now has three immense growths and twenty-one leaves, the largest measuring nearly 18 inches in length, and there are nine flower-stems, the longest measuring only 2½ feet, and upon which are 325 fully expanded flowers of medium size, and of a dark colour. It has been named by one of our leading orchidists, P. Schilleriana compacta nana. It was grown in a wire basket from its youth up, and left undisturbed for five years, except an occasional top-dressing of sphagnum moss, in which it is solely grown. Mr. Scholes ascribes his success with the plant to the liberal use of diluted cow-dung, administered once a week during the growing season. It is said that the plant is likely to pass into the hands of Pitcher & Manda, Short Hills, N.J. *Our New York Correspondent.*

Mexican Orchids.

M. L. Linden calls attention to the singular fact that Mexican Orchids are relatively easier to introduce than those from Venezuela or Colombia, but, on the contrary, the cultivation of Mexican Orchids is much more difficult than that of those from Colombia. For instance, O. maculatum, O. nebulosum, O. maxillare, &c., are rarely well grown; whilst O. crispum, O. luteo purpureum, O. triumphans, are usually well cultivated.

Orchids at Messrs. J. Laing & Sons.

At the Forest Hill Nurseries there are some few interesting Orchids in flower at the present time. Odontoglossums are represented by several species, forms of O. crispum and O. Rossi majus are plentiful, also O. aspersum, O. pulchellum and O. Cervantesii. In the Orchid-house is an effectively arranged bank, which contains some finely flowered pieces of Dendrobium Wardianum in good forms, D. nobile and D. n. pendulum, D. crassinode, and others. Some of the varieties of Cattleya Trianæ here were very good forms, including C. T. Warczwiczii, with a fine breadth in all the delicate lilac rose segments, the prominent lip well coloured on the median lobe. C. T. marginata, recently certificated, is a very pretty form, with pale rosy suffused petals and sepals, the lip is bright crimson with a pale much crested fringe. Another approaches C.T. Backhousiana, the fringe is quite dark, and there is the peculiar veining at the tips of the petals. Lælia harpophylla and Phaius grandiflorus were also in flower. In the pits we saw, among other things, an apparently vigorous stock of that fine old favourite Leschenaultia biloba major.

Cymbidium eburneum.

A fine plant in a 12-inch pot of the above Orchid is now in full beauty in Mr. Hodgson's garden, Lythe Hill, Haslemere. It possesses twelve growths and twenty-seven flowers. Mr. Evans grows the plant in rough peat, and gives good drainage to the pot, and waters it liberally in the growing season. The Cymbidiums are grown in the Mexican-house, and the treatment afforded it there seems to suit it better than when a temperature higher than that given to Mexican orchids is given. After growth is made, the plants are stood with Odontoglossums in a cool house.

FLORISTS' FLOWERS.

THE RANUNCULUS.

Are the beautiful forms of the Asiatic Ranunculus to be allowed to die out of our midst? I am afraid it has become very difficult to obtain both roots and seed of the fine type which made the names of Tyso and others so famous in a past generation. The most recent collection of Ranunculus I have seen growing was in Mr. Samuel Barlow's garden at Stakehill House two or three years ago. Possibly there are others about the country who grow a few, but they are rarely heard of. At some provincial shows held during the month of May, it is customary to offer prizes for flowers of Ranunculus, but they appear to be waxing poorer year by year. A revival of interest is much needed in this flower, and in the showy Anemone also. It is true

that one can find in bulb catalogues mention made of named superfine Persian Ranunculus, and superb Scotch varieties, and they are probably grown, and it is not unreasonable to suppose there are good things among them; but it is found in practice that unless some close attention be given to the roots after they have done flowering, they soon dwindle away, and there is no doubt many roots that are annually planted are so lost.

I should like to see attempts at raising seedlings, though any effort in that direction should be made only with the best seed that is procurable. If a collection of named Persian varieties were obtained, some seed could be taken from the best of them, and the operator would thus have something to commence with that might lead to the acquisition of a few varieties of his own raising of some merit.

Seed can be sown early in the month of March. It is readily raised when the seed is good. A fairly shallow wooden box can be filled with rich soil, and the latter made level at the top, and then watered through a fine rose watering pot. Then the seed, which is of a soft fluffy character, should be sown over the surface as thinly and regularly as possible, a feather being generally employed for the purpose. The box should then be covered with glass, and be kept in the shade to prevent the seeds or soil from being dried by wind or sun. In about a fortnight the seeds will begin to germinate, and as soon as they put forth growths, a little fine soil should be sprinkled over them, just enough to cover them. As they grow into size they can be pricked off into other boxes, if necessary, though this is best avoided. The boxes can be stood out in the open in May, and by the end of June, the foliage having died away, the roots can be taken from the soil, and put away carefully to plant out to bloom the following season. *R. D.*



Fig. 52.—Lælia glauca: segments greenish, lip white: from a sketch by Mr. Weathers. (see p. 356.)

"Orchids, their Culture and Management."—This useful treatise, edited by Mr. Watson, has reached its tenth part, the genera mentioned being Renanthera, Restrepia, Saccolabium, Schomburghia, Leuticaria, Sobralia, Sophronitis, and Spathoglottis.

Nursery Notes.

MESSRS. JAS. VEITCH & SONS, CHELSEA.

The brighter weather has caused an entire change in the flowering Orchids at this great establishment. The fine display of Cattleya Trianæ, Dendrobium nobile, and of Cœlogyne cristata, now nearly over, has given place to another, that of Cypripediums in great variety, some good forms of the pretty and fragrant Cattleya Schroderæ, and others which usually flower at this season. The rockery is gay with Cymbidium Lowianum, a noble specimen; some sturdy specimens of C. eburneum, and with perhaps the largest and most vigorous plant in the country of the old but much-prized C. Devonianum. This plant has four fine drooping sprays of white and purple flowers. Here, too, are several showy specimens of the fragrant Bifrenaria Harrisonii, with two or three dozen flowers on each; Lycaste fulvescens, with over thirty flowers; many Lycaste Skinerii, and among them a giant form of the pure white variety, with superb white flowers, being 7 inches wide at their greatest width, the sepals and petals having each a breadth of 2 inches. Several of the best type of Dendrobium Farmeri were in bloom, many of D. Wardianum, D. crepidatum; a charming new light form of D. nobile; the handsome Oncidium tetrapetalum; the best exhibition form of O. sphacelatum; many O. sarcodes; several Epidendrum Wallisii, Lycaste costata, a large specimen of Cœlogyne cristata alba; the strong growing and handsome pure white Calanthe veratrifolia var. australis, Maxillaria luteo-alba, Cœlogyne Massangeana, Chysis Limminghi, the elegant Pholidota chinensis, and the curious P. ventricosa; some elegant plants of the white and fragrant Platyclinis glumacea; the noble and richly-coloured Maxillaria Sanderiana; the fine hybrid Cymbidium eburneo-Lowianum; some splendidly flowered Oncidium ampliatum majus and Phajus tuberculosus, and many other rare species which look to great advantage arranged on the rockeries or suspended overhead.

The Cypripedium-houses have in flower the new C. Numa× (C. Stonei × C. Lawrenceana), C. Othello×; the curious C. Atys ×, a very distinct C. Hookerianum cross; C. Lathamianum×, which increases in beauty as it gains in strength; C. Petrei, C. Porphyreum×, C. Sedeni ×, and the chaste C. S. candidulum×, C. cardinale×, C. Williamsianum×, C. villosum aureum and C. Boxalli superbum, C. hirsutissimum, C. Elliottianum, C. venustum ×, C. Selligerum majus, and numerous forms of C. argus, and C. barbatum.

The Phalænopsis Schilleriana and P. grandiflora had some good sprays; and plants of P. leucorrhoda and P. casta were in bloom. Vanda cœrulescens, Saccolabium Harrisoniæ, the rare Angræcum fastuosum and other Angræcums, Miltonia Roezlii, &c., were noted.

The cool-houses are bright with clumps of scarlet Sophronitis, and many fine sprays of that finest of coloured Odontoglossums, O. triumphans, mingled with the elegant white-flowered spikes of O. crispum and O. Pescatorei, and the soft tints of some of the hybrid forms.

Hippeastrums.

Nothing could exceed in beauty peculiar of its kind, the houseful of the above-named plants at this nursery. The foliage appears to be much finer and longer than we have hitherto seen it, an improvement which is due to the mild winter and freedom from fog enjoyed by London since growth began. The flower-spikes bristle more numerously than in former years, promising therefore a prolonged display. Every day brings out some new beauty, some improvement perchance as regards form or colour, which the hybridiser, Mr. Heale, who is constantly watching for new materials for hybridisation, jots down in his note-book. The parentage that was once traceable to H. pardinum, H. Ackermanni superbum (Garaway's hybrid), H. Leopoldi, and H. Empress of India is now very much mixed owing to intercrossing.

The following were some of the finer bulbs in flower on March 17: Illustrious, a purplish crimson—quite a new colour, with scarcely any trace of green at the base; Armata, a scarlet-crimson, with a feathering of deeper colour in the middle of each segment towards the base; Dromo is of brilliant scarlet, with a green stripe at the base—regular and smooth form; Cicero is blood-red, with a green base; Champion, a flower of last year, a magnificent crimson—measures 10 inches in diameter, the lower segment being 2½ inches wide, and the upper 3¾ inches; Ino is a fine white, with scarlet stripes and flakes, the segments also well reflexed—a pleasing style of flower; Abeona and Phædra are similar to the above; Lacinia is a white, with a few crimson lines. It is possible that the total number of flowers this season will reach 2000.

Trade Notice.

Mackett's Orchid Bureau. — Mr. F. C. Mackett, of St. Albans, has opened an establishment to serve as a medium for the exchange or sale of duplicate plants. A list of plants offered, and a corresponding list of plants wanted, is printed and circulated every week, and is likely to be useful to amateurs.

Plants and Their Culture.

Some Inmates of the Stove and Intermediate House.—Tubers of Gloxinias may now be started as a succession to the earlier started ones. If late autumn bloom is required, some of the tubers should be reserved for that purpose, and plants raised from early sowings will follow these, and prolong the flowering period of Gloxinias to the end of the year. Tuberous-rooted Begonias should now be started, as some of them will have begun to grow. Good loam should be used in potting, an over-potting avoided, giving them but little water till growth commences; a warmth at night of 50°, and by day of 60°, will suit them. Amaryllis as they go out of bloom may be repotted, if the pots be very full of roots, otherwise this operation is better done previous to growth beginning. They should occupy a sunny position. Vallota purpurea may also be repotted if the soil be sour, or the drainage of the pots defective.

The Greenhouse.—More water will be required by plants in this house, and shading for some of the plants. The ventilation on mild or bright days must be abundant, but the house may be closed rather early, so as to economise warmth as much as possible. Any plants wanting a shift into larger pots should, after potting, be kept rather close at the warmer part of the house for a time. Temperature, 45° at night; 55° by day, or higher during sunshine—but if easterly winds prevail, the ventilation will require much care. Means should be taken to prevent mildew spreading among New Holland plants and on Statices, by dusting affected plants with flowers-of-sulphur. A few of the latest of the Cinerarias may be retarded by being placed in frames with a northern aspect, and these will be benefited by occasional waterings with liquid manure. Cinerarias should be kept very clean. Primulas of the duplex flowered sections may be kept drier at the root after having bloomed, thus preparing them for division of the roots. We place a little sphagnum and peat round the neck of these plants and into which roots push freely, and the plants are then split up and put into a close frame early in the month of April. Any special variety of the single species required for seeding should have but one truss of bloom left on it, and be put on to a sunny shelf. Cyclamen plants of which seed is to be saved, may be placed in a similar position, but on these half-a-dozen blooms may be left. The late sown Cyclamens should have been put into small pots and kept near the glass, watering them carefully. The warmth of an intermediate house suits young Cyclamens.

Herbaceous Calceolarias making rapid growth must be grown close to the glass, or weakly growths will be the result. Any re-potting of late sown plants should be completed, and weak liquid manure given to plants with plenty of roots. Calceolarias like a cool pit, greenly soon infesting them in a warm place; fumigate them frequently. A sowing of Primula sinensis may be made, and one of Nicotiana affinis, Solanums, Globe Amaranth, Balsams, Rhodanthes, Celosias, Cockcombs, and Schizanthus. Mignonette will be useful, and the variety called Machet is good for pots. Fuchsia cuttings may be struck to flower late, and old plants may be stopped at the points at frequent intervals, and kept growing freely in a warm and moist house or pit. Solanum cuttings should be obtained by cutting back the old plants. Also cuttings of Salvias when large plants are wanted, but for small plants cuttings put in during May will do very well.

Repot old Salvia plants after shaking them out if very early bloom is desired. The same operations will apply to Eupatoriums. The useful Francoa ramosa may be shifted at this time of the year. Any Bouvardias cut back recently will soon be able to furnish cuttings, which propagate as soon as they are two inches long. If the stock of the show and fancy varieties of Pelargoniums is low, cuttings from old plants may be taken, and these will soon make nice plants. The older plants must be fumigated often, to keep down aphis. Repot plants for late bloom, and keep all of them close to the light; the plants to follow the early ones may now have the points of the shoots pinched out.

Chrysanthemums should not be allowed to want for moisture, and may be stood in cold frames, protecting them on cold nights, and repotting the plants as the pots fill with roots. Cuttings of Libonias should be now struck, also of Linum trigynum. These plants will require higher temperature in the autumn than most greenhouse plants. Kalosanthes may be shifted if that be found necessary, employing loam and a small quantity of decayed manure. Stop the new growth of these plants as soon as the roots fill the pots, and feed them liberally; a low pit or a shelf near the glass will suit them. Lachenalias, if in bloom, should get plenty of water, and a cool place in which to flower. *G. Wythes, Syon House, Brentford.*

The Flower Garden.

Roses.—The pruning of all Roses should be completed, as injury from frost is not likely now to occur, although it is yet possible to have some severe weather. The pruning must be determined by the growth of the plant operated on, whether vigorous or weak—if the former, four or five buds or more may be left, according to the size of the head or bush; and if of weaker growth pruning may be much harder, removing also as much of the old wood and weak shoots as would be consistent with keeping enough to furnish a good head—the young growths producing the best blooms. Moss Roses require the old growths to be cut away entirely, the young alone being reserved, the tips of which should be cut off before pegging down. A dressing of rich manure should be given Rose-beds annually, and if, in addition, loam be incorporated with the manure and forked in, it will much improve the growth of the plants on all kinds of soils.

Winter Protection.—All half-hardy subjects may now be uncovered, including Magnolias, Clianthus, Camellias, Myrtles, and the necessary pruning and training attended to, which will put them right for the season.

With Ivy on Walls, the best plan is to trim off closely all the foliage with a reaping-hook, or the hedge-shears. It may look unsightly for a time, but close new foliage will soon cover the wall, and which will give no further trouble during the year. Treating Ivy in this manner gets rid of old leaves, clears out many insects from their hiding places, and removes all danger of having the Ivy torn away by winds.

Evergreens.—These may still be cut or clipped, but this operation should be pushed on, as growth will soon commence. Rhododendrons are best pruned now, instead of after flowering, otherwise the young growth does not attain sufficient maturity to withstand severe weather in winter; one season's blooming must be sacrificed in any case; besides growth always commences more readily at this season, and the unsightly effects of pruning are more quickly replaced by young growth.

Pinks and Carnations, wintered in cold frames, should be transferred to beds or borders; if in beds, plant them about 15 inches apart each way. Hyacinths should be kept tied, and protected, as previously advised, with other tender spring flowers.

Half-hardy Annuals should have plenty of air afforded them in favourable weather, so as to render them sturdy; and, when sufficiently advanced, they should be pricked off into pans or boxes, or in hand-lights or cold frames, protecting them from cold winds and frost, and hardening them off well as growth advances. Sowings of all kinds of plants required for the flower garden this season, should be done at once. There is still plenty of time, but delay will shorten the period of flowering. *D. C. Powell, Powderham, Devon.*

The Orchid Houses.

The Cool Houses.—Closely examine the plants for aphis and slugs, and lay pieces of Potato upon the pots for catching the latter, also bran on pieces of slate, examining these baits once or twice in the evening; aphis may be entirely kept under by the use of the syringe. This should be done with the nozzle, or single jet, over which the fore-finger should be held firmly when employing it. Some growers fumigate with tobacco, but to the use of this I have objections, for I have seen some of the best houses full of Odontoglossums reduced to a pitiable condition by its use. Disa grandiflora and its varieties are very apt to get aphis in the young growths, but this may be easily killed by the use of a camel's-hair brush and some soft soapy water. Keep the stages and walls thoroughly moist, and the night temperature about 50°, rather under than over.

East Indian House.—Cattleyas Dowiana and aurea are now pushing growth, and if re-potting or surfacing is required by the plants, it should be now done; these species enjoy a good heat, and much moisture. Cattleya Eldorado and C. superba will be found to do well in this house. Cypripedium Godefroyæ and C. bellatulum should still be kept on the dry side, they being species very apt to damp off at the base.

Dendrobium Cambridgeanum should be re-blocked or re-basketed. This is an Orchid which does not like a large amount of peat and sphagnum moss about its roots, but fixed to a block of Apple or Pear wood, with a small quantity of sphagnum, it does very well indeed. Water them abundantly, and dip them in the morning and afternoon of fine days. D. nobile and D. heterocarpum, for early flowering, should be making strong growth, and be kept at the warmest part of the house, and where a very humid moisture is maintained.

Plants of Cattleya gigas newly imported will be best hung up by the roots, and a thick shading placed over them for a few days, they being not then so likely to lose their leaves. The temperature of this house should be that advised in my last Calendar. *A. G. Catt, Parkfield, Worcester.*

Fruits Under Glass.

Vines.—The simplest plan to put a fresh kind on an old Vine is to strike well-ripened eyes in bottom-heat, and inarch the growing cane on to the young wood of the old Vine, although bottle-grafting may be recommended in some cases. The Guava ripens its fruit and does well on the back wall of a vinery if not too densely shaded, and forms a handsome evergreen covering to the walls.

Melon-house.—Plants whose stems were stopped in order to produce fruiting laterals, may have the laterals stopped at the first joint beyond the fruit; aim at getting three or four flowers open on the same day, impregnating the flowers daily until a good set is obtained. Remove and pinch out all useless shoots, and be careful not to over-water, especially during flowering. Renovate the fermenting material from time to time, if it be getting too low, and maintain brisk heat. Plant out successional crops; also sow more seeds, and prepare dungbed frames.

Cucumber-house.—Winter plants which are still clean and fruiting well, will require abundance of manure-water, and top-dressings of turfy loam and spent Mushroom-bed dung. Guard against over-cropping, cut the fruit whilst young, and train in healthy young shoots. Maintain a high atmosphere, with much moisture, and damp down occasionally with strong dung-water. For several years at Blenheim, Cucumber disease baffled all my efforts at curing it, and the only course was to burn all the infected plants and start afresh, avoiding the use of fermenting materials for a time. Spring raised plants should be planted 6 feet apart, stopped as soon as half-a-dozen leaves are made above the trellis, the laterals being trained out thinly—severe prunings being guarded against. Cucumbers are gross feeders, and require but a small amount of ventilation, and a temperature of 70° at night, 80° by day, and bottom-heat 70° to 80°.

Strawberry-houses.—Introduce plants in weekly batches. President will now make a good succession to La Grosse Sucrée, but it takes a little longer to perfect its fruit. The Strawberry-house may be kept cooler at one end to receive successions from the frames, and which, as they progress, should be moved onwards till they finish on an airy warm shelf to bring up the flavour (we always winter our plants in coal ashes outdoors). Temperature, night 50° at the cool end, and 55° at the warmer end. Give liquid manure to plants swelling their fruits. My opinion of Noble is favourable as a second cropper, but the fruit ripens at the point first. The fruit is noble in appearance, but not equal to La Grosse Sucrée as a first early fruit indoors.

Tomatos.—Plants raised from cuttings in August last will now, with the help of the camel-hair brush, be again flowering and setting. I prefer to have them in 12-inch pots. Stop the laterals above each bunch of flowers, unless there is space on the trellis on which to train the shoots. As soon as their crop of fruit is set give manure water; sow seeds and prepare plants for future planting. If white fly attacks the plants, there is no better antidote than Calvert's soft-soap, dissolving 1 oz. in 1 gallon of soft-water, and frequently syringing the plants with it.

Orchard-house.—Give sufficient fire-heat to raise the temperature, and maintain a brisk circulation of air, the more so if the trees are nearly in flower, the flowers of Plums, Pears, Cherries being liable to suffer from moist air. Trees in pots must never feel the want of water; it is very important that they should be well watered previous to their flowering, in order to carry them over that period. Fumigate the house before the flowers expand.

Peaches and Nectarines.—Continue to disbud and thin the fruit, and bring the shoots to 6 inches apart at the least, and the fruit to an average of one to each square foot, giving preference to those that face the sun. The trees in the earliest house will now be stoning, and a regular temperature must be maintained.

Figs may be thinned finally, an operation very often not required. Syringe twice daily, and water with manure or give mulchings. Keep every department rigorously clean. *W. Crump, Madresfield Court, Malvern.*

The Hardy Fruit Garden.

Peaches and Nectarines.—The training of these trees should be completed early, the favourable change in the weather having caused the flower-buds to swell. Young Plums, Apricots, and Peaches, that have not previously been wall-trained, should be partially disbudded as soon as they have started fairly into growth, all foreright shoots being rubbed off first, leaving such only as are likely to lay close to the wall; and any strong ones which seem likely to unduly take the lead must have the points pinched out. A similar process of pinching strong shoots is necessary with older vigorous trees, in order to furnish them with bearing-wood. However clean the trees may have been last year, and well washed this winter, aphis will always appear just before the flowers open; closely examine the shoots, therefore, and dust them with tobacco-powder if aphis be noticed on them.

Figs.—These fruit trees in warm districts should have the branches thinned out, so as to make room for laying in new ones, the production of which may be encouraged by a good thinning-out of the older main branches. If summer pinching and thinning were attended to, very little will remain to be done to Figs at this season. The terminal bud of every shoot should be pinched out, to encourage a greater number of embryo Figs to grow. In cold districts, where covering the Fig is adopted, the protecting material should be removed by degrees, our springs being very treacherous, one day being like summer, and the next like winter, and these sudden checks are injurious. Trees not in a satisfactory bearing condition should be attended to within the next three weeks. The chief aim should be to keep the roots near to the surface, for if these are allowed to get into a cold inert subsoil, the crop of fruit is always a thin one, no matter how well the tree should look aboveground. This arises simply from the wood not getting ripe. To remedy this state of things, dig a deep trench along the front of the border, dig under the roots, and lift them out by working with a fork towards the wall. Having laid the roots bare, shorten them a little, and add some fresh loam and mortar rubble to the border, trenching it over. Then spread the roots out, and cover them with about 6 inches of turfy loam, with a liberal quantity of mortar rubble. Mulch with 2 inches of old manure, which will not cause gross soft wood as when it is buried about the roots. If Figs are trained horizontally, it will be found to check their often too-luxuriant growth, and assist the ripening of the young shoots.

Grafting of Apples and Pears.—This operation should always be finished before the trees begin to grow, the most forward varieties being grafted first. Double grafting of unsatisfactory kinds will often improve them; but I have noticed that when vigorous rooted stocks are used for delicate varieties, a vigorous crop of root-suckers follows grafting. I am of opinion that root grafting will be more generally adopted than at present, as inducing precocity for the first year or two, and eventually allowing the tree to become established on its own roots. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

The weather during the past week was all that could be desired by the kitchen gardener for the sowing of the main crops of Onions, Parsnips, early Carrots, and the planting of some early Potatos. In addition to the above, sowings of Brussels Sprouts, Cauliflowers, Leeks, Lettuces, and Radishes were made, also plantations of Seakale. Globe Artichokes should now be partly relieved of their winter protection, and if new beds are to be made, the ground should be thoroughly prepared by the first week of April, trenching and manuring the land heavily with decayed farmyard dung. If large heads are looked for, plant sturdy suckers in groups of three when of about 8 inches high, pulling them up from the old stools. These groups of suckers should be not less than 4 feet apart, and in the rows 5 feet. If the soil is shallow and open, it is best to remove 8 inches of the top soil, and plant firmly, afterwards filling in the hollows with manure; and if the soil be dry, watering the plants before putting on the mulching. If required, these plants will produce nice heads late in the first season, after planting making a succession to those from old stools. Thin out weak shoots from among the old stools.

Asparagus.—Place more of these into gentle heat. From now onwards, very little bottom heat will be required. Keep the frames, &c., close till the grass appears, doing the forcing with as much sun heat as possible; slightly damp over at midday with tepid water, and cover up the frames early in the afternoon.

Celery.—Now is a good time to sow the main crop of Celery, sowing the seeds in pans, placed in a vinery, just started, or under hand-glasses, at the foot of a south wall. Bring the pans out of the vinery when the plants are up, and place them in a cold frame, and those in hand-glasses must be ventilated daily—there must be no coddling. A second sowing may be made about the middle of the month of April. It is questionable if there is a better Celery than Major Clark's Red. Matchless and Winchester Reds are also varieties we are growing this season; and Sandringham White and Veitch's Superb for early use.

Cauliflower plants may now be transplanted from frames with a trowel, planting them between rows of Peas, and protecting with Spruce boughs. Those raised under glass in heat are safer when planted in the second or third week in April. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, MAR. 25 { Royal Horticultural Society at Westminster: Fruit, Floral, and Scientific Committees, and Lecture by M. H. de Vilmorin.

SHOWS.

WEDNESDAY, MAR. 26 { Royal Botanic Society. Glasgow and West of Scotland.

THURSDAY, MAR. 27 { Shropshire (at Shrewsbury). Paisley (two days).

FRIDAY, MAR. 28—Falkirk.

SATURDAY, MAR. 29.—Crystal Palace.

SALES.

MONDAY, MAR. 24 { Lilies and Greenhouse Plants, at Protheroe & Morris' Rooms.

WEDNESDAY, MAR. 26 { Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms. Lilies, Palms, Rose Trees, &c., at Protheroe & Morris' Rooms.

THURSDAY, MAR. 27 { Orchids in Flower and Bud, and Lilies from Japan, at Stevens' Rooms. Greenhouse Plants and Rose Trees, at the City Auction Rooms, by Protheroe & Morris. Clearance of Nursery Stock, at the Royal Nursery, Ascot, by Protheroe & Morris.

FRIDAY, MAR. 28 { Established and Imported Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—44°.2.

The Bulb Mite on Eucharis.

OUR correspondence on this important subject is so very extensive that, without excluding much other matter of interest, it would be hardly possible to find space for it in our columns; nor does it appear on perusal to contain any statements regarding culture, soil, temperature, and management generally, which have not been stated many times previously in our columns. We take a few:—"S. W." tried petroleum and water, at a temperature of 135°; pure petroleum, slaked lime, afterwards plunging the potted bulbs in brisk bottom-heat. These very drastic measures killed some, and others recovered—the writer believing that these were but little affected. He attributes the presence of the mite to be due to overwatering; but does not say how water is able to bring about the birth of an insect, although external causes, as we know, do facilitate attacks of a fungoid nature; but that is something quite different. Mr. JOHN HEATH does not believe in the burn and destroy dictum, and says that unhealthy Eucharis are always infested with mite, and when very much so the bulbs cannot be freed from them; but "if taken in time"—that is, when there are but a few mites, the plants recover. He does not tell us what is the remedy, and he knows of no plant which will so long put up with bad cultivation, and yet give fair returns. "R. M.," in an interesting letter on Eucharis-growing as practised by himself, and which will be found at p. 365, is not a believer in curing "mite," and advises the destruction of infested bulbs, giving the unsuccessful treatment of Eucharis bulbs by a clever gardener in his neighbourhood, and the non-success of others, as the cause of his want of faith in all remedies hitherto employed. The lessons taught by these and other communications we have received are, that high temperature and plenty of water when growing, are needed, but less water when it is desirable that the plants should be rested, which should not be oftener than twice in a year. To dry off a river side plant of the tropical region of Brazil is contrary to its nature, although there will occur times when the rivers are low—that is in late summer—when the soil of the banks is less moist than is the case in winter, spring, and early summer. The plant flowers in flood time, which corresponds with its season of growth, and which is the period also at which the plant demands of the gardener the fullest supplies of water, and, when crowded in pots, of weak stimulants. Departures widely made from its natural conditions, and persisted in for several years, doubtless tend to debilitate the plant, and render it susceptible to the attacks of an insect not peculiar to Eucharis, but which infests other bulbs, just in the same manner that thrips and red-spider will attack weakly plants of other species, and get the mastery of them when left unchecked.

It must be remembered that the mite is not the only agency at work, for fungus also plays a part in so far as regards the bulbs of Eucharis, and the difficulty in detecting the pest without the aid of a lens adds further perplexity to the matter. The gardener who does not see the creature that is working so much mischief amongst his plants is loth to take radical measures for its extinction, and yet it is the only course which is left to him when the ravages, which might have been stayed by earlier remedial measures, have become deep seated. It has come to our knowledge—quite recently—that a cultivator well versed in the management of bulbs, especially Hippeastrums, has been able, by very simple means, to cure bulbs of this species, when attacked by the mite, and we quite think that his methods are likely to prove efficacious when the mite has not penetrated beyond the outer envelope of the bulb. The bulbs are shaken out of the soil, washed in warm water, in which some Chelsea Blight Composition is mixed, and afterwards dried thoroughly. The process of drying may take some weeks. The bulbs are then potted in moderately rich loamy soil, the pots used being only just sufficiently large to admit the bulb. The after-treatment of these hitherto infected bulbs was that pursued with healthy bulbs, and in no case has there been any re-appearance of the mite.

Those who wish to know what the mite is like, may consult the figures (fig. 54, p. 364), which were placed at our disposal by Mr. MICHAEL, the learned expositor of the forms and life-habits of these mischievous pests.

A CARPET BED IN THE JEPHSON GARDENS, LEAMINGTON.—The public gardens of the town of Leamington, Warwickshire, called after their donor, the late Dr. JEPHSON, have been greatly improved at various times, and are exceedingly well kept at all times, and particularly gay in the summer and early autumn months. The following description of the bed shown in fig. 53 is from the *Leamington Advertiser*, and is part of a general account of the gardens:—"The carpet and other bedding is this year, 1889, a special feature, and reflects the highest credit upon Mr. LONGFORD, the head gardener, by whom they have been so skilfully arranged. In the present article we shall confine ourselves to the carpet bedding and other special designs, which are now in their full summer beauty. First, perhaps—although of course this is a matter of taste—is the large specimen—and a very fine specimen it is—of carpet bedding near the monument which contains the marble bust of the late Dr. JEPHSON. The bed measures 23 feet in its long diameter, and is a magnificent specimen of artistic combination of colour. It contains about 10,000 plants, every one of which appears to occupy the individual position which it was predestined to take. The design is a series of scrolls representing a pair of Æolian harps. It has a raised centre, in which is a very fine specimen plant of the Dracæna australis, which is surrounded by a hundred plants of the Echeveria Peacockii. The groundwork is composed of the pretty Herniaria glabra, with a belt of Mentha pulegium gibraltaricum, dotted with a Pachyphytum bracteosum at regular intervals. The scrolls are outlined with Echeveria secunda glauca, and the colouring is obtained by three forms of Alternanthera amœna, versicolor, and paronychioides aurea. The scrolls are filled in with Leucophyton Brownii. The bed is raised about eight inches from the level of the lawn, and is bordered by a double row of Echeveria secunda glauca. A number of plants, which stand higher than the average bedding, are used as "dot" plants, and these give a grace and finish to a piece of work which for taste and arrangement, could not well be surpassed. The beautiful Pyrethrum aureum selaginoides, which does not run to bloom, has been introduced in sufficient quantity to give an effective colouring to the whole."

HORTICULTURAL CLUB.—This Club, held at the Hotel "Windsor," Victoria Street, Westminster, was established to provide a meeting-place for all classes interested in horticulture, for social gatherings from time to time, for the monthly meetings, when papers are read on horticultural subjects, and to afford its members all the advantages of a first-class club on moderate terms. The reading-room is supplied with all the gardening periodicals. The vicinity of the Club to the meeting-place of the Royal Horticultural Society, makes it very convenient for persons attending the Society's meetings. It has also afforded a home for the following Societies:—The National Rose Society, the National Carnation and Picotee Society, the National Auricular Society, the National Dahlia Society, and the British Fruit Growers' Association. A special dinner of the Club will take place on Tuesday next, the 25th inst., at 6 P.M. Mons. HENRY DE VILMORIN will be the guest of the Club.—The usual monthly dinner and conversazione took place on Tuesday evening, Dr. HOGG, in the absence of Mr. JOHN LEE, presided; there were present besides: the Rev. W. Wilks, Rev. F. H. Gall, C. T. Druery, Messrs. Girdlestone, J. H. Veitch, A. Veitch, G. Bunyard, H. J. Pearson, C. E. Pearson, T. Francis Rivers, &c. The subject for discussion was "Plant Hybridism," which was opened by a very thoughtful and interesting paper by Mr. Lewis Castle, owing to whose unavoidable absence it was read by Mr. Geo. Bunyard. Mr. Veitch dealt with the subject in relation to Orchids; Mr. Druery, to Ferns; Mr. Pearson, to Pelargoniums; Mr. T. Francis Rivers, to fruit; while most of the members present joined in the discussion.

GARDENERS' ORPHAN FUND.—A meeting took place at the Hummums Hotel, Covent Garden Market, on Friday evening, the 14th inst., at 9 p.m., convened by the Committee of the Gardeners' Orphan Fund, and at which a goodly number of standholders in the Flower Market were present, the immediate object of the meeting being to carry out a third Floral *Fête* in aid of the Fund during the month of May. Mr. GEORGE DEAL presided, and among the growers present were Messrs. G. Messer, G. Poulton, E. Sawyer, H. Hawkins, S. Plimley,

Jun., G. May, G. Wermig, J. Lewington, W. G. Williams, W. Gregory, J. Walton, H. R. Wright, J. W. Baker, J. Bannister, A. Cattaneo, &c., the Committee of the Fund being also well represented. The Chairman having opened the proceedings by reading a letter from Mr. J. Bourne, conveying the willingness of the Duke of Bedford to grant the use of the market for the purpose; and one from Mr. W. J. Soulsby, Secretary to the Lord Mayor at the Mansion House, stating that the Lord Mayor and Lady Mayoress will be happy to become the Patrons of the *Fête*, and will, if possible, attend the same. It was, therefore, moved by the chairman, seconded by Mr. J. Walton, and carried unanimously, "That this meeting cordially endorses the proposal to hold a third evening Floral *Fête* in aid of the Gardeners' Orphan Fund; and, having heard with pleasure that His Grace the Duke of Bedford has kindly granted the use of the Flower Market for this purpose, this meeting pledges itself to render the best assistance in its power to carry out the same, and to co-operate in general with the committee of the Fund." On the motion of Mr. W. Gregory, seconded by Mr. J. Walton, the following standholders were appointed a committee of sixteen to co-operate in carrying out the *Fête*:—Messrs. W. Baker, G. May, G. Messer, J. Bannister, G. Poulton, J. Lewington, H. B. Bay, E. Sawyer, T. A. Dickson, A. Cattaneo, E. Rochford, A. Bullen, G. Wermig, Jas. Williams, W. Gregory, and J. Walton. The best date for holding the *Fête* was discussed, and ultimately it was decided by the meeting that it take place on Wednesday, May 21, though some of the standholders thought a later date would be more suitable. The joint committee will meet at the Caledonian Hotel on Friday evening, the 28th inst. — On Friday evening, March 14, a lecture on "Apples, their Culture and Use," was delivered by Mr. W. Roupell at the British Workman's Club, Upper Tulse Hill. Mr. T. Buxton Morrish presided, and opened the proceedings by explaining that the lecture was given on behalf of the Gardeners' Orphan Fund, which institution he commended to the meeting in a forcible address. The lecture was of a comprehensive character, and conveyed much practical information concerning Apples, and the best methods of culture. Quotations from various authors were given, and some extracts from Mr. R. D. Blackmore's recent work, *Kit and Kitty*, were well received. A collection of well-preserved Apples was staged, and during a pause in the lecture some baskets of fruit were handed round for the audience, to enable them to taste. A substantial collection was made, and several new subscribers to the Fund gave in their names.

National Rose Society.—We understand that it has been determined by the Committee to alter the date of the Annual Dinner to June 24, the day on which the exhibition of Tea Roses will be held at the Drill Hall; the dinner will take place at the Hotel Windsor at 6 o'clock, and the Chair will be taken by the Very Rev. the Dean of Rochester, President of the Society.

Hall for Horticulture.—We learn that at a meeting of the "Sites Committee," held on Monday last, it was resolved to call a great meeting (of which due notice will be given) of horticulturists and the horticultural trades throughout the kingdom, when the whole scheme and present position of affairs will be fully explained. The committee hope that the trade, upon whose attitude much depends, will see that it is to their interest to popularise horticulture, and take the matter up with spirit, and that a large number of gentlemen, commercially interested in horticulture, both in London and the provinces, will attend, as the scheme will benefit the latter nearly, if not quite as much as the former.

"Icones Plantarum."—The last part just issued contains twenty-four uncoloured lithographic illustrations of various species of Stapelia, with descriptive text by Mr. N. E. Brown. This botanist is known to have studied this remarkable group for some years; he has grown many of them, and taken every opportunity of studying the living plants as well as those preserved in the herbarium. It is to be hoped that we may have ultimately a complete mono-

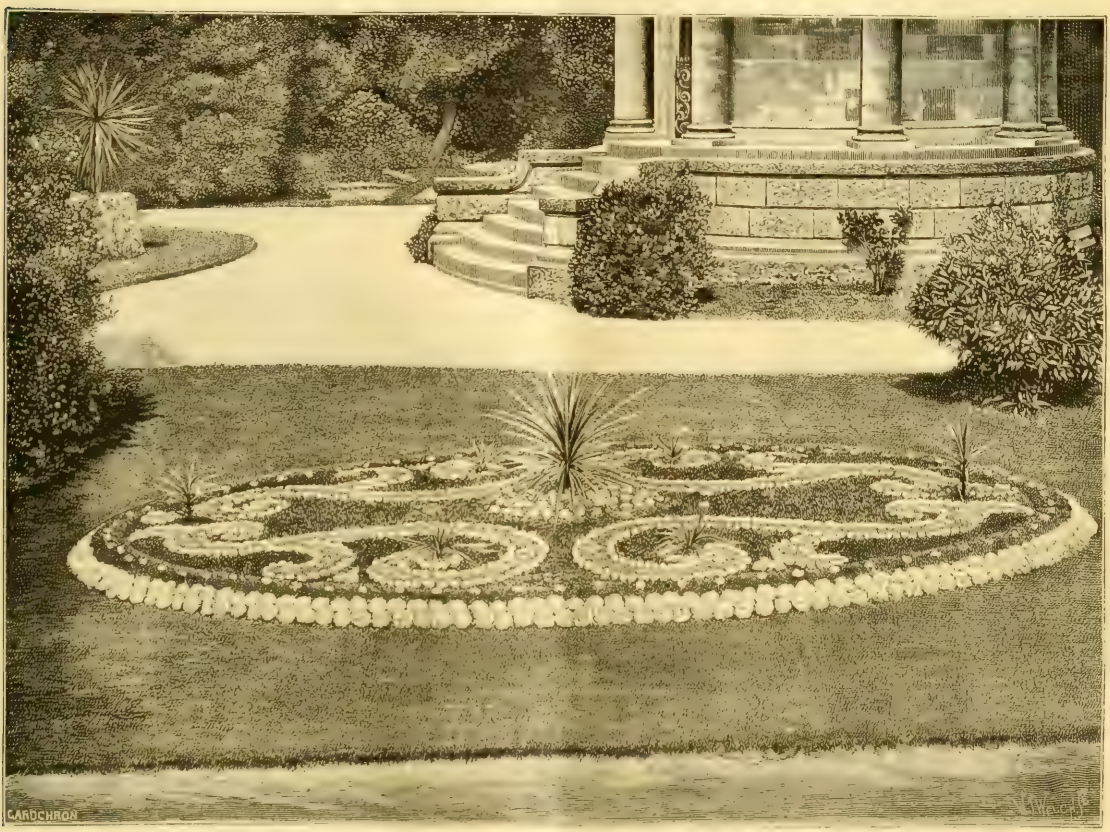


Fig. 53.—A carpet bed in the Jephson Gardens, Leamington. (see p. 360.)

graph from the hands of this conscientious and painstaking botanist. In the meantime Mr. Brown has dealt with the large mass of material of all kinds collected by Sir Henry Barkly, formerly Governor of the Cape of Good Hope. Thirteen genera and a large number of species are thus systematically catalogued, the list being preceded by some valuable notes on the morphology of the group, and on the characters by which the genera and species may be distinguished. The range of variation is shown to be very large—so much so, that two distinct genera might be made out of one species, were its history not known. The characters "blend and intermingle in a manner that in many cases defies classification." The botanists can hardly complain of the gardeners in this case, for the blending has been done, not by them, but by insects. Mr. Brown notes the rapidity with which the seeds germinate under suitable conditions, which would seem to denote an adaptation to the climatal circumstances under which the plants grow naturally.

"Kew Bulletin."—The March number contains articles on "Indian Yellow," a dyeing material prepared from the urine of cows fed upon Mango leaves; also on Bombay Aloe fibre procured from Agave vivipara, the cultivation of which in waste land near Bombay, for the sake of its fibre, is strongly recommended. Barilla manufacture in Egypt is the subject of another article, the barilla being carbonate of soda, contained in the ashes of certain seaside and salt-lake plants like our Salicornia.

Richmond Show.—The Spring Show of the Richmond (Surrey) Horticultural Society was held in the Gymnasium of the Castle Rooms, on March 18 and 19, when a pretty, although small, display was made. The chief prizes for bulbous plants, Lily of the Valley, and Spiræa, were awarded to Messrs. H. Williams & Sons, Fortis Green, Finchley, who showed in their usual style. From the gardens of H. Little, Esq., The Barons, Twickenham, came several good lots of plants, and this exhibitor was first for Cliveas (which were very fine) and Deutzia gracilis. He also had the best six Orchids, with a nice piece of Cymbidium Lowianum, and won the first place for a group of plants arranged for effect, having several Orchids. Mr. D. White, gardener to Mrs. Watson, Isleworth, who was another successful exhibitor, had a well-flowered specimen of Azalea indica in the variety Duc de Nassau, and was also first for Cyclamens. Azalea mollis were also good, Mr. Brown, of Richmond, having a finely flowered collection. Cottagers' exhibits were well represented, and were fairly numerous. Apples, in well kept examples, were shown by Mr. Bates, gardener to E. S. Nicholson, Esq., Poulett Lodge, Twickenham; and Mr. J. Walker, Ham Common, sent a comprehensive collection of Daffodils, the effect of which was destroyed by the white cloth with which all the tables were covered.

Orchid Nomenclature.—It is greatly to be regretted that a series of suggestions printed for the use of the committee appointed by the Royal Horticultural Society to consider the matter, and marked "Private, proof under consideration," should have been published in its entirety in the *Orchidophile*. We can only suppose that the Editor overlooked the word "Private," or was imperfectly acquainted with the English language and the etiquette of committees. As a matter of fact, the document differs greatly from that which will shortly be issued by the Society as its final recommendations.

Show Fixtures.—We have received the schedule of the Shropshire Horticultural Society, which announces shows at Shrewsbury for March 27, August 20 and 21, and November 20. The accompanying balance-sheet shows the satisfactory clear profit of £236 on the year's working. Sums of £25, £20, and £15 are offered for twenty stove and greenhouse plants at the summer show. Various other valuable prizes are also included. The Sherborne Horticultural Society's annual show will take place on August 27, and the Scottish Primula and Auricula Society will hold its fourth exhibition on May 8, in the City Assembly Rooms, Dundee.

New Jersey Agricultural Station.—The last issued *Bulletin* deals with two fungous diseases which infest the Cranberry, one produces minute red galls, and hence is known as the Cranberry Gall fungus, Syntrichium Vaccinii; the other is the Cranberry Scald, which is also due to the attacks of a minute fungus, and is so destructive as to cost the loss of a third of the crop. Mr. Halsted gives an account of the life habits of these fungi, so far as they are known.

Pæonies.—We are requested to state that the Curator of the Cambridge Botanic Garden, in view of a paper to be read before the Royal Horticultural Society, is anxious to know of all the kinds of Pæony, not of garden origin, that may now be in cultivation, and also to be made aware of all the botanical names that are now in use. Mr. Lynch would be greatly obliged for information of any kind on the subject.

Primulas.—Messrs. Jas. Carter & Co., High Holborn, London, have submitted to our inspection a collection of blooms of their strain of Chinese Primulas. The flowers are well-formed, of large size, and there are some good colours especially among the Magentas and Carmines. Singles and doubles are equally pleasing.

The Grapes of Eschol.—A correspondent kindly calls attention to an error at p. 287, in which the famous bunch is said to have been brought to Moses when the Israelites were "near the close of their wanderings." Perhaps the statement is "too absolute." It may be well to cite the passage from Numbers, xiii., 24, 25:—"Then they came to the river of Eschol, and cut downe thence a branch with one cluster of Grapes, and they bare it upon a barre between two, and brought of the Pomegranates and of the Figges. That place was called the River Eschol, because of the cluster of Grapes which the children of Israel cut downe there." We are quoting from the edition "imprinted at London by Robert Barker," in 1615.

Flowers in Season.—Some excellent blooms of Primula sinensis have been sent to us by Messrs. B. S. Williams & Son, Paradise and Victoria Nurseries, Upper Holloway. The colours decided and good, and the blooms regular of outline, and showing much substance. The Primulas of this nursery firm have long enjoyed a good reputation—the reward of years of careful selection and crossing.

Biographical Index of British and Irish Botanists, from the *Journal of Botany (continued from p. 299)*:—

"Mudd, William (1830—1879): b. Bedale, Yorkshire, 1830; d. Cambridge, 1879. A.L.S., 1868. Curator, Cambridge Bot. Gard., 1850? — 1879. 'Manual of Brit. Lichens,' 1861, and 3 fasciculi of 100 specimens each. Pritz., 226; Jacks., 243; R. S. C., iv., 502; Gard. Chron., 1879, 558; Journ. Bot., 1879, 160; Trans. Bot. Soc. Edin. xiv., 40.

"Munro, William (c. 1816—1880): b. Druidstoke, Gloucestersh., circ., 1816; d. Montys Court, Taunton, Jan. 29, 1880. General, 39th Regiment. C.B. F.L.S., 1840. Collected in Madras, Bengal, and Himalaya. 'Bambuseæ,' Linn. Trans., 1870; 'Timber Trees of Bengal,' 1847; 'Himalayan Primroses,' Garden, 1879. Herbarium and MSS. at Kew. Pritz., 228; Jacks., 451; R. S. C., iv., 545; viii., 471; Journ. Bot., 1880, 96; Gard. Chron., 1880, xiii., 169; Trans. Bot. Soc. Edin., xiv., 158. *Monroa* Torr, *Munronia* Wight.

"Murphy, Edmund (fl. 1828—1844). Landscape Gardener. Of Dublin. 'Contributions to Fl. Hibernica,' Mag. Nat. Hist., 1828, 436; 'Agricultural Grasses,' 1844; Hortus siccus illustrating same. Pritz., 228; Jacks., 196; R. S. C., iv., 554.

"Murray, Andrew (b. before 1810; d. 1850): d. Cambridge, July 4, 1850. Curator, Cambridge, Bot. Gard., 1845—1850. 'Catalogue;' Sir Walter Scott, Journal, 1826; Gard. Chron., 1845, 291; 1850, 438.

"Murray, Andrew (1812—1878: b. Edinburgh, 1812; d. Kensington, January, 1878). W.S F.L.S., 1861. Pres. Bot. Soc. Edinburgh, 1858. Assistant-Secretary, Roy. Hort. Soc., 1860. 'Pines and Firs of Japan,' 1863; Lawson's 'Pinetum.' Pritz., 228; Jacks., 585; R. S. C., iv., 555; viii., 475; Trans. Bot. Soc. Edin., xiii., 319; Gard. Chron., 1878, i., 86; Ent. Mo. Mag., xiv., 215; Journ. Bot., 1878, 63.

"Murray, Lady Charlotte (d. 1808). Of Athol House, Scotland. 'The British Garden,' 1799; ed. 3, 1808: Eng. Bot., t. 404; Jacks., 407.

"Murray, Patrick (fl. 1680). Baron of Livington. Pupil of Andrew Balfour. Collected 1000 plants at Livington before 1680, the nucleus of Edinb. Bot. Gard. Loudon, Encyc. Gardening, 281. *Livistona*.

A CHAT ABOUT FERNS.

We take the following extracts from an interesting paper read by Mr. W. B. Latham, the Curator of the Birmingham Botanical Gardens, at a meeting of the Birmingham Gardeners' Association.

In allusion to the early history of Ferns, Mr. Latham quoted from our old gardening writers, amongst others, Philip Miller, who, in his *Gardeners' Dictionary*, published in 1763, in speaking of the common Polypodium, says, "There are several other species of this plant which are natives of America, some of which are preserved in curious Botanick Gardens variety, but as they are rarely cultivated in other gardens, it is not worth while to enumerate them in this place." Parkinson makes no mention of Ferns in his *Paradisus Terrestris*, published in 1629, but in his work *Parkinson's Herbal*, or "Theatre of Plants," published in 1640, is referred to by James Bolton, of Halifax, who published a descriptive illustrated work on British Ferns in 1785, so that we may suppose that in his *Herbal*, Parkinson had something to say about Ferns. Dr. Gustav Kunze, a German botanist, published in 1837, a descriptive work on Ferns, in which about thirty-seven species of exotic Ferns are beautifully illustrated, giving detailed drawings of the fronds and fructification, showing the sporangia, spores, indusium and scales. In another work by the same author, commenced in 1844, and continued in parts for a few years, are coloured plates giving illustrated details as complete as in the former work, and (Mr. Latham goes on to say), "I know of no work on Ferns where the illustrations are given in the superb style these are." More recent writers on Ferns were mentioned, especially the late Mr. John Smith, the first Curator of the Royal Gardens at Kew, who for upwards of forty years made Ferns a special study, under conditions so much more favourable than it is possible for a botanist, with only herbarium specimens before him. Mr. Smith had under his charge one of the best, if not the very best collection of living Ferns ever got together, and to a great extent, by his own exertions. His knowledge of Ferns was marvellous, and a favourite study with him, and he gave us two most useful books—one, *Ferns, British and Foreign*, published in 1866, a most complete list of Ferns to that date, useful to the student and cultivator of these plants. In 1875, was published his *History of Ferns*, a book teeming with information, and one no student of Ferns should be without, as showing the rapid increase in the number of species of Ferns under cultivation during the present century. The following quotations is from Smith's *History of Ferns*, 1875.

"The total number of garden Ferns introduced previous to 1813 was eighty-three (this does not include British Ferns), and the entire collection of exotic Ferns at Kew at that period was not more than forty species. In 1846 there were 348 species in the Kew Gardens, and in 1857, 600 species were known in British gardens. In *Ferns, British and Foreign*, 1886, 164 genera are described, and 1028 species are enumerated." Mr. Latham further observed that at this period—say from 1840 on-

ward—great attention was paid to Ferns, both by the botanist and horticulturist, and if a complete list of cultivated Ferns could now be taken, we should have great difficulty in finding the same number of species in cultivation as was recorded some twenty and more years ago. One other name must be mentioned, that of the late Mr. Thomas Moore, who did so much for our knowledge of Ferns, by determining new species and varieties. Mr. Latham, in this paper, treated of the formation of spores and their treatment for propagating purposes from the prothallus stage onwards, and stated that the first Fern known to have been raised from the spore in this country was at the Oxford Botanic Gardens in 1715, and commented on the length of time a Fern spore will retain its vitality under favourable conditions. Mr. Latham remarked, "I have raised Ferns from spores that have been in my possession for seven or eight years, and these have germinated and grown freely. One would hardly expect that this atom of life would grow after being kept in paper so long."

The spore of a Fern differs from the seed of a flowering plant, inasmuch as it is an unfertilised body containing no embryo, and incapable of reproducing itself further than the prothallus state [except by buds. Ed.] until fertilisation takes place, and it will remain sometimes in this condition for months, and even years, but a prothallus (the first stage of vegetation from a spore) will die ultimately unless it possesses two minute organs underneath, the antheridia and the archegonia. These male and female bodies are quite microscopic, and are to be found on the underneath side of the prothallus. The antheridia give off spermatozoids, which move about until they come into contact with and pierce the cells of the archegonia. Shortly after this contact takes place, a little growth will appear, and a little later, on close observation, a small frond may be seen pushing forth, and one after the other will follow until the plant under favourable conditions is fully developed. These organs of reproduction in Ferns were not known until Count Suminski, a Polish botanist, made the discovery in 1848.

NOTICES OF BOOKS.

Fallow and Fodder Crops. By John Wrightson. (Chapman & Hall.)

A treatise by one who is not only a master of his subject practically, but one who, from the circumstances of his position, has special opportunities of knowing what are the requirements of the farmer and how best to meet them, needs only to be mentioned to command attention. Here we can do but little beyond pointing out the subjects with which Mr. Wrightson deals—these are bare fallows, root-crop fallows, Turnips, Mangel Wurzel, and other roots, Rape, Kohl rabi, catch crops, summer fodder crops, Clovers and Seeds, and Ensilage. Bare-fallows do not commend themselves now-a-days to the gardener, but he, like the farmer, only has recourse to them when circumstances do not permit of any other course. In the great Rye-grass question, Mr. Wrightson sides with his colleague, Dr. Fream, and indeed the evidence seems to preponderate in favour of this unjustly maligned grass.

Science and Scientists; *some papers on Natural History*. By Rev. John Gerard, S.J. (London, 18, West Square.)

A series of papers pungently written, and directed against that unscientific use of the imagination which is frequent now-a-days, and which will remain so as long as people prefer picturesque declamation and sensational statements to rigid investigation and accurate deduction. Mr. Grant Allen is one of the greatest sinners in this direction, and to him Father Gerard devotes much attention and not without reason, for while botanists can distinguish between what is true and what is the product of Mr. Allen's fecund imagination, the general reader is likely to gulp it all down, fact and fiction, as unassailable dogma. The more or less plausible hypotheses in which writers of facile pens indulge, have their value as hypotheses, but they should not be considered as demonstrated facts, but only as fragments around which may crystallise and become co-ordinated facts, which otherwise would be isolated and devoid of significance. Some disciples have broken away from the method of Darwin. Patient exploration and careful probing, assiduous accumulation of evidence, were the means he employed before he committed himself to any statement, and no one was more careful to keep apart what he knew and what he conjectured.

How to Know Grasses by the Leaves. By A. N. M'Alpine. (Edinburgh: David Douglas.)

This is a little treatise which we should strongly recommend to be used in schools in agricultural districts. When once the tutor had mastered its contents, which, with the grasses before him, he could easily do, he might demonstrate to his pupils, and make them find out for themselves the characters and distinguishing marks of the several grasses of our pasture land. Mr. M'Alpine relies largely on the colour of the leaf-sheaths, but does not neglect the more important points connected with the distribution of the nerves, the hairs, ligules, &c. Mr. M'Alpine has produced a very useful little book, which is recommended, moreover, by Professor Wallace, the Professor of Agriculture in Edinburgh University, in a highly eulogistic preface.

FOREIGN CORRESPONDENCE.

BERLIN LETTER.

Spring has been with us since March 13; that day was, indeed, the first warm one. It is interesting to see how rapidly vegetation commences when the minimum of temperature necessary for the development of plants, though it is different in the different species, is surpassed. On the morning of March 13 all was in winter-sleep; at 3 o'clock in the afternoon many of the Crocuses, Galanthuses, Leucojums, and Scillas were in full flower. This reminded me of the rapid development of plants in spring at St. Petersburgh, where at the commencement of the week all is in repose, but at the end of the same week in full growth.

Horticulture may take a lesson from botany. Horticulture has been an empirical art up to this day, because horticulturists do not take notice of the results of the studies of botanists, or, rather, because botanists do not communicate their results to horticulturists. It is well known to botanists, as well as to horticulturists, that each plant needs for its growth a minimum of warmth, as also that there exists both a maximum and an optimum of warmth for growth. Well, the general fact is known to both—to the theoretical man as well as to the practical one. The investigations of the former tell us what are the boundaries for a great many plants, or, at least, the lowest limit, as the upper extreme is never or seldom reached in our climate.

Another example. The anatomical structure of leaf is adapted to the climate. Plants, which grow in an air saturated with moisture and of high temperature, show quite another structure as compared with those growing in a hot, dry climate. The anatomical structure is known to botanists in a great number of plants, and the theoretical man can say *a priori*, by seeing the anatomical structure of the leaf, whether the plant needs a dry or a moist atmosphere. Take Caryota propinqua. The leaves, though coriaceous, have but a thin cuticle. The practical man might be misled by the strong leaves. He would think that such a plant might stand in the open air, during summer, but that is by no means so. The plant will suffer from the first dry wind, as was the case with a large specimen in the Vienna Botanical Garden. It was placed in a shady place, where no direct rays of the sun could reach it; the next day a dry, warm east wind was blowing, and this killed the plant in a couple of hours.

A third example. The leaves of Primula sinensis, as well as those of Pelargonium zonale, possess a great many glandular hairs, which are able to absorb ammonia, and a great many facts of the same kind are known to botanists. If gardeners knew this fact, they would give those plants an ammoniacal atmosphere.

Warmth and light are factors depending one on the other. Give a plant which grows in exposed situations in the tropics, where it receives the direct sun-rays, a situation in a hothouse in our climate, and it will sicken, as you cannot provide it with the requisite quantity of light in this climate, especially in hothouses. It will grow well if you will give it a temperature bearing a relation to the light available. This is the cause of the death of so many plants of the tropical regions in our hothouses. On the other hand, plants which grow in those regions under the shade of large trees, require from us a great quantity of warmth, although we can only give a little light. It would be a good thing to create horticultural experimental stations like those for agriculture. I should like to give you, in a second letter, a brief sketch of what such a horticultural experimental station should be. (*Our Berlin Correspondent.*)

BELGIAN NOTES.

[From our Belgian Correspondent.]

Meeting of the Brussels Orchidéene.—First of all we must mention the new Cattleya, C. Reine des Belges; the plant and flowers of this suggest the idea that it may be a hybrid between C. Mendeli and C. Trianæ, or between gigas and Trianæ. MM. Vervaet et Cie have received this variety, with many others, from a lover of Orchids in Columbia, who has cultivated such plants for several years, and who has settled himself in succession in three different districts of this country, which is so rich in fine Orchids. The petals and sepals of the variety we are now considering are of extraordinary length and breadth, and the lip is of great size, and in shape and colour midway between that of Trianæ and that of Mendeli; the edges are much curved and waved, and of a superb dark colour, which is neither like that of Trianæ nor that of Mendeli, but a cross between the two. A stem bearing two flowers will be sent to Messrs. Veitch, who are more likely than anyone else to appreciate and to describe it competently.

We must notice a new Orchid from M. Vuylsteke which resembles Odontoglossum Schillerianum, but the lip of it is white, much rounded, and spotted with quite tiny blood-red dots.

M. Linden showed a Zygopetalum (?), the lip of which was white, and which had sepals and petals of dark brown, the flowers exhaled a subtle perfume. M. Jules Hye showed some fine plants already mentioned in a notice of the meeting at Ghent. M. G. Warocqué had a variety of Odontoglossum; a spotted specimen of O. Pescatorei, and a vigorous plant of a good variety of O. cristatum.

M. Wallaert showed a Cattleya Trianæ, remarkable for the prominent streaks on the sepals and petals; these streaks are of the same dark colour as is the lip. The plant flowered three times, and always exhibited the same characteristics as on the first occasion; the foliage has been carefully noticed, and on it are found the streaks and markings of O. Peetersi and O. Hardyana. M. Miteau exhibited, among other noticeable plants, a fine variety of Cœlogyne cristata Lemoniana, with large petals, and of good habit. M. Linden had some fine specimens of Cattleya Trianæ and Odontoglossum triumphans.

Liège.—A Livistona chinensis of unusual size has recently been cut down in the Botanic Garden of Liège. The trunk measured more than 35 feet in

height, the crown contained fifty-eight well formed leaves, eight nearly formed, or some which were scarcely visible.

Brussels.—Plans have been prepared for the construction of an annexe to be erected in that part of the Botanic Garden, of Brussels, which faces the Rue Botanique. This annexe is to contain a hall for exhibitions of plants, a lecture-room, library, &c.

Le Journal des Orchidées. Under this title has appeared the first number of a practical cultural guide, published fortnightly under the editorship of M. Lucien Linden, director of "L'Horticulture Internationale," and secretary to the "Orchidéene."

KEW NOTES.

The Wild Garden.—This delightful spot at Kew has within the last few days assumed quite a gay aspect. The golden coloured Crocuses—the large purples and whites, besides the numerous and varied species all mixed together, looking as if they really liked their Kew home. Hellebores of the orientalis group, in variety; the Glory of the Snow—Chionodoxa Luciliæ, is quite naturalized. Scilla bifolia, and S. sibirica, Snowdrops, the Giant Elwesii, as well as large patches of the old type. Innumerable flowers of many varieties of Daffodils, the most plentiful being Pallidus præcox, which has been planted on the high ground, and is now nicely in flower. On the lower ground, near the Cumberland Gate, and facing the rock-garden, is a sea of double varieties of Narcissus—N. odorus, the common daffodil, and various others. The experiment with Hyacinths and Tulips on the sunny side facing the Palm House does not seem to have turned out as was expected, as the blooms are not so strong or numerous as last year. Close by here is a fine group of Scarlet Anemones; and Hepaticas are flowering nicely.

Anemone blanda, now nicely in flower in the rock garden, is one of the most charming of all the windflowers we have yet seen in gardens. Beginning to flower with the Snowdrop and Christmas Rose towards the middle or end of December, it has been continuously in flower until the present, and although perhaps showing only a few flowers at a time, their fine rich tint is much deeper than in those of A. apennina, are very welcome whenever we have a spell of open weather. A. blanda has been rather a scarce plant, but we believe a large importation has been received from Armenia, and we now hope to see it established in every garden; Mr. Ingram, at Belvoir Castle Gardens, has established it in the wild garden at that place, where it seeds freely, and forms a large patch. A. apennina is already showing flower, and though not so desirable in point of beauty as blanda, it flowers much later, and may be used with advantange to follow that species. A. a. alba—the pure white form, is a very charming rock plant, and where planted in sheltered nooks, it shows flower early in March, and continues in bloom until the middle of April. *D.*

Aotus gracillima.

Of the comparatively few New Holland plants which find favour now-a-days in gardens, this is one of the prettiest and most easily grown. In habit, it much resembles Epacris, having long, slender, and extremely graceful shoots, thickly clothed with small dark green leaves. Shoots from 1 to 2 feet long are made in a single season, the greater portion being covered with flowers during the months of March and April. The plants belong to Leguminosæ, and is nearly allied to Pultenæa. The small pea-flowers are yellow with a few brownish-crimson markings. It is now flowering in the temperate-house at Kew, a bush 3 feet high, and as much through, being planted out in the beds. For decorative work, however, plants in 6 or 8-inch pots are the most useful. After flowering, the shoots should be shortened back nearly to the old wood, and the plants given rather close and moist conditions. When the new growth is about 2 inches long, they may, if necessary, be repotted; they prefer, however, rather small pots. A compost of peat, leaf-soil, and sand is the best for them, and an ordinary greenhouse temperature throughout the year. Propagation is effected by the young shoots when about 2 inches long, with a heel of the old wood attached, and inserting them firmly in pots of very sandy peat, covering with a bell glass.

Camellia reticulata.

Beyond the numerous forms of C. japonica, this genus is but little known in gardens. At Kew about half-a-dozen distinct species are grown which show the genus to have a wide range in habit as well as in

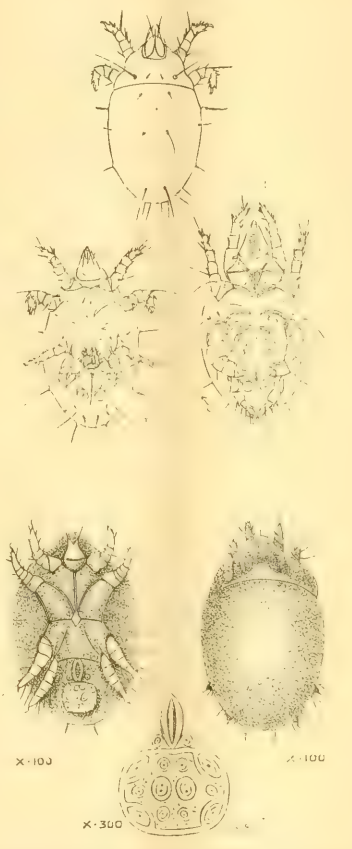


Fig. 54.—The bulb mite in various stages. See p. 360.

the shape and size of the flowers. The finest of all is undoubtedly C. reticulata. The flowers are an admirable contrast to the stiff, formal blooms of C. japonica. We have seen this species in fine condition in the Horticultural Society's garden at Chiswick. The leaves are deep green, leathery, and reticulated as the name implies; and altogether the plant is most desirable, well worthy of a more extensive cultivation. *W. B.*

The Art of Landscape Gardening.—Mr. A. M. Kettlewell has published a small pamphlet, setting forth some of the principles of landscape gardening, and has said as much as his very limited space will allow. Surely it is an error to describe a tree as the noblest object of inanimate nature.

IRIS SINDJARENSIS.

(Boiss and Hausskn., *sp. nov.*)

This novelty, thanks to the enthusiasm and energy of M. Leichtlin of Baden-Baden, has just flowered for the first time at Kew, and although not deserving a very high place as a garden plant, it may be called passable, and it is one that will appeal to many growers of hardy plants on account of its early flowering. In the *Flora Orientalis* it is placed between I. palæstina and I. Stocksii, and is not very far removed from the well known I. caucasica, which it very much resembles in habit and general appearance. There seems to be quite a group of Irises nearly allied to I. Sindjarensis, which so far as we know have not yet been introduced to cultivation, I. Stocksii, I. fumosa, and I. Aitchisonii being prominent amongst the number. From I. palæstina it differs in being many instead of one flowered, in the longer and much narrower leaves, besides other minor differences in the shape of the floral organs. In I. Sindjarensis the bulb is elongate oblong, and in this it resembles I. orchioides more nearly than I. caucasica. The leaves 1 to 1½ inch broad, 6 to 8 inches long, lanceolate, acute, distichous, bright glossy green, the margins irregularly undulated, flowers 3 to 5, produced from the base of the upper leaves, of an almost uniform pale blue colour; standards reflexed, obovate, pale blue, falls pale blue with darker blue lines, crest prominent, and yellow marked to the base with purple, and yellow bars; styles pale blue, darker towards the base; anthers and filaments, white. The plant is found in the deserts of Mesopotamia, and at the foot of the Sindjar and Gebel mountains, Taktak. It flowers in May. *D. Dewar.*

HOME CORRESPONDENCE.

QUASSIA, BIRDS, AND BUDS.—Under the heading of "Birds and Flowers" your correspondent, the Rev. C. Wolley Dod, p. 207, states that birds do not like anything that has a bitter taste, he having found that by syringing his Crocuses with an infusion of Quassia chips it prevented sparrows and pheasants from touching them, and he also hints that the same might be applied to our fruit buds as a preventative of the depredations of bullfinches. Now this might prove misleading, and cause annoyance to gardeners who may have to guard their bushes and trees against these birds, for it has been proved that they readily take the buds from Plums, Currants and Gooseberriess after Quassia water has been sprinkled over the bushes, and also if soot and lime were added to the Quassia water. Bullfinches will destroy the buds of the black Currant, which I have never known them to do before last year; and a friend tells me that his black Currant bushes have suffered also this year. Netting the bushes is not always a protection unless it be fine meshed, for the bullfinch will get through it, so that nothing remains to be done but to shoot the birds. *A. Bishop.*

POTATO PLANTING.—It will not be a matter for surprise if Potato breadths are planted somewhat earlier than usual this year. Certainly it is not prudent to take anything relating to the weather for granted; but judging by its present aspect there seem to be specially favourable conditions for planting. Ordinarily, April is the best Potato-planting month, and so it should be at all times for first early varieties; but late sorts, the tubers of which lie dormant at least a couple of weeks longer than do those of early varieties, may be planted in March with assured safety, as probably fully five weeks will elapse before growth appears above ground. It may be asked "What advantage is gained by planting so early, if growth is not accelerated?" Well, the fact is, growth does take place below the surface, if slowly at least surely. So soon as the shoots break from the eyes of the tubers, they throw out rootlets, and these establish themselves in the soil, so that by the time the shoots are aboveground the roots have become strong, and capable of giving support to the shoots. When tubers are planted later, the soil being warmer, and the sunlight powerfully attractive, shoots are drawn up through the soil almost before the roots are thrown out, and the plants are far

less able to withstand heat and drought than are those from earlier planted sets. Of course there is to be faced in all cases the danger arising from late spring frosts, but that is ever a danger, plant either in March or April, as late spring frosts are erratic, and never more harmful than when they come in May. If precocious sprouting varieties of Potatos be planted so early as March, great risk is run as to the effect of spring frosts in April, and it is safe to plant so early only where there are no such visitants as late spring frosts, or some protection can be given to the tender tops. Planting all the same must be dependent upon the condition of soil, and favourable for planting as that condition now is, it is wiser on the whole to take all risks and plant early than it is to wait until April, and to find that heavy rains have saturated the ground, and rendered it for the time unworkable. At this time last year the ground was working so strong and stiff that a worse planting season could hardly be remembered. Now the soil is the very converse, especially where recently broken up. No wonder that such admirable conditions are being availed of, and generally large breadths are being planted, whilst Pea sowings are more than usually considerable. Throughout the market garden districts of Middlesex, Potatos are planted with the aid of the dibber. The old practice of planting in the furrow before the plough, seems to have died out considerably. By that arrangement not only were the sets laid on to the hard base left by the plough, but the whole body of the following ridge of soil was thrown open upon them, giving a thick and sometimes hard body of covering for the tender shoots to struggle through. Planting with the dibber leads to the sets being inserted in the furrows left by the plough, the slight hardening of the soil about the sets made by the dibber being rather helpful than otherwise. The sets are in that way also buried somewhat more shallow, and being covered with loose soil by the hoes, have a comparatively easy matter to get well through. It is the rule, however, to well cross-harrow the soil after the planting is done, and, so left, not only are the sets evenly covered, but the surface is in admirable tilth for flat-hoeing later. By dibbling into every third furrow, a width of about 27 inches, all trouble as to marking out lines is avoided. Dibbling when the soil has previously been deeply worked, facilitates planting rapidly, and that is advantageous where extensive breadths have to be got in. In a private garden, 100 rods of Potatos may seem a big breadth; but some of our market growers plant 100 acres, and it is a very heavy job. Even then, after-cultivation includes considerable labour; but the horse-hoe is a most valuable implement, of which we have no counterpart in ordinary garden cultivation; but then our soil is, as a rule more deeply worked, and gets in the planting less hard trampling. The horse-hoe enables the surface-soil to be moved fully 4 inches deep between the rows of Potatos, and destroys weeds at the same time. Then the moulding plough follows after, and completes the cultivation needful till the digging time comes. Some of the labour may seem to private gardeners to partake of the rough-and-ready sort; but it is pretty successful, and fairly cheap—a great necessity now when good Potatos sell from the ground at £3 per ton. *A. D.*



Fig. 55.—IRIS SINDJARENSIS. (see p. 364.)

SWEET SCABIOUS.—This is exceedingly useful for cutting from, and from a packet of seed many beautiful coloured varieties are produced. If wanted for bedding out to bloom this season, the seed should be sown at once and placed in heat, and when the seedlings are large enough potted up into 60-sized pots. To form bushy plants pinch out the centre of each plant when about 6 inches high. The tall variety, which as a rule attains the height of 2 feet, is very suitable for filling up back rows in borders, while the dwarfs make handsome beds. *H. M.*

DAPHNE CNEORUM.—This charming little trailing but compact shrub should be grown wherever the soil is favourable. It delights in peat and in very free moist soils, but in dry and stiff soils usually proves a failure, but where once it is seen to flourish its planting should be extended. It grows from 6 to 10 inches in height, and bears a multitude of rosy-lilac flowers, with unopened buds of crimson in July. The flower heads are very compact, and so deliciously sweet scented that where much grown the air often seems charged with its fragrance. It is a beautiful object as an edging round dwarf shrubs in the American garden, where I use it. In front of mixed borders a margin here and there should be finished off at the grass line; it is a most useful plant to cut from, standing well afterwards. It makes up well into button-holes if mixed with the finely small cut, or oak-leaf Geranium. It is usually increased by layers. *A. Evans, Lythe Hill.*

SEEDLING DENDROBE.—I have at the present time a seedling Dendrobium Devonianum bearing three flowers, it being twenty three months from the time of sowing the seed. The first pseudobulb was 1 inch in length, the second 9 inches. Is not this rather quick for a seedling Dendrobe to flower? *J. Etherton, Harringay Park, N.*

EUCHARIS AMAZONICA.—An illustration of a nice pot of Eucharis, with thirty-six spikes, was given at p. 193, but I would venture to ask what your correspondent would think of a plant with over 200 spikes, which was the number on our plant this

winter. From a cultural point, too, I would say, that there is more difficulty in obtaining a nice bloom in February than in autumn. For the last twelve years we have not considered it an unusual occurrence to have a pot of Eucharis with fifty or more spikes of flowers. Some years since one of our plants, no larger than the one illustrated, bore about 100 spikes of flower in one year—forty-nine spikes at the first flowering, and the rest in two other flowerings within the year. After the flowering of this fine pot, which was a 15-inch one, the bulbs were divided, they having been excessively crowded together in the pot. Our treatment is just the ordinary one of a plant stove—60° to 65° in winter, and 90° in the daytime in the summer. We employ Eucharis in part as a base on which to stand specimen Crotons, Ixoras, and other tall plants. They have shade in summer, when it can be afforded them without injury to other plants. I have tried to grow Eucharis in pans, as it is not a deep-rooting plant; but I prefer the pots as having more soil, and keeping a damper bottom than pans. I never use bones in the soil, which consists of half peat and loam. Manure-water is never given overhead. In the summer, or when growing fast, we are not afraid to give them water; but in winter the greater part is afforded by means of the syringe. *R. M.*

CUTTINGS.—Where flower-beds are many, there are large numbers of plants required to fill them in a satisfactory manner, and there is yet time to propagate soft-wooded plants for this purpose. The gardener is often hampered for want of what he thinks is a suitable place in which to strike the cuttings, but given a hotbed of leaves and dung, much can be done in this way and for raising seedlings. Long dung as it comes from the stables, and tree leaves, preferably Oak, Chestnut, or Beech, in about equal proportions, should be thrown together to get heated, and afterwards turned over twice or thrice in the course of ten days or a fortnight to sweeten before being made into a bed of about 5 feet high at the back and 4 feet at the front, and about 6 inches larger than the frame that will be placed on it; putting sufficient of the fermenting materials inside the frame to raise the bed to within 4 or 5 inches of the glass, after that enough sawdust, leaf-mould, coal-ashes, so as to be able to plunge the cutting-pots to the rims. Afterwards make up linings with dung and leaves about 15 inches wide all round, and up to the top of the frame, more at this time of year with a view to keep the cold out than to impart heat to the interior of frame. *H. W. Ward.*

THALICTRUM MINUS (MEADOW RUE).—It is surprising that this plant has not recommended itself more strongly since the rage for cut flowers and self-adornments has set in. It is a native of Britain. The leaves of the plant are equally well adapted for mingling with cut flowers, as is the Adiantum, and better in one respect. Its growths are of a pretty firm and wiry nature, and do not fade quickly, like those of the Fern. It will thrive in almost any soil, forms an excellent subject in the mixed border, gives no trouble after planting, if a little attention is paid to it as regards pinching off the flowers, which are small and inconspicuous. Grown in a pot and plunged, it does well on the rockwork, and is as hardy as the common Dandelion. There are numerous other species, but this is much the best for the purposes I recommend. *A. Evans, Lythe Hill.*

THE WINTER AND PARSLEY.—This comparatively open or mild winter has proved far more destructive to Parsley than that of 1889, or any previous ones for ten years. This is the more surprising as the destruction of the Parsley happened long before the really severe frosts of March. In not a few gardens the destruction is complete, not a living crown nor a green leaf seems left, and this notwithstanding the warnings suggested by last winter. Either our curled strains are becoming more tender, or mild winters have more destructive force over Parsley than the old-fashioned ones of average severity. *D. T. F.*

THE FROST AS A ROSE PRUNER.—It came sharp and strong at last, and cut not a few of the tenderer varieties back to the ground line, but seldom has it found such a profusion of green food as this March. Some had already done their first pruning, cutting back to dormant buds; but I think that a mistake. As soon as the Roses feel the first cut of the knife the dormant buds become active, and now those early pruned Roses have those base buds that ought to have slept till April frozen black as one's hat, though they have few or no successors. *Rosa.*

THE LATE FROSTS.—The late severe frost came on us so suddenly, that the Apricots which we could not protect fared very badly, but the Peaches, fortunately, escaped injury, the buds not having burst; but at the present time they are fully expanded. We registered, on March 4, 22° of frost, our thermometer (a Dolland) standing 3 feet from the surface of the ground, facing north-east. *W. L., Newbridge House, Bath.*

PLAGIOLIRION HORSMANII.—In reference to Sir Chas. Strickland's query in the issue of the *Gardeners' Chronicle*, for March 8, as to whether Plagiolirion Horsmanii was planted out in the open ground at Messrs. Sander & Co.'s, I am able to inform him that it is not, but is planted in a border in the new Cattleya-house, and therefore is subjected to the same temperature as is given to the Cattleyas. I fear that this plant will never be grown out of doors in this country the year round, but it is possible to grow it in a warm and somewhat damp and shady spot during the summer months, and afterwards under shelter during the winter; but this course would probably hinder free blooming. *John Weathers.*

PLANT SHELTERS.—I have found the shelters of which I wrote to you on October 22, 1887, p. 503, and again on December 14, 1889, p. 700, so very useful in the sudden great changes of weather to which we have been lately exposed, that I will ask you to find room for another short notice. The Osier coops which we first used, though protected by the green scrim, cannot, I fear, last for many years; we have, therefore, had frames made of galvanised iron wire. These are quite light to carry, and may be made of the size of an ordinary round hen-coop at about 2*s.* each, and in sets of 1 foot high, and 12, 13, 14, and 15 inches across at about 9*d.* each shelter. So far, we have only had the coop size in use, but I have no doubt the smaller size will be sufficient to protect small plants in flower from frost and rough weather. Cyclamen Atkinsii has been for some time in great beauty with us, and many of the species of Crocus and other spring flowers. The thermometer on a little house in Wisley wood fell to 8°; the shelters have, therefore, been well tried. They should also be of service placed over newly moved plants, and to shade flowers. *George F. Wilson.*

DIANTHUS CHINENSIS, DOUBLE. — There is still plenty of time if the seed be sown at once to get plants large enough to plant out by the middle of May. The flowers are very useful for cutting from and arranging lightly in vases; they last a long time in water, and some of the doubles are not far short of Picotees in size. When rearing the Dianthus for bedding out, care should be taken that the plants are not drawn up, or they become soft and seldom flower satisfactorily when put out. Sow in pans or shallow boxes, place them in heat, and when the plants get fairly well established grow them on as hardy as possible. *H. Markham.*

A DISTINGUISHED VISITOR. — An admirable opportunity will offer on Tuesday next at the Drill Hall, Westminster, for paying a distinguished visitor of the meetings of the Royal Horticultural Society a merited compliment. I think I stand almost alone in urging that whenever specially distinguished horticulturists visit the meetings, the superintendent or the hon. secretary of the Society should have authority to invite such persons to take seats at the various committee tables, according to choice or fitness, for the time as honorary members. The suggestion perhaps, because it is made outside and not from within the council, has never been adopted. The result is that when men of exceptional eminence attend the meetings, if not one of the council elect, they are shut out for the time from taking part in the meeting's proceedings. The result is an apparent evidence of uncourteousness and of isolation. On Tuesday next that undoubtedly eminent French horticulturist, Mr. H. de Vilmorin, will be visiting the Drill Hall. He has been thought worthy of an invite to read a paper in the afternoon on Saladings, and yet under the restricted regulations which now govern the construction of the Society's committees, he is not eligible to sit at the table of either of those bodies. [He may be invited by the chairman, and at any rate we know that course has been followed. ED.] None the less, Mr. de Vilmorin is a horticultural giant, as compared with many of those now privileged to sit on those committees. Mr. W. Ingram, who follows Mr. de Vilmorin at the first April meeting, is happily a sort of honorary member of the Floral Committee, for his opportunities of attendance are few; but Mr. Wolley Dod, who reads on April 22, is on neither of the permanent committees, unless the Scientific Committee is to be included in that term. [Certainly. ED.] Why not make all readers of papers for the year honorary members of all the permanent committees for the period, so that when present they may sit with which body they prefer? *A. D.*

TECOPHILÆA CYANEO CROCEA.—This is undoubtedly one of the most beautiful of half-hardy spring flowering plants. The flowers are funnel-shaped, much resembling those of Convolvulus, and of the shade of blue found in Gentiana acaulis. Small bulbs are one-flowered at first, but as they increase in size, several are produced in succession for the space of two months. Although it might be hardy in some localities, it is preferable to give the plants the shelter of a cold frame—planting the bulbs in light sandy soil. Reproduction is by means of seed and division of the bulbs. *G. R.*

HOME-GROWN LILY OF THE VALLEY.—At one time it was thought that Lily of the Valley could not be grown in England equal to that imported, but this idea is now exploded by Mr. Jannach, of Dersingham, who cultivates roots for the market, and by Mr. Wallis, gr. to Captain Prettyman at Orwell Park, who grows all that he requires for forcing and gathering from in the open, and the spikes number twenty to twenty-five large bells each. There are several varieties of the plant, and if Mr. Wallis will tell us how he started with his stock, and the plan he adopts, he will be conferring a benefit on many readers of the *Gardeners' Chronicle. J. Sheppard.*

GILLYFLOWERS.—Mention on page 259 of these flowers remind us of the objection shown towards them or rather the striped or pied forms (so very common even now in gardens), by Perdita, in Shakespeare's Winter's Tale. That Shakespeare in putting certain expressions respecting striped flowers into Perdita's mouth has thus given utterance to his own opinions there can be no doubt, opinions still largely shared in so far as the true Gillyflowers, both by the poet and Tusser, as well apparently of the Tudor age, Stocks and Wallflowers are concerned. If we do not designate striped Stocks and Wallflowers as bastards, it is not because we do not think them to be such, but rather seek for more refined terms to apply. It would seem as if Perdita's dislike to striped Stocks and Wallflowers extended to Carnations also, and it may have been, no mention being made of others; that all, or at least most, of the Carnations of that age were flaked or striped. But the objection entertained to pied Gillyflower now does not extend to Carnations, at least, not with the florist, although there are some gardeners who greatly prefer the self colours found with us so abundantly in gardens. We are so much the better off than was poor Perdita, that, whilst we have a multitude of garden flowers which are not pied, our Wallflowers and Stocks show that defect only in inferior strains. That it was the practice in Shakespeare's day to propagate Stocks and Wallflowers too, by means of cuttings would seem evident from Perdita's observations, unless the remarks as to cuttings be limited to Carnations only. The references by Tusser and other gardeners of some 350 years ago, seem to settle conclusively the point as to what flowers were designated Gillyflowers by our forefathers, and in some rural districts the term seems now better known than it is by educated people. *A. D.*

SHRUBBERIES.

THE principal object of forming belts or clumps of evergreen or deciduous shrubs or trees in the vicinity of residences and gardens, &c., is generally that of separating certain portions of the grounds from others, the concealing of what may be considered as unsightly objects, if any such exist, as well as for the purpose of affording shelter and seclusion to walks, drives, &c. Where all this is skilfully accomplished it not unfrequently has the effect of making grounds of but imited extent appear larger than they really are; still there is probably no part of a garden more frequently mismanaged than the shrubberies; and

this circumstance may possibly, in some measure, be ascribed to the system usually followed of planting them with a mixture of species of plants, and this often without regard to the habit of growth and the ultimate dimensions to which the plants will in course of time attain, and the consequence is a struggle for life, in which the weaker (although often the choicer) plants will of necessity get worsted; and this in the pleasure-garden, where everything ought to afford pleasure and enjoyment. To avoid these mishaps, the choicer and the dwarfer growing species should be placed near to the margin of the belt or clump, and strong and rapid-growing species of plants towards the back or central parts. A still better plan, however, is that of following a judicious system of grouping, which will afford a sufficient scope for variety, and in all respects is more satisfactory than a mixed plantation.

Nearly all evergreen shrubs show to more advantage in groups than when mixed with other things, and these groups may be so selected as regards their contents, and disposed as to effect, that every desired object is obtained, namely shelter, separation of the various parts of the grounds from each other, &c. The Common Holly is an admirable and effective group-plant, and the gold and silver margined varieties are exceedingly ornamental when thus planted, while the same plants placed in a mixed shrubbery lose much of their effect, or appear out of place. The same may be said of the Common Yew and its variegated and other varieties. The Arbutus is a fine free flowering evergreen plant that forms a beautiful group, or solitary plant, although during exceptionally severe winters, if occupying a low or damp situation, it is apt to get injured; and the same may be said of the Laurustinus and the Aucuba, in most of its varieties. On the other hand, the Rhododendron and many so-called American plants are perfectly hardy, and are too well known to require anything to be said in their praise. These it is usual to plant in groups by themselves, and generally because of their requiring peat or light sandy loam, and which has mostly to be brought from a distance. Nearly every evergreen and deciduous species of shrub is adapted to form a group, large or small, according to habit and height to which it grows, &c. The common Laurel is a plant very freely used in the planting of shrubberies. It is nevertheless far from being the most suitable plant for this purpose, as in some kinds of soil it does not continue in a healthy state for many years, and during severe winters it is frequently injured, which is not the case with the Portugal Laurel, a very much hardier plant, and one in all respects to be preferred to the former.

In cases where it is desirable to form groups of tall growing deciduous trees, the necessarily wide spaces between such trees may with advantage be planted with dwarf growing evergreen plants, many varieties of which are known to succeed under the shade of trees, such as the Tree Box, Mahonia aquifolia, and other Berberis, or even the common Irish Ivy, Butcher's Broom. It is, of course, desirable to produce a pleasing effect during winter as well as in summer, and the desired effect of a plantation is thought by some to be impaired during winter by the leafless condition of plants that are bare of leaves at that time, and when the primary object of the group or belt is that of shelter or protection, deciduous species should be altogether excluded, as it is during the winter and spring months when the warmth and shelter of a plantation of evergreens is most appreciated. [Is there no beauty in the buds and twigs in winter, and in the signs of returning life in the spring? Ed.] In cases where the mixed shrubbery may be preferred to an arrangement of groups, each group consisting of one specie, as has been already recommended, the habit of growth, and the dimensions to which the various specimens will be likely to attain, should be well considered, and the specimens planted at such a distance from each other as to admit of the natural development of the plants; while the necessarily somewhat wide spaces between the plants, which are destined ultimately to form the plantation, may, in order to produce an immediate effect — if that be desirable—be filled up with the common species, which may be removed when it becomes necessary to give more space to the others.

The margin of shrubberies or groups are sometimes occupied by herbaceous plants, which, though somewhat incongruous, may have nevertheless a pretty effect during the summer, but they detract from the beauty of the pleasure-grounds in winter by allowing so much bare soil to be seen. There are, however, abundance of dwarf shrubs, which are ornamental at all seasons, and much better suited for the purpose than herbaceous plants, such as the Mezereum, Cornus mascula variegata, which commences to bloom early in January, and is ornamental at all seasons; Potentilla fruticosa, or the shrubby Cinquefoil; the Prickly Butcher's Broom, many species of the Cistus, or Rock Rose; Cotoneasters, Ribes, Genistas, hardy winter-flowering Heaths, &c.; and to these may with advantage be added a fringe of winter Aconite or Snowdrops. *P. G.* [Ajuga reptans, Saxifragas, Ivies, Hepaticas, Violas, Carnations, early-flowering Daffodils, Sedums, Skimmias, are all good things for filling in the foreground of groups and belts when the bare earth is disliked. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 11.—Professor Church in the chair. Present: Messrs. Blandford, Wilks, Morris, Drs. Hugo Müller, Frank Oliver, Scott, Masters, and Professor Marshall Ward.

Effects of London Fog on Plants.—Mr. Morris read the terms of an application for a sum of money from the Government grant administered by the Royal Society, to be devoted to the partial payment of the expenses connected with the inquiry into the composition of London fog, with special reference to those of its constituents that are injurious to plants.

Fruit of Loranthus.—Mr. Morris stated, on the authority of Professor Oliver, that the fruit of Loranthus attached to the panicle of the Sugar-cane, as exhibited at a previous meeting, was L. americanus.

Sugar-cane Borer.—Mr. Blandford reported that the moth mentioned at the last meeting, as injuring Sugar-canes in St. Vincent, was Diatræa saccharalis. The beetle alluded to on the same occasion is known as Xyleborus perforans, and was originally described by Wollaston in his *Catalogue of the Coleopterous of Madeira*, p. 96. It occasions great injury to the bungs of the wine casks in Madeira. Wollaston found it commonly feeding in the stems of Jatropha curcas.

Seedlings of Sugar Cane.—Mr. Morris, in continuation of information placed before the committee on December 10, exhibited specimens of mature seeds of the common Sugar-cane (Saccharum officinarum). There were also shown germinating seeds, some plants, drawings of the flower, and dissections of the fruit (caryopsis) in detail. Mr. Morris stated that there appeared to be no authentic record of any really wild station for the Sugar-cane. Further that the fruit of the Sugar-cane had not hitherto been figured or described. At Barbados several times during the last twenty years, and more recently by Professor Harrison and Mr. Bouch, self-sown seedlings of the Sugar-cane had been observed. The subject was taken up systematically in 1888, and about sixty of the seedlings had been raised to mature canes. Many of these exhibited well-marked characteristics, differing from the varieties growing near them. Careful inquiry had shown that canes known as the "Purple Transparent" and "White Transparent," and possibly also the "Bourbon" cane, produced seeds in very moderate quantities. Spikelets received at Kew had been examined and the seed found *in situ*. A description with figures had recently been laid before the Linnean Society by Mr. Morris. It is anticipated that by cross-fertilisation, and a careful selection of seedlings, it will now be possible to raise new and improved varieties of Sugar-cane, and renew the constitutional vigour of plants that have become deteriorated through continuous cultivation by cuttings or slips. Great importance is attached to the subject in Sugar producing countries, as it opens up an entirely new field of investigation in regard to Sugar-cane cultivation.

EDINBURGH BOTANICAL.

March 13.—The Society met in the evening at 5, St. Andrew Square, Mr. Lindsay, President, in the chair. The following communications were made:—

1. "On the Nature of the Rings of Wood in some Species of Trees in Central Uruguay." With Microscopic Demonstration. By David Christison, M.D., F.S.S.A.

2. "Notes on Recent Additions to the Flora of the Moffat District." By J. Thorburn Johnstone, Moffat. Communicated by Professor Balfour.

3. "Notes to aid in a further knowledge of the Products of North-western Afghanistan and of North-eastern Persia." By J. E. T. Aitchison, M.D., C.I.E., F.R.S.

4. "Exhibition of the Type-specimens of Indian Grasses used by Mr. W. Coldstream in the illustration of his 'Grasses of the Southern Punjab,' and now presented to the Society." By Hugh F. C. Cleghorn, M.D., LL.D., F.R.S.E., F.L.S.

5. "Microscopic Demonstration of the Tissues of some Plant-hybrids and of their Parents." By J. M. Macfarlane, D.Sc., F.R.S.E.

6. "On Temperature and Vegetation at the Royal Botanic Garden." By R. Lindsay, Curator.

Report on the Open-air Vegetation in the Edinburgh Botanic Garden for February.—The month of February has been, on the whole, favourable, having been dry and cold generally. The thermometer was at or below freezing point on nineteen mornings, indicating collectively 101° of frost for the month, as against 103° for the corresponding month last year. No very low readings were registered, the lowest being on the 6th, 24°; 7th, 22°; 8th, 22°; 9th, 21°; 11th, 21°. The lowest day temperature was on the 8th, 34°, and the highest on the 23rd, 59°. Slight falls of snow occurred on seven days, and rain on four days.

Vegetation generally is well forward. A large number of spring flowers are in blossom. Ribes, Thorns, Lilacs, and other hardy shrubs are fast starting into growth; deciduous trees, such as Elm, Poplar, and Alder, are bearing enormous quantities of flower-buds. Many half-hardy Australian and New Zealand plants are still quite safe in the open borders, without their having been protected from frost. Spring-flowering bulbs, having received but little check, are flowering very profusely, and are fully up to the average in richness and quality of blossom. There is every prospect of the season being a good and early one.

The following spring-flowering plants annually recorded to the Society came into flower in February, viz.:—Symphytum caucasicum and Arabis albida, on the 1st; Nordmannia cordifolia, 2nd; Scilla bifolia, 15th; Iris reticulata, 16th; Mandragora vernalis, 18th; Sisyrinchium grandiflorum album, 26th; Scilla bifolia alba, 28th.

On the rock garden, twenty-five species came into flower during the month, the most interesting being Chionodoxa sardensis, Corydalis angustifolia, Crocus suaveolens, Daphne Blagayana, Doronicum caucasicum, Erica carnea, Galanthus Redoutei, Iris reticulata, Narcissus minimus, Rhododendron præcox, Saxifraga oppositifolia, S. Burseriana multiflora, Scilla bifolia alba.

The following plants in flower were exhibited from the Royal Botanic Garden:—Crocus Imperati albiflora, Chionodoxa sardensis, Daphne Blagayana, Narcissus cyclamineus, N. citrinus, Pinguicula lutea, Pyxidanthera barbulata, Saxifraga Stracheyi.

From Mr. Hanbury's garden at La Mortola, Ventimiglia, Italy, by Mr. Sewell: Fruits of species of Gourds, Eucalyptus, Martynia, Solanum, Hakea, and Casuarina, were exhibited.

Botanic Garden of Glasgow. Remarks on Temperature, Vegetation, &c., for February 1890.—The high mean temperature experienced last month, was continued for the first two or three days of this month, 7° of frost being registered on the night of the 4th. Since then we have had continued cold. Frost was registered on twenty nights, the remainder being very cold. The lowest reading was 23° (9° of frost), and the total frost for the month 87°, and four times at the freezing point. Cold north and north-east winds were frequent, also an unusual number of hazy, foggy, sunless days. The warmth

of the sun was felt here only twice during the month. *i.e.*, on the 5th and 23rd. The continued cold days and nights have thoroughly retarded vegetation; this is a fortunate circumstance. Fortunately only hardy plants of foreign origin which, despite all acclimatization, will persist annually in pushing early growth, have suffered to any appreciable extent.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL.

March 18.—The Council of the Royal Botanic and Horticultural determined to open the season with a flower show in the Town Hall. Unlike most of the exhibitions promoted by this Society, the intention was to have a variety of exhibits from nurserymen and gentlemen—more of the general order—to give the citizens an opportunity of seeing what can be done in general, rather than in the formal arrangements of subjects set down for exhibition. That they succeeded in bringing out a lot of specially fine contributions almost goes without saying. And what enhances the importance of an exhibition from a sight-seeing, and therefore paying, point of view, the day was splendid. Even the murky canopy that generally hangs over Cottonopolis had disappeared, and the public flocked in such numbers as must have given general satisfaction to all concerned.

The group of plants in the post of honour towards the orchestra was contributed by the Botanic Gardens, and Mr. Findlay put up a very showy and imposing group, consisting of both pinnated-leaved and Fern-leaved forms, of such as Cocos plumosus, C. Weddeliana, Areca lutescens, Kentias of sorts, and some Latanias. The foreground was brightened with a grand lot of well-grown Hyacinths of the popular kinds, that have been in exhibit for years, and seem yet to hold ground against all rivals. Then Azalea amœna, Cliveas in great floriferousness, plenteous Deutzias and Lily of the Valley, and a nice contribution of the showy cut-leaved Japanese Acers, made up an imposing group; a couple of very nice Dendrobium Wardianum, one in particular beautifully flowered, and grown in a teak basket, that almost toppled over with the weight of the plant above it. A good form of flamed Cattleya Trianæ was on exhibit, and bears the name of the Trafford variety. It has size, substance, and pronounced colour about it, and will beat many hundreds that come against it.

The next most important contribution came from Mr. Statter, Stand Hall, Whitefield; his Dendrobiums, particularly Ainsworthianum, and its variety, roseum—after the recent decease of the gentleman whose name they bear—attracted considerable attention. D. Leechianum appears to be a better flower than the D. Ainsworthii roseum to which, by the way, it is closely allied. The lots of D. nobile shown were varied—none better than a chance imported plant, which had size, substance, and colour to recommend it; as an interesting hybrid, D. Dominianum ×, from the blood of Lewinianum and nobile combined, was interesting. A very pretty form of Odontoglossum aspersum was shown, and very choice little plants (although, by the way, they never get big), of Angræcum Sanderianum and A. Ellisii.

Messrs. B. S. Williams & Son had a lot of about 100 Hyacinths, in which La Grandesse, Macaulay, Koh-i-noor, King of the Blues, Mimosa, Queen of the Blues, William III., Malakoff, Von Schiller, and Plimsoll, a good blush, took precedence. These along with forced shrubs, Gueldres Roses, &c., and a lot of Daffodils and Lily of the Valleys, made up a showy contribution.

Dicksons, Chester, had a very nice lot of Daffodils, none better than Horsfieldii and Emperor for general work, although such as albicans, Empress, and some of the doubles look well. The Bulbocodiums struck the visitor by their formality. These, and Squills, and Chionodoxas, made up a nice group. Dickson, Brown & Tate had a good well grown lot of Hyacinths in pots, and a lot of Narcissus in glasses. Messrs. Cutbush & Sons, Barnet, had a large contribution of the mixed order, their Cyclamens and Mignonette being very attractive, as were their white Azaleas—Deutsche Perle being in fine style. Mr. Hooley, Cheadle, had a miscellaneous lot of bulbous and New Holland plants clean and well grown.

Mr. Joseph Broome, Llandudno, had a charming lot of hardy herbaceous and bulbous plants culled from the open garden, and shown in bunches in boxes—there would be quite 150 of them. The double yellow Wallflowers, the various Armerias, the grand lot of Primroses and Polyanthuses, the many Violets, and Aubrietias, the ragged-looking Caucasian Scabious, and several Anemones, made one long to live in a district where such things could be had out in the open. Mr. S. Barlow had a nice group of Hepaticas, and Mr. Mason had about as good a lot of memorial wreaths as one can well desire. The Cœlogyne cristata and the white Camellia, together with sprays of Lily of the Valley and white Lilac, and suitable greenery, make up a captivating design for decoration of this character.

CHISWICK GARDENERS' ASSOCIATION.

Mr. George Cannon, manager of Messrs. Charles Lee & Son's Ealing branch, read a very interesting, instructive, and practical paper on the outdoor cultivation of the Rose, before the members of this body on Friday, March 7. About the beginning of this century, Messrs. Lee, of Hammersmith, were giving attention to Roses, and they seem to have been the first growers of any importance in this country. Mr. James Lee (who wrote a work on botany), father of the present Mr. John Lee, and grandfather of Mr. W. Lee, the head of the present firm, was a very enterprising man; he sent collectors to many parts of the world for new plants, and very many novelties were thus introduced by the firm. It imported standard Roses from France in the year 1818, which were the first ever seen in England, and which were sold at one guinea a-piece. They continued to import large quantities of these Roses every year, and it is recorded that the Duke of Clarence gave the firm an order for 1000 plants at that sum. The Lees were also exhibitors of Roses, and were successful as such at the Horticultural Society's shows. In those days the blooms were shown on Japanese cases in tubes, Mr. Rivers in 1834 being the first to exhibit Roses in boxes upon green moss, and which practice has continued to the present time.

From a most interesting (indeed, it might be called historical) communication, kindly furnished by Mr. John Lee, it appears that this gentleman first entered the business in 1821, and his father first commenced planting standard Rose stocks for budding, and in the following year he made a purchase from a Mr. Calvert, a nurseryman in France, of 8000 standard Roses—accounted then a very large order—at 3*s.* each, which amounted to £1200. Mr. John Lee wrote the cheque in discharge of this account in 1822.

In those days there were no perpetual Roses, except the old Four-season and the Pasten Rose. The popular favourites at that period were the Tuscany, Carmine, Celestial, African Black, a host of other sorts of that stamp, and the Bath white Moss de Meaux. In 1822 the Lees introduced those popular varieties Lee's Crimson Perpetual and Lee's Blush Perfection, and one or two new Noisettes and Bourbon Roses, the latter class being the progenitors of the H.P.'s of to-day. Stanwell Perpetual was raised at Messrs. Lee's Stanwell Nursery, near Bedfont, the firm having a branch at this place at that time. This variety was introduced to commerce in 1823. At Stanwell were also raised at this period those popular Hip Roses, Globe Hip, Margined Hip, and Blush Hip, which commanded a great sale. A large collection of Scotch Roses were also raised by the firm at Stanwell, but these have long since been forgotten.

FLOWER SHOW IN SCILLY.

The Isles of Scilly Bulb and Flower Association held their annual show in the hall of the public building, St. Mary's, on the 11th and 12th inst. The exhibits were much in excess of any previous year, and numbered over 1,100, chiefly Narcissi, and the quality of the flowers was excellent, some Sir Watkin's Emperor, Empress, single flowered. Incomparabilis and Ornatus were very fine. All of the flowers shown were grown out of doors, and such a large collection had never been seen before in March (what would Parkinson say to such a collection?).

The first day the exhibits were adjudged in classes; and on the second day each exhibitor put his exhibits into collections, and competed for special prizes. Mr. W. P. Mumford, of Old Town, was 1st, winning a challenge board with cup presented to the Association by Mr. Smith, the proprietor of the Islands; Mr. Mumford took the 1st prize on the first and second year of the show. His collection numbered 90 varieties. Mr. F. Watts was 2nd with 117 varieties, a tankard worth ten guineas, presented by Mr. E. Jacobs of Covent Garden.

In addition to the above exhibits, Mr. Smith, of the Abbey (gr., Mr. Jenkins), staged 180 varieties of Narcissi, not for competition; the bank of flowers being backed with beautiful effect by Arum Lilies in bloom, Araucarias, New Zealand Flax, and various choice shrubs.

The flowers which obtained the 1st prize, Mr. Smith's exhibits, and other contributions by different exhibitors, were sent on for the acceptance of the Queen, who was pleased to acknowledge the receipt of them in a letter to Mr. Smith.

The arrangement of the exhibits were made by Mr. J. C. Tonkin. *A Correspondent.*

LAW NOTES.

A DISPUTED ACCOUNT.

Radclyffe & Co. *v.* Phillips.—This case was brought in the Chertsey County Court by the plaintiffs, who are horticulturists and greenhouse manufacturers, London; defendant is medical superintendent of the Holloway Sanatorium, Virginia Water. Mr. Wilkinson, who conducted plaintiffs' case, said that the action was brought to recover £31 3*s.* 6*d.*, of which £19 5*s.* had been paid into court, for certain plants and greenhouse blinds. The points at issue were whether the plants were supplied at a reasonable price, and whether the blinds were made and fitted in a proper and workable manner. Evidence was given by plaintiffs' traveller, Mr. Radclyffe, and the man who fixed the blinds, from which it appeared that when the plants were ordered by defendant's gardener, to whom the traveller had been referred, no price was agreed on, the only stipulation being that they should be delivered by Ascot day. The number of the blinds, and the manner of their fixing, was left to the discretion of the traveller. The blinds were returned about five or six weeks after delivery, but plaintiffs refused to take them in. The prices charged for the plants were the usual ones.—Mr. R. Brettell defended. The defence was that defendant's gardener agreed with plaintiffs' traveller as to the price of the plants. Defendant ordered one roller-blind, which was to be sent down before Ascot week. There was a delay in filling this order, and instead of one blind, four were sent and fixed. Defendant objected, but allowed them to be put up, as the hot sun was spoiling his plants. The blinds did not work satisfactorily, and the space between them admitted the sun. One was blown down the day after being fixed, and they were sent back in a few days afterwards. Evidence bearing out this was given by defendant, who also stated that he had spent more than £1000 in flowers within the last four years. He considered the plaintiff's prices excessive.—Dr. Phillips's head-gardener said the price charged for the plants was in excess of the sum agreed on.—His Honour held that the blinds were clearly useless, and that they had been returned within a reasonable time. Therefore defendant was not liable to pay for them, and he gave judgment for defendant on all points. *Surrey Advertiser and County Times, March* 8.

Mr. A. Van Geert *v.* Messrs. J. Carter & Co.

In the report of the above action, which appeared last week in the *Gardeners' Chronicle*, it is said that:—"As Mr. Van Geert would neither make any allowance, or replace the plants (which arrived in unsaleable condition), Messrs. Carter & Co. were compelled to defend the action." Now, the evidence clearly proved that Mr. Van Geert was compelled to take the action, because Messrs. Carter not only declined to pay the invoice, or any part thereof, but even declined to accept the invoice, although they admitted that they could not account for the condition of the plants, unless they had sustained injury in transit, which took place at the end of August, 1889. It is also mentioned in the same report, that the defendants had no knowledge of the route the goods were sent by, but they

received a proper advice along with the invoice, as is usual. They were subsequently told by letter who were the shipping agents through whom the plants were to come, and to whom they were to apply.

Obituary.

Mr. John Marshall, of Belmont, Taunton, died at his residence, on February 22, aged sixty-four years. The deceased, a most public-spirited man, who will be missed in Taunton by all, was an ardent horticulturist, a successful cultivator of greenhouse plants, Chrysanthemums, and Roses; and he frequently threw open his charming gardens at Belmont to the public, allowing them to wander at will.

The Weather.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending March 15.	Temperature. Accumulated. Above 42° for the Week.	Temperature. Accumulated. Below 42° for the Week.	Temperature. Accumulated. Above 42°, difference from Mean since Jan. 1, 1890.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for the week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg	Day-deg	Day-deg	Day-deg	10ths Inch.		In.		
1	2 +	15	28	+ 20	42	4 +	56	13.4	13	18
2	5 +	31	14	+ 13 —	46	1	44	6.9	29	23
3	6 +	35	07	0 —	65	4 —	38	3.7	26	21
4	3 +	37	17	— 25 —	1	1 —	13	3.9	33	28
5	4 +	36	10	— 18	3	2	38	4.4	29	23
6	3 +	35	9	— 1 —	24	2 —	37	4.7	32	25
7	3 +	26	9	+ 12 —	51	0 av.	49	12.1	22	19
8	3 +	29	6	+ 2 —	38	0 av.	48	6.7	16	21
9	2 +	28	2	— 16 +	33	3 —	43	7.7	18	27
10	3 +	28	4	— 10 —	26	7 +	52	7.7	16	21
11	3 +	36	1	6	1	6 +	50	10.6	21	25
12	2 +	35	0	+ 50 —	8	4 —	17	7.4	42	34

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts.—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts.—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 15th, is furnished from the Meteorological Office:

"*The weather* has been dull, with rather frequent falls of rain, over Ireland and the west and north of Scotland, but not over the greater part of England and the east of Scotland. Heavy rain fell at some of the northern Scotch stations during the earlier days of the week, and in some parts of Ireland at its close.

"*The temperature* was rather low at the commencement of the period, and minima were recorded, ranging from 13° in 'Scotland, N.,' and 20° in 'Scotland, E.,' to 29° in 'England, S.W.,' and 32° in the 'Channel Islands.' Subsequently, however, it became high for the time of year, and the maxima varied from 55° in 'Scotland, N.,' and the 'Channel Islands,' to 60° over the greater part of England, and in 'Ireland, S.,' and to 63° in 'Scotland, E.' The average values for the week ranged from 2° above the normal in the 'Channel Islands,' 'England, S.W.,' and 'Scotland, N.,' to 4° in the 'Midland Counties,' 5° in 'Scotland, E.,' and 6° in 'England, N.E.

"*The rainfall* has been more than the mean over Ireland and in 'Scotland, N.,' and about equal to it in 'Scotland, W.,' and 'England, N.W.;' in all other districts there has been a deficit.

"*Bright sunshine* has been very little prevalent in the west and north; in the east and south, however, the percentage of the possible duration ranged from 29 to 33, while in the 'Channel Islands,' 42 per cent. was recorded.

Markets.

COVENT GARDEN, March 20.

Prices remain the same, with the exception of Strawberries, which are a very bad trade. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6	7 0	Lemons, per case	12 0	20 0
— Nova Scotia, brl.	12 0	25 0	Pine-apples, Eng., lb.	1 0	1 6
Cobs, per 100 lb.	140 0	—	— St. Michael, each	2 0	6 0
Grapes, per lb.	2 0	5 0	Strawberries, oz.	4 0	8 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	12 0	—	Mustard and Cress, punnet	0	4 —
Beans, French, lb.	2 0	—	Onions, per bunch	0	5 —
Beet, red, per dozen	1 0	2 0	Parsley, per bunch	0	6 —
Carrots, per bunch	0	6 —	Rhubarb, per bundle	0	6 —
Cauliflowers, each	0	3 —	Seakale, punnet	2	0 —
Celery, per bundle	1	6 2 0	Shallots, per lb.	0	6 —
Cucumbers, each	1	0 1 6	Spinach, per bushel	6	0 —
Endive, per dozen	2	0 —	Sprue, per bundle	1	6 —
Herbs, per bunch	0	4 —	Brussel Sprouts, per lb.	0	3 —
Leeks, per bunch	0	3 —	Tomatos, per lb.	1	0 —
Lettuces, per dozen	1	6 —	Turnips, per bunch, new	0	4 —
Mushrooms, punnet	1	6 —			

Potatos.—Of new Potatos the prices and supply are about the same as last week. Prices for old Potatos are still easier, except for the best. *J. B. Thomas.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Euonymus, in var., per dozen	4	0 18 0
Aspidistria, doz.	18 0	42 0	Evergreens, in var., per dozen	6	0 24 0
— specimen plants, each	7	6 10 6	Ferns, in var., doz.	4	0 18 0
Azaleas, various, each	2	0 3 0	Ficus elastica, each	1	6 7 0
Christmas trees, doz.	4	0 24 0	Foliage plants, various, each	2	0 10 0
Cineraria, per doz.	8	0 12 0	Genista, per doz.	8	0 12 0
Cyclamen, dozen	9	0 24 0	Hyacinths, p. doz.	6	0 9 0
Cyperus, per dozen	4	0 12 0	Hydrangeas, doz.	12	0 18 0
Daffodils, doz. pots	6	0 9 0	Lily of the Valley, p. doz. pots	18	0 24 0
Dodyatra, per doz.	9	0 12 0	Marguerites, doz.	6	0 12 0
Dracæna terminalis, per dozen	30	0 60 0	Palms in var., each	2	6 21 0
— viridis, per doz.	12	0 24 0	Pelargoniums, scarlet, per dozen	6	0 8 0
Epiphyllum, per doz.	12	0 18 0	Solanums, per dozen	6	0 12 0
Erica Cavendishii, per dozen	18	0 42 0	Tulips, doz. pots	6	0 9 0
— ventricosa, doz.	15	0 24 0			
Ericas, various, doz.	8	0 24 0			

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Narcissus, various, doz. bun.	1	6 6 0
Acacia (French) bun.	0 9	1 6	Pelargoniums, scarlet, 12 spr.	3	6 0 9
Azaleas, doz. sprays	0 6	1 0	— dozen sprays	1	0 1 6
Bouvardia, per bun.	0 8	1 0	Primroses, 12 bun.	0	6 1 0
Calla æthiopica, 12 bl.	3 0	5 0	Primulas, double, 12 sprays	1	0 1 6
Camellias, white, doz.	2 0	4 0	Roman Hyacinths, Eng., doz. sprays	0	6 1 0
— various, per doz.	1 0	2 0	— (French), 12 bun.	3	0 4 0
Carnations, 12 blms.	1 0	2 0	Roses, Tea, per doz.	1	0 3 0
Cyclamens, 12 blms.	0 4	0 9	— coloured, dozen	2	0 4 0
Daffodils, doz. blooms	0 3	0 9	— French, dozen	1	0 2 0
Eucharis, per dozen	3 0	5 0	— red, per dozen	1	0 6 0
Gardenias, 12 blooms	9 0	18 0	— Safrano, dozen	1	6 2 6
Heliotropes, 12 spr.	0 6	1 0	Spiræa, doz. sprays	0	6 1 0
Lilac, white, Fr., bun.	4 0	6 0	Stephanotis, 12 spr.	9	0 12 0
Lilium, var., 12 bl.	2 0	8 0	Tuberoses, 12 blms.	1	6 2 0
Lily of the Valley, doz. sprays	0	6 1 0	Tulips, doz. blooms	0	6 1 0
Maiden Hair Fern, 12 bun.	4 0	9 0	Violets, 12 bun	1	0 2 0
Mignonette, 12 bun.	2 0	4 0	French, bunch	1	0 2 0
— French, per bun.	1 6	2 0	— Parma, bunch	3	0 4 0
Marguerites, 12 bun.	3 0	6 0			

Orchid-bloom in variety.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, for the week ending March 15:—Wheat, 29*s.* 11*d.*; Barley, 30*s.* 8*d.*; Oats, 18*s.* 6*d.* For the corresponding period last year:—Wheat, 30*s.* 2*d.*; Barley, 25*s.* 10*d.*; Oats, 17*s.* 2*d.*

SEEDS.

London: *March* 19.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that remarkable cheapness for all articles continues to be the leading feature of the present season. Red Clover seed, in particular, is extremely abundant, and astonishingly low-priced. Alsike and Trefoil are steady; White Clover seed is quiet. Choice French and Perennial Rye-grasses are obtainable for very little money. Rape seed is scarce and dear. Temptingly low rates are current for Canary-seed. Rather more attention is given to Tares. Blue Peas meet a somewhat improved sale. For Linseed the tendency is downwards. Scarlet Runners are cheaper.

POTATOS.

Borough and Spitalfields: *March* 18.—Quotations:—Regents, 40*s.* to 85*s.*; Hebrons, 40*s.* to 90*s.*; Magnums, black, 35*s.* to 40*s.*; Bedfords, 40*s.* to 50*s.*; Lincolns, 40*s.* to 55*s.*; Yorks, 45*s.* to 75*s.*; Scotch, 50*s.* to 95*s.*; Imperators, 40*s.* to 60*s.* per ton.

Spitalfields: *March* 19.—Quotations:—Hebrons, 30*s.* to 45*s.*; Imperators, 40*s.* to 50*s.*; Champions, 40*s.* to 45*s.*; Regents, 50*s.* to 70*s.*; Myatt's Kidneys, 50*s.* to 60*s.*; Magnums, 25*s.* to 45*s.* per ton.

Stratford: *March* 18.—Quotations:—Scotch Regents, 55*s.* to 70*s.*; do. Magnums, 50*s.* to 75*s.*; Light English Magnums, 40*s.* to 68*s.*; dark do., 35*s.* to 55*s.* per ton.

FRUITS AND VEGETABLES.

Spitalfields: *March* 19.—Good supplies of all kinds of fresh vegetables; large quantity of Potatos; moderate supply of fruit. Demand fair for fresh vegetables and fruit, but heavy for Potatos. Prices:—Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Sprouting Broccoli, 1*s.* 6*d.* to 2*s.* 6*d.* per sack; ditto, 1*s.* to 1*s.* 6*d.* per sieve; Brussels Sprouts, 1*s.* to 1*s.* 6*d.* per half-sieve; Turnip-tops, 1*s.* 9*d.* to 2*s.* 6*d.* per sack; Swede-tops, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Savoys, 2*s.* to 6*s.* per tally; Cauliflowers, 3*s.* to 10*s.* do.; Parsnips, 4*d.* to 8*d.* per score; Beetroots, 4*d.* to 8*d.* per dozen; Greens, 1*s.* 6*d.* to 3*s.* per dozen bunches; Turnips, 1*s.* 9*d.* to 3*s.* do.; Carrots, 1*s.* 6*d.* to 2*s.* do.; Parsley, 1*s.* 6*d.* to 3*s.* do.; Horse-radish, 1*s.* to 1*s.* 4*d.* per bundle; Celery, 3*s.* to 9*s.* per dozen bundles; Cabbage Lettuce, 1*s.* 6*d.* to 2*s.* per dozen; Endive, 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; English Onions, 10*s.* per cwt.; Spanish do., 10*s.* 6*d.* to 12*s.* per case; Bordeaux do., 6*s.* 6*d.* to 7*s.* 6*d.* do.; Belgian and Dutch do., 6*s.* to 7*s.* per bag of 110 lb.; Carrots, 15*s.* to 30*s.* per ton; American Apples, 15*s.* to 20*s.* per barrel; English do., 5*s.* to 8*s.* per bushel.

Stratford: *March* 18.—Supply has been good during the past week, and a fair trade was done at the following prices:—Savoys, 3*s.* to 6*s.* per tally; Cauliflowers, 5*s.* to 12*s.* per crate; Turnips, 25*s.* to 35*s.* per ton; Carrots (household), 25*s.* to 40*s.* do.; do. (cattle feeding), 18*s.* to 21*s.* do.; Mangolds, 17*s.* to 18*s.* do.; Swedes, 14*s.* to 18*s.* do; Onions, English, 8*s.* to 10*s.* 6*d.* per cwt.; do., Dutch, 5*s.* 6*d.* to 7*s.* per bag; Apples, American, 16*s.* to 28*s.* per barrel; Watercress 6*d.* per dozen; Celery, 3*s.* to 9*s.* per dozen rolls.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 75*s.* to 92*s.*; inferior do., 40*s.* to 75*s.*; hay, best, 60*s.* to 85*s.*; inferior do., 26*s.* to 50*s.*; and straw, 24*s.* to 38*s.* per load.

Notices to Correspondents.

*** **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

Anemones: *J. M.* The plants flower at this season out of doors in South of France, in the Scilly Islands, and probably about Cork. In England generally to have them in bloom now the plants must be grown under glass.

Ants: *G.W.* Carbolic acid, diluted with water, sprinkled in their haunts will drive them away.

Apple Trees One Hundred Years Old: *A. P.* If you intend to destroy the trees, grub them up now, and trench the ground, taking a crop of cereals, French Beans or Potatos. If it is meant to prune them only, do it when the trees are in full leaf; the wounds will heal better than if the job be performed in the winter.

Blood as Manure: *Constant Reader.* Blood is rich in nitrogen, 17·173, oxygen, 19·295, and is valu-

able as a manure, but its effects are transient. In 100 parts ox-blood there are 80 per cent. of water. Mix 50 gallons blood with 8 bushels of peat-ashes and charcoal-powder; let it stand two years before using. Clayey loam or powdered clay would do almost as well as these two ingredients. Dressing about 48 bushels per acre and for a Vine border in proportion. Blood may be dried, or partly dried—it is then not so leathery—and given as a top-dressing. It is more lasting in its effects if mixed with sawdust and tanners' bark. The land should be well drained, as when it is wet the effects of the manure are not so marked.

Books.—Botany: Bentham & Hooker's *Genera Plantarum*, price 10*l.*; *The Handbook of the British Flora* by the same; *The Gardener's Assistant*, by R. Thompson. Edited by T. Moore, price 31*s.* 6*d.*; published by Blackie & Son, Paternoster Buildings; Glasgow and Edinburgh. *The Epitome of Gardening*, by Moore and Masters; A. Black & Co., 6*s.*

Cape Bulbs Recently Imported: *Constant Reader.* The Ixias, Freesias, Tritonias, Babianas, and Ornithogalums, should be carefully cleaned, washed, then dried for a few days in the sun. Prepare a compost of sandy loam and a little leaf-mould, and pot the bulbs very firmly, leaving them one-third of their height above the soil. If the soil be moist, no water should be given to the bulbs for a time. Plunge them in a mild tan or leaf bed, the heat of which should not exceed 70°, the top heat of the frame or pit being by day 65° to 70°, and by night 55° to 60°. Give no water until growth commences, and give no additions to the bottom or top heat except what is occasioned by the natural increase of temperature. When leaves are produced ventilate freely in mild weather, and encourage the plants to make as much leaf-growth as possible up to July, when water should be withheld—gradually at first, and totally as soon as the foliage shows signs of maturity. The last-named bulb is an evergreen one, and needs some slight amount of watering during the autumn. After resting in their pots, the first four species of bulbs may be shaken out and repotted, six to eight being put into a 48-sized pot, and afforded greenhouse or frame treatment.

Cyclamen: *N. E. L. L.* Sow seeds in early autumn—that is, as soon as ripe. Prick off the seedlings into good compost of loam, peat, leaf-mould, and sand, and when nicely rooted pot into thumbs and small 60's. Give a genial atmosphere, warmth at night during winter 55° to 60°, with an increase of a few degrees during the day. They should be kept gently growing from time of sowing the seed till the flower period. It is curious treatment for an alpine, but it answers. Plants that have once bloomed should be rested in a cool frame, either in pots or planted out in peaty soil, and in September be repotted and grown on, like the seedlings.

Ferns round fountain in Greenhouse: *J. J. J.* Pteris serruluta and its varieties; Common Maiden Hair, Osmunda regalis, Ceratopteris thalictroides, Acrostichum aureum, Cyathea dealbata, Woodwardia radicans, Alsophila excelsa

Insects: *T. T.* The insects which have attacked the roots of your Christmas Roses appear to be (as well as we can judge from the shrivelled state of the specimen sent) to be the larvæ of the small common swift-moth (Hepialus fuscus), often found eating the roots of pot plants. *I. O. W.*—*C. S. & Co.* The centipede you send is, as we learn on inquiry at the Natural History Museum, common in all tropical countries, and is named Scolopendra subspinipes.—*A. B.* The caterpillar of the Goat-moth, Cossus ligniperda; very destructive to young trees. Pass a hooked wire through the cavity and extract the creatures. Smear the trees with clay or soft-soap to prevent the moth laying her eggs on the bark.—*E. A.* 1, A mite; 2, Apple scale, Aspiditras conchiformis. (See *Journal of Royal Horticultural Society*, vol. x., 1888, British Apples, with cuts from the *Gardeners' Chronicle.*)

Melons and Cucumbers: *G. W.* Bad Melons may taste very much like cucumbers, and no wonder seeing their near relationship. It is all nonsense to suppose the ants in the house have had any thing to do with the matter.

Names of Plants: *J. C.* 1, Probably Cedrus Deodara; 2, Picea morinda; 3, Libocedrus chilensis; 4, Retinospora obtusa aurea; 5, Cupressus, probably Goveniana; 6, Probably Cedrus atlantica.—*K. and B. C.* 1, Diplopappus chrysophyllus; 2, Cornus Mas.—*F. N.* Rhamnus alaternus.—*E. M.* Quite impossible to name your withered scrap with certainty. Probably your conjecture is right.—*G. W. C.* Odontoglossum Ruckerianum. *J. S.* 1, Isolepis gracilis; 2, Panicum variegata; 3, Coronilla glauca; 4, Aspidium falcata.—*J. Vert.* Acacia lobata.—*T. and P.* Daphniphyllum glaucescens. It may be struck by layering.—*R. F.* Lælia Schroderi, *Orchid Album*, vol. i., pl. 2.—*Camjee.* Sophronitis cernua.—*M. Simon.* Odontoglossum blandum.—*F. W.* Adiantum Concinnum latum.

Newly Planted Fruit Trees in Grass Land, Highfield: Remove the turf from about the roots, and replace it with a mulching of half-decayed manure over the roots.

Odontoglossum Rossi majus: *G. W.* A very good form, large and well coloured.

Peach Houses: *H. B. P.* If the lean-to house be 10 feet high at the back, and it is 10 feet wide, it would accommodate a trellis for the trees of 10 feet in width. It would spring from a point 2 feet from the front wall, and the highest point would be 8 feet from the floor at the back, and distant 2 feet from the back wall. A trellis so placed would give more training area than an arched one, and expose the trees more directly to the light. The back wall at the upper part could be utilised for Strawberries, Kalosanthes, Azaleas, &c., and the lower part would suit Camellias. If fruits are intended to be grown for marketing of the finest quality, one fruit to each square foot of area may be considered a fair amount of space; but one fruit to a square of 9 inches would produce as large fruits as market salesmen care for, the smaller fruits selling better than the very fine large ones. With your 100 feet run of 10 feet trellis well covered in every part with bearing wood, 1100 to 1200 fruits would not be too many. Rabbits' tails and camel-hair pencils are not wanted to fertilise Peach and Vine blossoms, if the treatment of the trees is what it ought to be. Plenty of ventilation, moderately dry air, a moist state of the border, and now and then a smart tap on the trellis, are sufficient for all purposes.

Phalænopsis leaves: *F. P. Davies.* The appearance on your leaves is very common on Phalænopsis, it is generally supposed to be caused by keeping the plants too warm and giving too much water during the resting period, *i.e.*, from November to the middle of March.

Poinsettea pulcherrima Amateur: The plant is a native of Mexico introduced in 1834, we do not know the introducer. There is no cheap book in which an account of the plant is to be found, but it is described in the *Botanical Magazine*, 3493. It is a stove plant put now under Euphorbia.

Tulips: *T. & T.* We are sorry we are unable to give the reason for your plants "going blind." Evidently it is due to a check to growth, but what produced the check we cannot say.

Vines: *G. A. B.* Examine the border, as a bad state of the roots is probably the cause of the Vines breaking weakly. For this season dress the border with Thomson's Vine Manure, forking it in just under the surface.

Wellingtonia Seeding: *Reading.* This is not at all unusual; but not desirable on young trees.

CATALOGUES RECEIVED.

Dobie & Mason, 66, Deansgate, and 22, Oak Street, Manchester—Agricultural Seeds.

Little & Ballantyne, Carlisle—Farm Seeds.

W. H. Hudson, West Green Road, Tottenham, London—Japanese Lilies and Iris, &c.

Charles Turner, Royal Nurseries, Slough—General Spring Catalogue.

R. B. Laird & Sons, 17, South Frederick Street, Edinburgh, N.B.—Florists' Flowers, &c.

Communications Received.—J. H.—A. D.—P. E. N.—W. G. S.—M. Barker (U. S. A.)—H. Lindsay.—A. D.—A. B.—H. A. B.—W. H. D., many thanks.—The Pines next week.—Sutton & Sons.—J. Veitch & Sons.—Our Trinidad Correspondent—E. C.—A. v. G.—Our Belgian Correspondent—F. W. B.—J. K. B.—L. C.—G. W. B.—E. I. F.—Our New York Correspondent.—J. S.—H. H. D'O.—H. E., Ryde.—Our Berlin Correspondent.—R. H.—A. F. B.—J. W.—Ernest Bergman, fils.—F. B.—P. W., Russia.—J. R.—Divers, Florida, many thanks.—Conifers next week.—W. S.—J. O'B.—T. Hanbury, Mentone.—W. R.—J. D.—W. H.—W. B. H.—J. J. W.—John Downie.—G. W.

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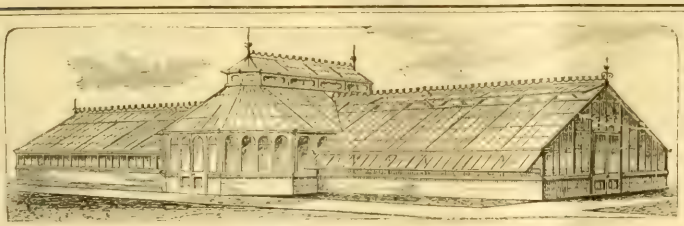
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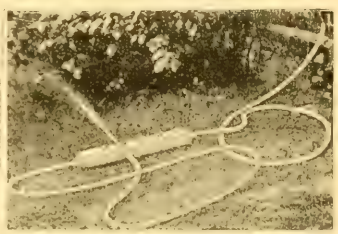
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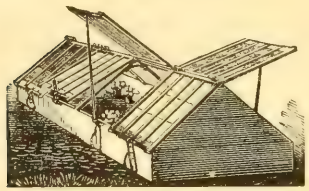
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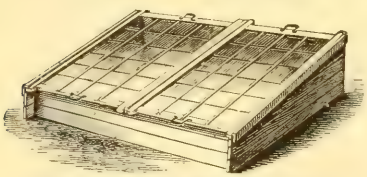
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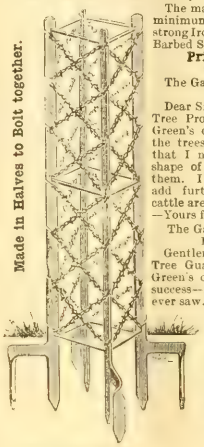
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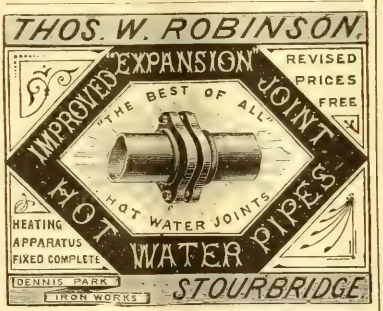


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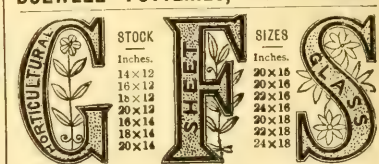
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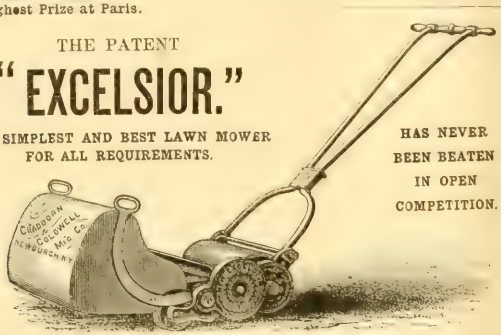
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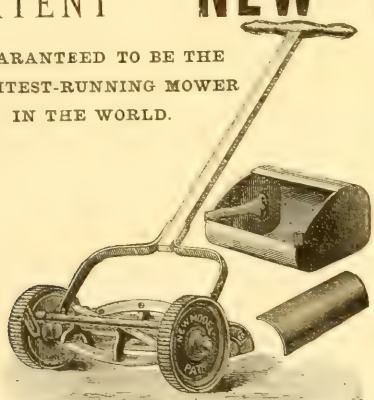
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NOTICE TO ADVERTISERS.

FRIDAY NEXT, *April* 4, *being* GOOD FRIDAY, *the* "GARDENERS' CHRONICLE" *will be published on* THURSDAY, *April* 3.

ADVERTISEMENTS *for* NEXT WEEK *must therefore reach the Office not* LATER *than* WEDNESDAY MORNING, *April* 2.

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

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Apply to Miss WINN, Appleby Hall, Doncaster.

GARDENERS' CHRONICLE, unbound, from July, 1882, to December, 1889.
Address, M. H., Ivy Cottage, Page Street, Mill Hill, N.W.

SALES BY AUCTION.

Monday Next.

Various LILIES from Japan; a large assortment of English-grown LILIES and hardy BULBS, 500 hybrid GLADIOLI, American PEARL TUBEROSES, BEGONIAS, GLOXINIAS, TIGRIDIAS, 300 CALLA ALBA MACULATA, GREENHOUSE PLANTS, PALMS, Standard and Dwarf ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, March 31, at half-past 12 o'Clock.

Tuesday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY NEXT, April 1, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Tuesday Next.

ORCHIDS in FLOWER for Easter Decoration, and 1200 Satyriums from the Cape.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, April 1, at half-past 12 o'Clock, a truly valuable consignment of EPIDENDRUM FREDRICEI GUILELMI, sent home by our indefatigable collector, Mr. E. Klaboch, the only man knowing the habitat of this gorgeous Orchid. It is with the greatest difficulty that we have succeeded in getting plants, several attempts to import them alive have failed, therefore this species is very rare, we believe there are only half a dozen plants in collections which were brought home personally by the collector. The plant is of a very ornamental character, 2 to 3 feet high, furnished with handsome oblong leaves, and quite distinct from any other species. The pseudobulbs or stems grow out into a purple peduncle, supporting a many-flowered raceme. The flowers are of a rich crimson colour, beautifully scented, and lasting a long time in perfection. The plant is very free-flowering, and it is most suitable for exhibition purposes, its fine long racemes producing a charming effect when placed beside other Orchids. It is of very easy culture, and requires intermediate treatment, having been found at an altitude of 6—7000 feet. Every plant offered is guaranteed true. The Sale will also include a very fine lot of ODONTOGLOSSUM CRISPUM from the best Pacho districts; also the sweet-scented CATTLEYA CITRINA, and ODONTOGLOSSUM ROSSI MAJUS.

On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIUM LANCIFOLIUM ALBUM KRŒTZERI, L. SPECIOSUM RUBRUM, and a large assortment of various LILIES from Japan; 150 AZALEA MOLLIS, 150 AZALEA INDICA, in flower and bud; RHODODENDRONS, HERBACEOUS PLANTS, Standard and Dwarf ROSES, a choice assortment of PALMS, DRACÆNAS, FICUS, Greenhouse and Stove FERNS, and other DECORATIVE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 2, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

SALE of NURSERY STOCK and GREENHOUSE PLANTS from SAMPLE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY NEXT, April 3, at half-past 12 o'Clock precisely, large quantities of NURSERY STOCK and GREENHOUSE PLANTS from Sample, including the following lots:—500 Adiantum cuneatum, 500 Double White Primulas, 600 Geraniums, F. V. Raspail, 500 Fuchsias, 800 Standard Roses, 800 Rhododendrons, 1000 Laurustinus, 1000 Laurels, 150 Thuja Lobbi aurea variegata, Standard, Dwarf, and trained fruit Trees, Strawberry plants for forcing, Herbaceous plants, &c.

On view morning of Sale, and Catalogues had of the Auctioneers.

Wednesday Next, April 2.

1000 Standard, Half-standard, Dwarf and Climbing ROSES, from one of the most successful English growers, including most of the best show varieties of Teas, Noisettes, hybrid perpetuals, and others, together with some of the newest sorts in cultivation; pyramid, standard and dwarf-trained FRUIT TREES, in large quantity; hardy ornamental SHRUBS, EVERGREENS, and CONIFERS; BORDER PLANTS. A fine collection, STOVE and GREENHOUSE PLANTS; grand bulbs of LILIUM AURATUM and other LILIES, from Japan, PEARL TUBEROSES, GLADIOLI, &c., &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 2, at half-past 1 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next, April 3.

A fine COLLECTION of ORCHIDS, mostly in Flower and Bud, including many fine varieties and specimens; also Grand Bulbs of LILIUM AURATUM, and many other LILIES, from Japan, in splendid condition; PEARL TUBEROSES, TIGRIDIAS, from America; LILY OF THE VALLEY Crowns, &c.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 3, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday, April 17.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 17, and he will be glad if Gentlemen desirous of entering plants for this Sale will please SEND LISTS AS SOON AS POSSIBLE.

WANTED, TO RENT, about 500 feet to 1000 feet of GLASS HOUSES, suitable for Growing usual Market stuff.—X., 9, Exchange, Balham.

To Gardeners, Carmen, &c

TO BE SOLD, a well-established NURSERY, 11 Greenhouses well heated, first-class Stabling and Sheds, the whole covering about 1 acre of land in the best part of St. John's Wood. Long lease, good jobbing connection; a chance seldom met with. Price £100.

Apply on the premises, Waverly Nursery, St. John's Wood, N.W.

To Nurserymen and Florists.

FOR SALE, with Immediate Possession, a First-class Going Concern, in perfect working order, within 40 miles of London, with good Connection in Covent Garden and in the Provinces. Satisfactory reason for disposal. There is a RESIDENCE and FREEHOLD PROPERTY of about 1 Acre, covered with fourteen Forcing Houses, all in proper going order. The Business is old and well established, and is noted for its Flowers and Plants, as well as Fruits, especially Peaches. Price for Goodwill, £250. Lease £80, can be arranged. Stock at value; or the whole will be Sold, including Stock, for £2,500.

For further particulars apply to OSCAR BERRY, Esq., Chartered Accountant, Monument Yard, E.C.

TO BE LET, at Tottenham, capital FLORISTS' PREMISES, comprising 3 Greenhouses, in all about 1500 feet run, fitted with Hot water Apparatus, Potting Shed, &c. Rent £25 a year. Splendid opening for an energetic man.

Apply to Mr. ALFRED RICHARDS, Auctioneer and Estate Agent, High Road, Lower Tottenham. (6983)

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city. Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease for 21, 60, or 80 years. Rent from £5 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL CO.

(JOHN COWAN), Limited,

Are offering a fine lot of newly imported Dendrobium Wardianum Lown, D. Brymerianum (true long-bulbed variety), and many other fine Dendrobes and Orchids, also an immense stock of Established Orchids. LISTS with Prices and particulars post-free on application to the Company,

THE VINEYARD AND NURSERIES,
GARSTON, near LIVERPOOL.

PEARSON'S SEEDS are not ALL HOME GROWN; but some are imported from the Continent, and others are procured direct from Specialists, and Sold to the Public without being re-christened. No effort is spared to have the best of everything. CATALOGUE free on application: Prices extremely moderate. No coloured plates, but value given in seeds. Established 1782.

J. R. PEARSON AND SONS, Chilwell Nurseries, Notts.

SUPERIOR DWARF EVERGREEN LAWN GRASS SEEDS.

Thoroughly cleaned and made perfectly free from Weeds.

BEST MIXTURE, excluding Ryegrass, 1s. 3d. per lb., 135s. per cwt.

CHEAPER MIXTURE, including a limited proportion of Ryegrass, 1s. per lb., 105s. per cwt.

Delivered Free by Rail or Parcel Post.

DICKSONS Seed Growers, Nurserymen, &c., **CHESTER**

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

The GRAND HYACINTH COMPETITION and SPRING FLOWER SHOW will be held in the Waverley Market on WEDNESDAY and THURSDAY, April 2 and 3. By permission of Lieutenant-Colonel Everett and Officers, the Band and Pipers of the Queen's Own Cameron Highlanders will Perform each Day and Evening. Admission—Wednesday, 1 to 5, 1s.; 5 to 10, 6d. Thursday, 10 to 4, 1s.; 4 to 10, 6d. Member's Tickets admit to Private View at 12 o'Clock. Tickets, 1s. each, to be had at—

WOOD AND CO.'S, George Street; and the Seed Warehouses.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

GREAT INTERNATIONAL SHOW will be held in Waverley Market, Edinburgh, SEPTEMBER, 1891, when ONE THOUSAND POUNDS will be offered in PRIZES. Subscriptions, and Special Prizes will be received by WILLIAM YOUNG.

LIVERPOOL HORTICULTURAL ASSOCIATION.

EXHIBITIONS for 1890.

The SEVENTH SPRING FLOWER SHOW will be held in St. George's Hall, on TUESDAY and WEDNESDAY, April 8 and 9.

The ELEVENTH GRAND SUMMER EXHIBITION will be held on WEDNESDAY and THURSDAY, July 16 and 17.

And the ELEVENTH CHRYSANTHEMUM and FRUIT SHOW on TUESDAY and WEDNESDAY, November 18 and 19.

Schedules on application to

EDWARD BRIDGE, Secretary.

Tarbock Road, Huyton, Liverpool.

CHRYSANTHEMUM "MRS. H. HAWKINS," fine sturdy stuff. Price per 100 or 1000 upon application to

F. GIFFORD, Florist, Montague Road, Tottenham, N.

FOR SALE, STEPHANOTIS FLORIBUNDA (of the best flowering variety), two extra strong plants, at rest in pots. Price and particulars at HOPWOOD'S, Belle Vue Nursery, Cheltenham.

FERNS.—Pteris cretica cristata and Pteris tremula, the two most saleable Ferns grown, good stuff in large thumbs, 12s. 100, picked free, cash with order. GOWERS AND EMBERSON, Comely Bank Nursery, Walthamstow.

TREE CARNATIONS.—Well-rooted, and fit for immediate potting. Choice named sorts, such as Andalusia, Zouave, Purity, White Swan, The Mikado, Catherine Paul, Valencia, Juliette, &c., 4s. 6d. per doz.; FUCHSIAS, best named sorts, 1s. 6d. per doz., 8s. per 100; LOBELIA, best dark blue, 2s. 6d. per 100; GERANIUM, Raspail cuttings, 3s. 6d. per 100, 30s. per 1000.

CRANE AND CLARKE, The Nurseries, March, Cambs.

NEW CHRYSANTHEMUMS.—Prices reduced. Mrs. S. Coleman, Ada Spaulding, from 5s. to 3s. 6d. each; John Lambert, Mr. J. Clarke, Violet Rose, Advance, Coronet, from 3s. 6d. to 2s. 6d. each; Mrs. A. Hardy, Commotion, Mrs. Wm. Barr, Madame A. Carrière, Brynwood, Llewellyn, from 2s. 6d. to 1s. 6d. each; Nymphea, Countess of Lytton, Sir Joseph, Mrs. F. Jameson, Miss Haggas, Violet Tomlin, from 1s. 6d. to 1s. each. CATALOGUE free.

R. OWEN, Floral Nursery, Maidenhead.

STOVE & GREENHOUSE PLANTS.—12 lovely kinds, either for exhibition or decoration, 9s., 18s. and 24s. per doz.; 12 lovely Climbers for ditto, same prices. Lovely Orchids, easiest sorts to grow, and best for cutting, 6 varieties, 21s. or 30s.; 12 vars., 42s. or 63s. 6 lovely Greenhouse Rhododendrons, 12s. 6d.; larger, 21s.

CLIBRAN'S TUBEROUS BEGONIAS, colour, habit, and freedom pre eminent, Singles: seed, 1s., 1s. 6d. and 2s. 6d. per packet; Tubers, 4s., 6s., 9s., and 12s. per dozen. Doubles, splendid forms: seed, 2s. 6d. per packet; tubers, 9s., 15s., 20s., and 30s. per dozen. LIST, three stamps.

CLIBRAN, Oldfield Nursery, Altrincham and Manchester.

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Evidence of quality. Seed saved from Prize Plants. In illustrated Packets, choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections—Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, Named Singles, from 12s. to 42s. per doz.; Unnamed Seedlings, 12s. to 21s. per doz.; Bedding, choicest, 6s. and 9s. per doz.; choicest Named Double, from 42s. per doz.; Unnamed, very choice, 24s. and 30s. per doz.; choicest Mixed, 18s. per doz. Order direct from us, to procure our splendid strain.

CATALOGUES gratis.

JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

BARR'S Descriptive LIST of VEGETABLE and FLOWER SEEDS, free.—Full of useful information. SELECTIONS of VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s. and upwards.

SELECTIONS of FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.

GLADIOLI, TUBEROSES, HYACINTHUS CANDICANS, TIGRIDIAS, ANEMONE FULGENS, &c., for Spring Planting.

Descriptive LIST free on application.

BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

FORBES' CATALOGUE of FLORISTS' FLOWERS for 1890—(116 pages),

Is the Largest, Best, Most Reliable, and Complete ever issued on Florists' Flowers. It gives accurate descriptions of thousands of varieties of Florists' Flowers that cannot be had elsewhere, besides a very full List giving Colour, Height, Month of Flowering, and Price of nearly One Thousand Perennials and Hardy Border Plants, with a mass of other useful information indispensable to all who would excel in the Cultivation of Flowers.

This Catalogue forms a most useful and convenient Reference Book on all sections of Florists' Flowers that should be in the hands of all who love a Garden. Free on application.

JOHN FORBES, Nurseryman, Hawick, Scotland.

GRAND NEW COLEUS,
"DUCHESSE OF FIFE."
First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser,
G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

THE BIG SALE
Embraces General Nursery Stock.
RHODODENDRONS, Standards and Dwarfs.
AZALEAS, Named and others.
ANDROMEDA FLORIBUNDA.
ERICA CARNEA or HERBACEA.
A few fine Trained FRUIT TREES.
Hardy EVERGREENS of most kinds.
Requirements are solicited.
As Everything is offered at a Reduction.
CHARLES NOBLE, Bagshot.

Special Cheap Offer.
WILLIAM BARRON AND SON, LANDSCAPE GARDENERS and NURSERYMEN, offer the following special bargains:—
NAMED RHODODENDRONS, all the best varieties grown in loam, fine healthy plants, 1½ to 2 feet high, most kinds well set with bloom bud, 27s. per doz., £8 per 100.
ABIES MENZIESI, 3 to 4 feet, 35s. per 100.
CUPRESSUS LAWSONIANA, 7 to 8 feet, extra transplanted, 40s. per dozen.
,, ,, ERECTA VIRIDIS, 1½ to 2 feet, 30s. per 100.
,, ,, GRACILIS PENDULA (the finest form of a green Lawsoniana), 1 to 5 feet, 24s. per dozen.
PICEA NOBILIS, 1 to 1½ feet, 30s. per 100; 1½ to 2 feet, 40s. per 100.
PINUS AUSTRIACA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet, 30s. per 1000.
,, LARICIO, 9 to 12 inch, 35s. per 1000; 12 to 15 inch., 45s. per 1000.
FOREST TREES and QUICKS of all sizes, very cheap.
The finest Collection of Hardy EVERGREEN TREES in the Midland Counties.
Plans and Estimates furnished for the Improvement of Public and Private Parks or Gardens.
Descriptive CATALOGUES on application.
Elvaston Nurseries, Borrowash, Derby.

To the Trade.
CHOICE VEGETABLE SEEDS.
H. AND F. SHARPE'S Special Priced LIST of VEGETABLE SEEDS comprises all the best varieties under cultivation of 1889 growth, and of the very finest quality. The prices will be found very advantageous to purchasers.
Seed Growing Establishment, Wisbech.

CLIBRAN'S BEAUTIFUL FERNS for Greenhouse or Table Decoration. 12 lovely sorts, 1s., 2s., and 3s. Clibran's Palms, best varieties, small, 6s. per doz.; larger, 12s., 18s., and 24s. per doz. CATALOGUE, 160 pages, three stamps.
CLIBRAN, Oldfield Nursery, Altrincham and Manchester.

"Now is the Time to Plant Trees."
ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.
The Nurseries, Trinity Road, Wandsworth Common.

EASTER LENT LILY BLOOMS, for Decoration with Ivy and Fern, 1000, 6s.; 500, 3s. 6d.; free. Please order early for Thursday's delivery. British FERNS, numerous varieties, ROCKERY ROOTS, 2s., 2s. 6d.; 5s., 4s. 6d.; 10s., 8s.; botanically named, free. SPHAGNUM MOSS, 3s. sack. G. CARRADICE, Monument Place, Kendal.

SPECIAL OFFER.—ODONTOGLOSSUM ROSSII MAJUS, in 7-inch pots, 5s. each, five for £1; 5-inch pots, 3s. each, five for 12s.; 4-inch pots, 2s. each, six for 9s., twelve for 16s. Case and packing free. Strong established healthy plants, worth double. Compulsory Sale.
W. H. HUDSON, Tottenham, London.

SPECIAL OFFER.—LILIUM KRAMERI (Pink Lily), fine strong bulbs, 4s., 6s., and 9s. per dozen, ridiculously low prices. L. MACRANTHUM, a lovely Lily, 2s. each, 20s. per dozen—fine for exhibition. Special LILY LIST free on application. Thirty varieties on offer.
W. H. HUDSON, West Green Road, Tottenham, London.

Special Cheap Offer.
ISAAC MATTHEWS AND SONS have to offer 100,000 very fine plants of RHODODENDRON for forcing, Cunningham's White, Jacksonii, Caucasicum pictum, PONTICUM RHODODENDRON, from 3 to 6 inches, and intermediate sizes up to 4 feet, about 400,000; Seedling Hybrids, in sizes from 4 to 6 inches to 3 feet, about 100,000.
HOLLIES, Common LAURELS, Portugal LAURELS, English YEWS, CUPRESSUS RETINOSPORA, AZALEAS, 200,000 strong 1 yr. and 5 yr. THORN QUICK.
For prices and particulars apply to the Nurseries, Milton and Wetley Moor, Stoke-on-Trent.

B. R. DAVIS'S New, Rare, and Beautiful BEGONIAS.
The best Illustrated Descriptive CATALOGUE, with Cultural Directions, sent free on application. Begonias for Exhibition, Conservatory, Greenhouse, and Bedding, Double and Single.
B. R. DAVIS, Begonia Grower, Yeovil Nurseries, Yeovil, Somerset.

CARTERS'
INVICTA
LAWN GRASS
FORMS BEAUTIFUL
VELVET LAWNS
IN
8 TO 12 WEEKS.
Vide Carters' Pamphlet upon the Management of Lawns and Lawn Tennis Grounds, post-free.

	PRICES—CARRIAGE FREE. Per 1lb.	Per bush.	Per pkt.
For newly-formed Lawns	1 3	25 -	1 -
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237 238 HIGH HOLBORN, LONDON.

FOR FRUIT TREES OF ALL KINDS WRITE TO GEO BUNYARD & CO MAIDSTONE, KENT. WHO CULTIVATE 800 KINDS TRUE TO NAME. ILLUSTRATED LIST 6 STAMPS. LIST OF NAMES GRATIS.

CARNATIONS, PICOTEES, CLOVES and PINKS.
CHARLES TURNER'S extensive Collections of the above are now ready for planting out.
CATALOGUE free on application.
THE ROYAL NURSERIES, SLOUGH.

FARM ROOT SEEDS.


CHARLES SHARPE & CO.
WILL SEND
SPECIAL QUOTATIONS
OF THEIR
HOME-GROWN FARM SEEDS
ON APPLICATION,
SLEAFORD.

THE GARDENERS' ORPHAN FUND.
THE THIRD ELECTION of TEN CHILDREN
To the Benefit of this Fund,
Consisting of an allowance of 5s. per week (subject to the conditions stated in Rule XIII.), will take place on FRIDAY, July 18th next, at the Cannon Street Hotel, London, E.C.
All applications must be made on a proper Printed Form, Copies of which may be had Gratis of the Hon. Secretary, or any of the Local Secretaries. Such Form must be correctly filled up, duly signed, and returned to this Office not later than WEDNESDAY, April 23.
A. F. BARRON, Hon. Sec.
Royal Horticultural Society's Gardens, Chiswick, S.W.

THE SOCIETY of APOTHECARIES of LONDON give notice that a Course of Twelve Lectures on BOTANY will be delivered by J. G. BAKER, F.R.S., F.L.S., at their Garden at Chelsea, on the Saturdays of May, June, and July next, at 3 P.M. The Lectures will be open to all Medical Students and other gentlemen being desirous to attend. Tickets of admission to be obtained of the Bedell.
J. R. UPTON, Clerk to the Society.
Apothecaries' Hall, E.C., 1890.

DAILY PARCELS EXPRESS SERVICE to the CONTINENT, *viâ* Queenborough, Flushing, Kaldenkirchen.
This Parcels Service, in direct connection with the German and Austro-Hungarian Posts, is specially adapted for the rapid and regular despatch of Plants, Bulbs, &c. No Certificate required for Germany. Tariffs free on application. Goods also accepted for Conveyance by *Petite and Grande Vitesse*.
BEST, RYLEY AND CO., 88, Bishopsgate Street, London, E.C.
Receiving Office at Holborn Viaduct Station.

BOROUGH OF BURNLEY.
To Landscape Gardeners and Others.
THE TOWN HALL, PARKS, AND ESTATES COMMITTEE
of the Corporation of Burnley, invite Competition
DESIGNS FOR LAYING-OUT A PLOT OF LAND
as a Public Park at Burnley. For which the following premiums will be awarded:—
First Premium, £20; Second Premium, £5.
Lithographed Plan of Site, and particulars may be obtained on and after THURSDAY the 27th inst., on application to the BOROUGH SURVEYOR, on payment of a deposit of 10s. 6d., which will be returned on receipt of a *bonâ fide* design.
Designs must be sent in not later than Thursday, the 18th day of April, 1890.
ROBERT E. FOX, Town Clerk.
Town Hall, Burnley. March 21, 1890.

J. E. DIXON'S "PRESIDENT CARNOT" BRUSSELS SPROUTS.
J. E. D. will be able to supply this extraordinary fine strain at 1s. per packet, for season 1890. The following testimonial (one of many similar) has been received from—
Mr. GEORGE SUMMERS, *Gardener to the* Earl of Scarbrough:—
"DEAR SIR, I have grown your 'President Carnot Brussels Sprouts by the side of several other well known varieties, and have come to the conclusion that it is the hardiest and best variety grown."
London Wholesale Agents:—HURST AND SON, 152, Houndsditch, E.; COOPER, TABER AND CO. (Limited), 90, Southwark Street, Borough, S.E.
JOHN HERRINGTON DIXON (second son of the late Edmund Philip Dixon, Seed Merchant, Hull), Seedsman, 21 and 23, Lord Street, Gainsborough.

WILH. KLIEM, Gotha (Germany), offers the following:—
HEPATICA ALBA, 60s. per 1000; very strong, 100s.
,, RUBRA, 50s. per 1000; very strong, 90s.
,, CŒRULEA, 20s. per 1000; very strong, 45s.
,, CŒRULEA, flore pleno, 55s. per 1000.
,, RUBRA, flore pleno, 25s. per 1000.
ANEMONE PULSATILLA, 35s. per 1000.
,, SYLVESTRIS, 35s. per 1000.
CYPRIPEDIUM CALCEOLUS, 90s. per 1000.

50,000 LOBELIA, Emperor William, warranted true from cuttings. JOHN SOLOMON offers the above in thorough good stuff at 2s. 6d. per 100, 20s. per 1000, for cash with order, package included.
Queen's Road Nursery, Walthamstow, E.

Seed Potatos.
H. AND F. SHARPE have still in stock the following varieties of SEED POTATOS, which they are offering at very low prices:—

Sandringham Kidney	Veitch's Improved Ashleaf
River's Royal Ashleaf	Myatt's Prolific Ashleaf
Alma Kidney	Gloucestershire Kidney
Old Ashleaf Kidney	Mona Pride
Pride of Ontario	Snowflake
Snowdrop	White Beauty of Hebron
Beauty of Hebron	Pride of America
Duke of Albany	Extra Early Vermont
American Early Rose	International Kidney
White Elephant	Sutton's Abundance
Covent Garden Perfection	Sutton's Early Regent
Schoolmaster	Lady Dundas
Early Oxford	Early Dalmahoy
Sutton's Masterpiece	Red-skin Flourball
Reading Hero	Reading Russet
Best of All	Adirondack
Queen of the Valley	Mignonn Bonum
Village Blacksmith	Imperator

And many other kinds.
The above have been raised on our own Farm expressly for Seed, are fine in quality, and well dressed.
SEED GROWING ESTABLISHMENT, WISBECH.

SHARPE'S "TRIUMPH" PEA

(CHARLES SHARPE & Co., Sleaford)

THE PEA

for Sowing in the neighbourhood of Large Towns.

See THE GARDEN, March 22, 1890.

"On our deep cold clay, with an atmosphere loaded with smoke (near St. Helen's, Lancashire), this Pea made a free growth, about 3 feet high, producing a heavy crop of well filled pods. It is a Dwarf Blue Wrinkled Marrow, with an excellent flavour."

Price, per Pint packet 1s.; Quart packet, 2s.

TRADE PRICE ON APPLICATION.

Purchase direct from the Raisers:—

CHARLES SHARPE & CO.,

Seed Farmers and Merchants,

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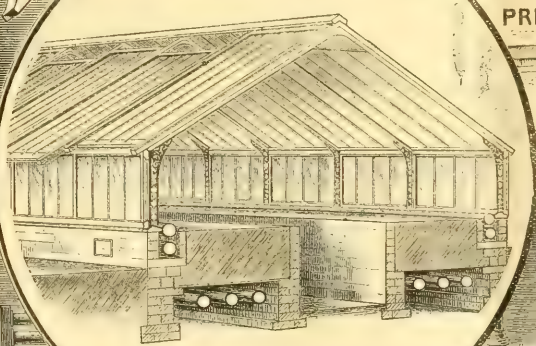
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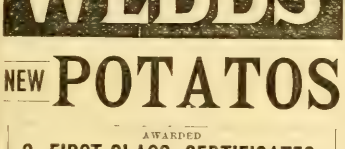
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THREE WHITE HARDY BEAUTIES GNAPHALIUM LANATUM, everlasting, last for years after being cut. IBERIS CORIFOLIA, evergreen, and pure white flowers; AQUILEGIA ALBA, the largest pure white, 1 each for 1s. 6d., 2 each for 2s. 6d.

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12 HARDY PERENNIAL BORDER PLANTS (named), distinct and useful for decoration and cutting purposes, for 2s.

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NEW STRAWBERRY, NOBLE (Laxton's).—This is, without doubt, the earliest, handsomest, largest, and best Strawberry in cultivation; 12 fruiting plants for 1s. 6d., 25 for 2s. 6d., 100 for 7s. 6d.

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TO THE

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FOR

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SATURDAY, MARCH 29, 1890.

THE FINGERED CITRON.

THE cultivation of various members of the genus Citrus extends back to periods beyond the purview of authentic history. They have been propagated by seed, they have been budded and grafted, they have been cross-fertilised of set purpose or accidentally, from time immemorial. One consequence of this is, that occasionally the natural rhythm of growth is interfered with, and a disturbance in the ordinary course of events occurs. Why or wherefore this happens, we cannot, as a rule, precisely tell; we are obliged to fall back on vague generalities, and appeal to the general causes above referred to. The Fingered Citron, of which we give an illustration at p. 385, is a case in point. It was one of many growing on the same tree in Mr. Hanbury's rich collection of La Mortola, where some twenty or more varieties are cultivated and duly catalogued in the systematic list recently printed. For our illustration we are indebted to the kindness of Lord Justice Fry.

Numerous similar fruits are figured in a delightful book known as Ferrari's *Hesperides*, written in Latin, and published at Rome in 1646. Among them are several cases in which the investing rind is insufficient, so that the carpels, or "quarters" in popular language, protrude. In other cases there is a double row of carpels one within the other, and so we get forms designated as "*alios includentes*," or as "*fœti*." Sometimes the carpels, instead of being all confined in a ring as in an ordinary orange, are separated one from another (or strictly speaking which have never become united), and protrude like fingers or spurs. These are spoken of as "*distortum*" or "*corniculatum*," and to this latter group our Fingered Citron belongs. The "fingers" are sometimes folded one over the other, so that a resemblance to clasped hands is produced. Such a tree was spoken of as most munificent, because it came with both hands full, or even converted the hands into fruit.*

* . . . arborem profusissimam quia dat utraque manu imo quia vere manus dat in poma conversas; utque magis munifica sit poma ipsa conversit in manus." *Hesperides*, p. 213.

In another very noteworthy book, published by J. C. Volkamer, and issued in 1708 under the title *Nurnbergische Hesperides*, are very numerous excellent illustrations of various kinds of Citrus, including many deformed in various manners, as well as figures of the mode of propagation by means of leaf cuttings. The work in question, we may incidentally add, is very remarkable for the numerous figures it gives of the formal Dutch gardens of the period. In fact, the book is a perfect treasure house for the historian of gardening.

The Fingered Citron is known in China as Fo-show-kan, or Buddha's hand. In order to gain further information as to any legend connected with this, we put ourselves into communication with Dr. Bonavia, the historian of the genus, and in whose elaborate work just published, and noticed in another column, several figures are given. Dr. Bonavia, on our behalf, kindly consulted Professor de Lacouperie, an eminent Chinese scholar. This gentleman, however, is not aware of any special legend. According to Dr. Lacouperie, the Fingered Citron is not mentioned in the earliest Chinese botanical treatise, of which we will not inflict the title on the reader, but which was published about 290—307 B.C. In the time of Li schi tchen, the author of a celebrated work on Chinese *Materia Medica*, 1552, 1578, the Citron in question was little known, as it was confused with another very different sort, as pointed out in an enlarged thesaurus of botany published in 1708, and commented on by Dr. Bretschneider in his work on the study and value of Chinese botanical works, and in his *Early European Researches into the Flora of China*, p. 143. "The Citrus digitata, or Chirocarpus," continues Dr. Lacouperie, "a variety of the Citrus medica of Loureiro, is now cultivated at Pekin, as well as the Citrus medica cedra, of which it is a variety." It is mentioned also in Martini's *Atlas Sinensis* (1655), p. 30, as "Idoli manum." Pallas, in his *Reisen*, records that he saw a most curious kind of Citron, splitting into twelve finger-like divisions, devoid of pulp and seed, but very fragrant.

Hilderic Friend, who was a missionary in China for many years thus, refers to the Buddha's hand Citron in his *Flowers and Flower Lore*:—"The artists of the Celestial Empire frequently paint the fruit of this plant, and before me I have one of their pictures representing an ancient sage with a Citron in front of him, the projection representing the middle finger being set forth as wanting or curved, because a favourite position for *representing Buddha is with his fingers all open save the middle one, which is bent down on the palm of the hand.*" One such figure, we learn from Dr. Bonavia, is in the British Museum, all the rest showing the hand open, and similar representations in porcelain are by no means uncommon.

Mr. Hanbury kindly writes in reference to this subject, "I would say that the Buddha Fingered Citron grows in the province of Fokien, which is the central seaboard province of China. The fruit was brought up in the winter time from the ports of Foochow and Amoy, and seemed to be highly prized by the natives for decorative purposes. Chinese ladies, it is said, in receiving company (*i.e.* other ladies) will sit in a sort of state with the Buddha Fingered Citron in one hand, and an embroidered pocket handkerchief in the other, which would not be embarrassing as the Chinese do not shake hands. The Citron has a most agreeable scent in China, much more pronounced than those that have fruited here. The trees I have here I got direct from China some years ago, the fruit has invariably been fingered, but has fallen off in an immature state, the size of a hazel or wall nut. Last year, however, I gave very special orders for tending and watering the plants more carefully, and the result is half-a-dozen fruit fairly matured. I well know the sports in Oranges and Lemons which throw out fingers or mal-formed fruit, but this Buddha Fingered Citron is quite different and persistent. The Buddhist priests are rather clever in devices for convincing sceptics. Thus in the province of Chehkiang they take a large fresh water muscle (Alasmodonta) and gently attach leaden images of Buddha under the fish, after which it is thrown back into the water. Nacre is deposited over the lead, and after a few months the shells are retaken, cleaned, and then sent abroad to sell as proofs of the power and presence of Buddha. By what device the Buddhist priests have induced the Citron to aid them in convincing unbelievers, as they certainly have the fresh water clam, is a curious point that wants clearing up."

All these cases of Fingered Citrons come under the head of that separation (or want of union), which is technically called dialysis of the carpels (fruit quarters)—Masters' *Vegetable Teratology*, p. 75, &c. Sometimes this is associated with the presence of a second whorl of carpels above and within the first, as already mentioned; or sometimes outside, as shown in a figure in Lindley's *Vegetable Kingdom*, p. 45.

Dr. Bonavia, as elsewhere mentioned, holds the opinion that the peel, which covers the carpels, consists in reality of a row of modified or abortive carpels, but this is a view which, as at present advised, we cannot share.

We may add, for the benefit of those who may be disposed to make further enquiries on this subject, that they will find figures and descriptions of the normal and abnormal structure in the genus Citrus in Gallesio, *Traité du Citrus* (1811), Risso et Poiteau; *Histoire et Culture des Orangers*, nouvelle edition, par du Breuil, Paris (1872); and specially in Penzig's elaborate treatise, *Studi Botanici sugli Agrumi*, &c., with an atlas of plates (1887); see especially tab. 8, 9, and 10. Penzig also gives a very full bibliography of all that concerns his subject. It would occupy several columns merely to cite the titles of the works alluded to.

Our illustrations show Mr. Hanbury's Fingered Citron, from a drawing by Miss Fry (fig. 56), the Kumquat (fig. 58), with sections showing the structure of the flower and the disc below the ovary which De Candolle, the elder, considered as becoming the rind of the fruit, a view not supported by modern anatomical research; an Orange with supernumerary carpels, and one received from M. Naudin, in which the rind showed several projections arranged spirally, as if of foliar nature (figs. 59, 60).

COLONIAL NOTES.

TRINIDAD.—After having for many years cultivated plants in different temperatures by artificial means in England, my lot fell to cultivate them by the same means in the cold climate of North America, and afterwards for many years, and to the present time, in two of the largest West Indian Islands.

I well remember how empirical and arbitrary were the rules adopted by the "rule-of-thumb;" men of my earlier days, each one of whom insisted that his own way was the best, but many, though pursuing different systems, *i.e.*, apparently so to them, arrived at the same result, simply because an essential condition overlooked by all was present in each operator's method.

The essence of this empiricism seems to be that no knowledge of the conditions that existed naturally in the habitat of a plant, is of the same value from a cultivator's point of view, as that obtained by actually attempting to grow the plant under the various conditions existing in our modern horticultural structures.

It is quite true that plants often appear to exist under quite different conditions to those generally known (or conceived), of their natural habitat, but an examination in full, and an accurate knowledge thus obtained of each of these conditions, generally proves that the essential point is there, or the plant will not thrive.

One of your correspondents illustrates his argument by relating that many an Orchid quite at home on the branch of a tree in its native home, will not thrive in cultivation unless placed in peat and moss in a basket or pan. Why it is so he does not state, but merely gives the empirical "it won't do!" Why does he not tell us the reason? If he had sought it he would probably have found that the arid atmosphere of his stoves at times was such that it was impossible for the roots to exist, and therefore unless covered with peat and moss, which gave them the best imitation possible of the air of their native home, growth was impossible. A condition therefore unobserved by the operator was present in both places. Mr. Watson prominently expresses the surprise of Mr. Morris to find so many of the West Indian Filmies growing in a cool temperature. I am inclined to think such astonishment is "more apparent" in Mr. Watson's mind "than real" in Mr. Morris', for it is well-known to him (Mr. Morris), and to the writer, that these West Indian Filmies are quite at home under cool treatment, the thermometer falling in their native home to below freezing-point at times. I fancy Mr. Watson would not have so good a record were he to try to grow Filmies from the lowland West Indies, where a mean annual temperature of 78° to 80° Fahr. prevails.

The pretty Lælia monophylla, found in Jamaica has, it may be said, a climate of its own, for it is only found in situations identical as regards elevation, temperature, and the greatest similarity between the humidity of the places. At p. 139, *Gardeners Chronicle*, this plant is described as succeeding well in the Odontoglossum-house, and that is just the temperature and conditions which I prescribed for growing the plant in your columns, after collecting it in its natural habitat, three or four years ago. The little Epidendrum serrulatum growing on Coffee trees at 5000 feet in Jamaica, is seldom found below that elevation in that island, while in others nearer the equator, and possessing a greater humidity, it is found at sea-level. Difference of temperature, 17° to 25° Fah.; difference in humidity, *nil*. Is not the inference plain? We do not overlook the fact that, with the absence of sunlight, plants require somewhat different treatment, but this is only an artificial condition, and does not in any way affect the main argument.

Anyone living in Jamaica, as I did for years, was apt to conceive the idea that many of the European and American Conifers would not thrive at or about sea-level in the West Indies, as it was simply an impossibility, under any conditions, to get them to thrive on the south side of the island at sea-level, and only on the hills could they be grown with any degree of success.

In Trinidad, on the contrary, the Coniferæ thrive fairly well, and attain a large size at sea-level; the temperature differs at most by 1° between the two islands, but the state of the atmosphere is far more humid. What, I would ask, is the inference?

Take Broughtonia sanguinea, which grows and thrives well at sea-level, on bare trunks, well exposed in Jamaica, but in Trinidad utterly refuses to thrive unless kept in a position the driest obtainable. Temperature and position, again, almost the same, humidity differing.

Again, Mr. Watson wonders why we cannot keep seeds here, while he never fails to keep them in a drawer in an office whose "temperature is 60° Fah.," but of which the humidity is not stated. We cannot keep them, and three years' trial in Trinidad proves conclusively that it is humidity not temperature that affects seeds, and destroys them.

Happy-go-lucky descriptions of temperatures of places from which plants are obtained are, I admit, of little or no value, but I cannot believe that a record of temperature, rainfall, humidity, weight of atmospheric air, density of vapour, or, in total, the atmospherical conditions of a given part of the world's surface are of "little value" to the cultivator.

Outside conditions, to my thinking, have more actual effect on the evolution of plants than have mere accident of position, soil, or cultivation, and I do not believe Mr. Dyer meant to under-rate their influence upon plant growth in preference for the empirical, and trial by circumstances, and cultivation of the English horticulturist.

Roupellia grata is known in the Jamaica Gardens as a flowering shrub 4 to 5 feet high, producing abundance of flowers. In Trinidad this plant seldom flowers at all, and instead of a shrub becomes a climbing plant 20 to 30 feet in height. Take our plant to Jamaica, and the Jamaica plant to Trinidad, and the conditions of growth will be altered, and the very form and shape of the plant and its habit of growth in twelve months. Aye! even take the same plant, and change it from place to place, and I would venture to say that the same result would ensue, because the outside conditions totally differ in essentials. The soil is by no means so important an agent in the cultivation of plants as it is generally supposed to be, and should only be considered as a medium or means to an end. The reason why (in instances quoted) plants have not been found to thrive in the same soil as that found in their own habitat, is—to my mind—because the medium "is insufficient to secure under the changed conditions of artificial cultivation, the outside or external conditions, necessary to the plant's welfare," and consequently in gardening practice other mediums are sought for and found probably after many generations of the imported plant has been unsuccessfully cultivated, but certainly a knowledge of the outside influences would give the cultivator a much surer hint, and put him in a more direct road than the innumerable trials he will otherwise have to make.

Gardeners, as a rule, make a great point of plants in cultivation being much better grown than those left to Nature. Why, surely so, no one would expect anything else—and why? Simply because if left to Nature, they have to maintain their own struggle for existence against man, animals, climatic influences, insects, and fungoid or other enemies; while in cultivation, once the routine is ascertained, the gardener's duty is not done, unless he rids them of all these baneful influences. But though they may be considered well grown, is it a fact that they are so? even with all the care given, for we find even the best grown and first prize decorative other plants seldom produce mature seeds as they would do in a state of Nature, thus showing that they are practically inferior—though perhaps better looking.

Knowing the outside conditions well, also points out the road where the observant horticulturist may attempt a modification with benefit in his artificial course, and thus assist Nature instead of endeavouring to control her, as empiricism teaches. We are not unaware of the ubiquitous nature of some plants. To some, it appears a matter of indifference whether the climate is cold or hot, dry or moist; but even in these, close observation proves that their particular structure enables them to bear, with impunity, changes, which would be death to the majority of plants.

It is a particular craze for people (especially Europeans and Americans), to try to grow the flowers and plants of a temperate clime in the Tropics, and many thousands of times have I (I fear in vain), answered the question as to the reason they won't thrive, by asking the following: "Would you expect Pine-apples in the Arctic regions?" People ignorant of horticulture, ignorant of botany, and vegetable physiology, although perhaps well read and even learned in other things, are apt to ask these questions, so obviously ridiculous to the botanist, but still requiring to be answered for the satisfaction of the ignorant. Did they but have any idea of the various conditions which are essential to individual plants, and a thorough knowledge of the climate from which each plant comes, such questions would not be asked, for it would be manifest to any ordinary mind that to ask them would be absurd.

The argument of a Gardeners' Problem, as I see it, seeks to prove that man can find out methods more suitable than the natural method of Nature for the growth of plants, but this I cannot believe; neither can I think Mr. Dyer intended to convey such an impression. What I do believe is, that a due attention to all the conditions present in Nature, and an imitation of those "most essential by the best artificial means in our power," is by far the surest mode to the successful cultivation of plants out of their natural habitat. *J. H. Hart, F.L.S., Superintendent, Botanical Department, Trinidad.* [Mr. Hart's observations are so valuable that we have felt it right to insert them, although we deprecate, for the present, the continuation of the discussion, on the part of "home-growers." New facts or illustrations are at all times welcome. Ed.]



Fig. 56.—Fingered citron, grown in Mr. Lanbury's garden at Mentone, 1889. (see p. 383.)

Orchid Notes and Gleanings.

Orchids at Langley Park.

At Mr. C. Goodheart's garden, Langley Park, Beckenham, amongst other Cypripedia in fine order were Cypripedium caudatum roseum carrying six blooms, C. niveum, C. hirsutissimum, C. bellatulum, C. concolor, &c. Suspended from the roof of the Cypripedium-house was a plant of Oncidium sarcodes, with two spikes, and about 300 bloom-buds. The stage on which the Cypripediums stand is constructed to carry an inch of water, which may be drained off at will. In another house containing Odontoglossums, were plants of Cymbidium Lowianum, one with thirteen spikes. These plants were bought at Messrs. Protheroe & Morris' Rooms, three years ago, for 2*s.* 6*d.* each. They have since been sold for 30 and 28 guineas respectively, having outgrown the space that could be afforded them. One of the plants threw up thirteen spikes last autumn, which were taken off by the fog. Mr. Padbury, the gardener, kept the plant dry, and it again threw up thirteen more spikes. The plants were grown in peat, loam, and charcoal, in a low house. *T. W.*

Orchids at Studley House.

Among the many handsome varieties of Cattleya Trianæ which have bloomed this year in the well-grown collection of F. G. Tautz, Esq., Studley House, Shepherd's Bush, that known as Cattleya Trianæ Tautziana maintains its reputation as being one of the best. It is now in perfect condition, its exquisitely formed labellum exhibiting that glowing crimson which can only be likened to the same as seen in Cattleya Hardyana. Its flowers are of fine substance, the sepals and petals of a warm rose tint, the petals exhibiting a narrow but well-defined feathering of crimson running up the mid-ribs. There are larger-flowered C. Trianæ, but nothing more beautiful than this can be desired; one of its striking features is the evenly crimped edge which the lip has.

A good show is made with the varieties of Dendrobium nobile, D. Wardianum, D. crassinode, D. Ainsworthii, D. chrysotoxum, and other Dendrobes, and the richly-coloured and variously-tinted forms of Lycaste Skinneri, of which the collection boasts some fine examples of the finest pure white variety. Lycaste cruenta was also profusely in bloom, and all the Lycastes in the little house set apart for them have very stout growths. They are potted in what seems to be an ordinary loamy soil, such as is used generally for bulbous plants, but with a little peat and sphagnum moss added. The Cypripediums and Calanthes, Phaius, Cymbidiums, and such things, are especially good, and for these Mr. Cowley uses a more retentive potting material than is used by some growers, and the large size and substance of the foliage, with the fine quality of the blooms, bear witness to the propriety of the course.

Among the Cypripediums at present in bloom are the rare and beautifully striped C. Dauthieri marmoratum (illustrated from the same plant in these columns), C. Petrei, C. Swanianum×, C. callosum, C. selligerum majus×, C. selligerum rubrum×, C. leucorhodum×, and C. Sedeni candidulum×, both charming delicately tinted varieties; C. Druryi, C.

*

Mrs. Chas. Canham×, C. politum×, C. Lawrenceanum, C. argus, C. callosum, C. calophyllum×, C caudatum, C. Rothschildianum, several forms of C. barbatum, and others; the C. niveum, C. Godefroyæ, and C. bellatulum section having many specimens in bud. All these Cypripediums are large specimens, and most of them have many flowers.

The Odontoglossum-house was gay with sprays of O. crispum, O. Pescatorei, some fine forms of O. triumphans, a spray of the rich violet O. Edwardii, a fine form of O. polyxanthum, the true O. nævium majus, and a handsome variety of O. blandum, some good forms of O. Rossii majus and O. Cervantesii, Sophronitis grandiflora, and Oncidium cucullatum, &c.

In the other houses were a noble specimen of the fine Cymbidium eburneum, with eighteen flowers open and more coming on; the rare C. albuciflorum, and some large C. Lowianum in bud; the singular Gongora truncata, the rose-lipped Aërides Houlletianum, the singular and fragrant Ornithocephalus grandiflorus, Oncidium Leitzii, Angræcum citratum and A. Leonis; several fine Oncidium ampliatum majus, various Cœlogynes, Epidendrum Wallisii, and a number of lesser things which would not fail to interest the visitor. At Studley House the large stock of Miltonia vexillaria is now, as usual, in fine condition, and sending up spikes in profusion; the white varieties are well represented, and the richly coloured M. v. superba is now a sturdy plant with several leading growths.

Phalænopsis Schilleriana Compacta nana.

Apropos of your New York correspondent's description in your last issue, of Mr. Frederick Scholes' grand plant of the above, it may not be inopportune to draw attention to the fact, that the specimen in question is one of the two described and figured in your issues of January 28 and April 28, 1888, as extraordinary fine plants of the Butterfly Orchid. I have recently been informed by the manager (my brother, who has been in the same capacity for nearly twenty years past) of Mr. Scholes' establishment, and as grower of the Orchids, that last season he considered it to be almost impossible to eclipse the then floriferousness of the specimen indicated, with its only about half the number of its expanded flowers, in comparison with the wonderful number of the present season. The Phalænopsids appear to be a specialty with Mr. Scholes, considering the very large number of plants of this section he possesses amongst this vast collection of other kinds, and not least among which is the great proportion of Cypripediums.

I may also add that the winter forcing of Tea Roses is also fostered to a considerable extent by Mr. Scholes, and that the liquid cow-dung—so successfully applied to those Orchids requiring it—forms an important factor in the cultivation of the Roses. *W. Gardiner, Harborne, Birmingham.*

THE HIPPEASTRUM.

I was unable to be present to hear the reading of Mr. Veitch's paper on the above subject, on March 11, at the Drill Hall. In my own paper, which was not read, the historical part was lightly touched, but the subject is of some importance, as we are probably more indebted to some of those early-introduced species for some of the more hardy garden hybrids than may generally be supposed. In the remarks at p. 329, the variety Empress of India is mentioned, but the raiser's name is not given, and it is but fair to an excellent cultivator, M. S. A. de Graaff, of Leyden, to say that it was raised by him in that city. M.de Graaff's plant may well be included in any historical sketch of this genus. I am informed that the Hippeastrum has been cultivated in Leyden since 1790. H. reginæ, H. vittatum, H. striatifolium, and H. advenum, had been introduced at that time, and a grand-uncle of M. de Graaff's cultivated them, and raised seedlings. M. de Graaff's father began to cultivate and improve the plants in 1830; he obtained Johnsoni, or Herbert's Regiovittatum, a well-known variety, raised by a shoemaker named Johnson in 1810, and by Dean Herbert, at Mitcham, in 1811. Herbert's system of naming was to unite the two specific names; the variety in question was produced by crossing H. regium and H. vittatum. Mr. Johnson supposed the plant in question to be a cross between Sprekelia formosissima and H. vittatum; he was doubtless in error. This hybrid, therefore, with fulgidum and croceum was the basis of the elder M. de Graaff's work, and it is stated that he obtained many fine varieties with rich and deep colours. The present worthy head of the Leyden establishment took up the work about 1862, and with the material handed down to him obtained wonderful results. He introduced H. psittacinum, also braziliense; and he crossed again for size. He obtained fine waxy-white varieties, and the deepest scarlet and crimson colours; also many with delightful pale tinted flowers. Empress of India was the result of crossing a dark seedling from H. psittacinum, with a seedling named Graaveana, raised in the establishment—not the French Graveana. These two were crossed both ways, and it could not be determined which was the seed, and which the pollen parent. I had the pleasure of inspecting M. de Graaff's plants two years ago, and must say that I never saw better cultivation anywhere; there did not seem to be a single weakly plant amongst them. From want of room his seedlings take longer to flower than they would if they could be grown on rapidly from the first.

The de Graaff strain takes from four to six years to grow into a flowering size; the Leopoldii and pardinum strain take about two years. The plants, after they have flowered, have the pots in which they are growing plunged over the rims in tan, which is preferred to any other plunging material. If the foliage has not decayed by November, it is cut clean off, and the pots, with the bulbs, are arranged on bulb shelves. They are taken down and repotted about the middle of February, but M. de Graaff says he would rather repot them in January, his only reason for deferring the operation being that the house is not ready for them. They come on all the more rapidly from being late planted, as they are in flower in four to six weeks afterwards. The good work done in Messrs. Veitch's nursery at Chelsea is well known from their seedlings being so frequently exhibited in London, where they have received the awards their great merits deserve. Messrs. Kelway, of Langport, Somerset, have been cultivating Hippeastrums for seventeen years on a system of their own, and they have at present about 20,000. In a letter written to me by Mr. James Kelway on January 29, he says:—

"We are now commencing to plant our seedlings and offsets in cold span-roofed frames; these are 9 feet wide with wooden sides and ends. The frames are placed on the ordinary soil in an open situation; it is made rich by old hot-bed manure, and a good dressing of yellow sand to keep the soil open. The bulbs are planted from 2 to 4 inches deep according to size. The drills are from 6 to 9 inches apart, and the bulbs are planted from 3 to 6 inches asunder in the drills. They remain in the frames for two or three years, until the plants have grown to a size large enough to bloom."

Of course, they would not be all large enough, therefore a selection has to be made. The smaller bulbs are planted out in the frames again, and the larger ones are planted in pots or sold. When the bulbs are potted up for flowering, instead of placing them in a hothouse, Messrs. Kelway place them back again in cold frames, where they are plunged in the same way as Hyacinths and other hardy things, they commence throwing up their flower spikes and foliage in April, and produce their flowers in May; indeed, flowers are produced all through the summer months. They receive no artificial heat whatever; but are carefully protected from severe frost by a covering of hay inside the frames, and ordinary mats outside. It is added, that the plants grow most luxuriantly, and generally retain their foliage until the end of the season. This system of culture adopted at the Langport nurseries could not, perhaps, be adopted with the strains we cultivate in our hothouses, and the strain grown has evidently been obtained by seeding from hardy species or varieties. Some of the best of them have been exhibited in London; they are rich and varied in colour, and must be well adapted for greenhouse and conservatory decoration; the flowers have not the large size and rounded form of Messrs. Veitch and de Graaff's strain; the petals are more pointed, but by some they are preferred as being more elegant.

As I write these lines (March 20), our plants, which were potted early in January, are just coming into bloom; we wanted them to be at their best by March 27, and probably they will be. My plan is to start them in a rather low temperature; Mr. de Graaff says his are started in 60°—that would probably be the mean temperature. Our house is kept at a minimum of 45° to 50°, rising from 5° to 10° more by day. This is for the first three weeks or so; afterwards the temperature would be advanced 5°. An important point is to see that no water is applied to the roots for a month at least; and, to prevent decay, the atmosphere is not rendered very moist. When the plants are well started, the flower-spikes coming up freely, and leaves are formed, they require water. We never at any time give manure-water. The potting soil is well enriched with manure, sufficiently so to sustain the plants well until flowering period is passed, and the pots are then plunged so deeply in the tan-bed that the roots push over the rims, and revel in the tan more than they do in any kind of loam, peat, or leaf-mould. *J. Douglas.*

THE PRESERVATION OF SMALL BIRDS, ETC.

In the case of large trees or neglected orchards, Mr. Hiams, speaking at the recent Fruit Conference at Evesham, and reported in the *Evesham Journal* said he was afraid nothing could be done till next autumn, except to rigidly encourage and preserve all useful insectivorous birds. Every nest robbed or destroyed relieved the birds from the industrious task of picking at least 5000 caterpillars to maintain a brood. With respect to the value of small birds, as caterpillar destroyers, many birds might be encouraged to take up their abode in gardens and orchards if any accommodation were provided for them. He then exhibited a little box, which he said would have been inhabited that night, only he had brought it there to show them; and he also exhibited a drawing by Harrison Weir of the same box and its inhabitants. The lecturer also alluded to many ways in which homes might be provided for the birds, and added that he had as many as forty-four habitations regularly occupied in his garden and orchard some years ago.

With regard to the valuable birds, he had the greatest confidence in recommending a list of most useful aids in orchards and gardens, both as caterpillar and moth destroyers. First on the list he would put their old familiar red breast. Although master cock robin was fond of a little fruit, he was also fond of caterpillars, grubs, earwigs, and no doubt, taking all round, he did a great deal of good. Robins could be induced to take up their abode and to rear their broods almost to order in artificial homes put up for their occupation. To some this might seem a ridiculous idea, but those who took an interest in this kind of thing would know that it paid. The hedge sparrow was a perfectly innocent bird, and never touched the most tempting fruit; but, on the other hand, they were most useful destroyers of insect pests. They also could be encouraged to occupy any abode if a few faggots or kids were placed in an orchard for their accommodation. Redstarts also were quite harmless, and fed exclusively on flies, caterpillars, and such food. These birds should be induced to build in or about orchards, and were easily tempted to do so if anything of a suitable size to fix a nest in, such as a Tomato tin, were provided. Fly-catchers were ex-

clusively insect-catchers, and destroyed vast quantities of moths and butterflies for their young. These birds also could be very easily induced to take up their homes in artificial abodes, such as an old tea-pot or tea-kettle. The wren tribe, of which there are five species, were quite harmless and exclusively insectivorous, and should be protected to the utmost. The common wren could be induced to build in boxes. The willow wren was found in orchards and gardens, and was very useful in taking caterpillars. He had watched a little willow wren, and had seen it take eighteen grubs out of buds in fifteen minutes. And these wrens could be induced to take up their abode in places provided for them, and they fed exclusively on insects and caterpillars.

Then they came to the tit family, and he thought that the gardener had no better friend than the common blue tit. Many people would say that they pecked at the fruit before it was ripe, and that they were very fond of green Peas, and would also take bees. It was said that they would tap the bottom of a hive to get the bees to come out, and would then attack them and take them home. He had never seen that done, but he knew that they took the bees which had died, and had been carried outside the hive. On the other side, he was a really caterpillar hunter in the summer, and destroyed a large quantity to raise his family. They could be easily induced to take up their abodes, and could be destroyed or preserved at pleasure. There were other kinds of tits which only varied a little as to their usefulness. The long-tailed tit was, perhaps, the most useful, and was quite innocent, living almost entirely on aphides and insect eggs. The small blue tit was another, and this lived on aphides in the summer, but was partial to a little fruit in the autumn. The coal and marsh tits were also useful insect destroyers, and could easily be induced to build in artificial homes. The munnuffin was also a useful caterpillar destroyer. The woodpecker family, of which they had four species, were useful in taking insect food from the trunks and boughs of trees. Starlings were very valuable in taking large quantities of caterpillars, and were easily induced to occupy homes in orchards and gardens.

Another family of birds also useful in and about fruit plantations, were the warblers. The garden warbler, black cap, white throat, and nightingale were all caterpillar destroyers; the black-cap, which was often mistaken for the nightingale, being very fond of the aphides from Plum and Apple trees, while the garden warbler was partial to the black eggs on Cherry trees, which, as far as he knew, were not attacked by any other bird. Then they came to a list of a mixed nature, with good and bad qualities. Such were the house-sparrow, pie-finch, and yellow-hammer, all partially caterpillar destroyers. He expected they found the pie-finch, and also the green-finch or green linnet, very destructive to the young Radishes. The bull-finch and green-finch had black characters; some said they only attacked buds which contained insects, but that was all nonsense, as he had proved. The haw-finch, of which Mr. Hiams produced a specimen, was very destructive to Peas, and had a bill so strong that he could crack Plumstones as easily as a man could crack a Nut.

Experiments on Lord Sudeley's Fruit Farms.

In the first place, to come to the point at once, he would take the Evesham or winter moth. As they all knew, of course, the female moth which laid the eggs was wingless, and that it was necessary for her to ascend the stem of the tree. One thing they had to decide was, the right time to put the bands on if they put them on at all, and how long should they be kept sticky—should they be fixed on October 1, or November 1, or when? They found by comparing notes for the past three years at Toddington, that the bands should not be put on later than the first week in October. In 1888 they commenced banding on October 16, and caught the first moth on October 18; that was too late, and it showed that the moth might be earlier or later according to the season. This year they caught the first moth on October 7; that showed that the bands should not be put on later than the first week in October. This winter they were catching moths on the bands at Toddington on December 16, and that showed that to catch the first hatch the bands should be kept sticky until December 31. With regard to the grease, in 1887 they used a ready-made mixture, and in 1888 they made their own stuff, which was composed of 1 gal. of Stockholm tar to 1 cwt. of grease, and they also used ordinary cart grease. They found without doubt that all these mixtures were injurious to the young trees, and in fact none of their trees were more than ten years old, and many only three or two years, so they determined not to use them again. He had found trees alive up to the band and dead above it, and he thought that was pretty good proof.

There was no doubt that the tar formed a sort of hard band round the tree and stopped the flow of the sap, and water-proofed the cells. It was also a question whether it would not soak into the bark, and become distributed into the sap. When the trees had resisted the grease he found the bark cracked and peeled off, so that if another band were put on in the same place it would no doubt greatly injure the tree, if not kill it; if it were put lower down, it would be extremely dangerous. Then again, grease was sure to soak into the bark of a young tree to a great extent. The tar no doubt did the mischief. Taking all that into consideration, they determined to put a band of paper on the trees, and the grease on that, and he showed specimens. The paper cost about 10s. a cwt.; it was grease-proof paper, and it was procured from Messrs. Adlard & Evans. The paper was ready cut to put on the trees, and one ream would do 247 trees, one sheet would do six trees, and 1 lb. of grease would do six trees. The work was chiefly done by women and boys. One woman with a basket and a pot of paste, wrapped the paper round the tree, and pasted the lap, and was followed by one who tied a piece of matting round the lower end of the band and could also grease it; in this way, two good women could do 200 trees a day. He thought that the grease should be renewed every three weeks or so, and the bands should be kept sticky at least up till Christmas; he found a moth on December 17th last year. Now they came to the question as to how, having taken all that trouble, they found caterpillars in the spring. One way in which they were beaten was that the male moth carried the female up into the tree and deposited her in the branches. Another point to consider was, were the eggs laid in stems of the trees below the grease band fertile? He found some eggs last spring, and they sent some to Miss Ormerod and asked whether they were fertile, and in her reply she said the eggs appeared alive in many instances. In consequence of what Miss Ormerod said, they got some hard scrubbing brushes and scrubbed each tree with a mixture of tempered clay, soot, lime, cow-dung, and water, and they would do the same again in the spring; not only did it destroy the eggs, but it had a beneficial effect on the trees in cleaning the bark.

Kerosene Emulsions.

Mr. Fletcher, the Dominion Entomologist of Canada, in a letter to Capt. Corbett, recommended kerosene emulsion to be applied at the end of March. The emulsion should be made of various strengths, according to the age of the tree. The following was the ordinary strength:—One pint of kerosene (or refined coal oil), half ounce of common soap, half pint of rain water; the soap to be boiled in the water till all was dissolved, and the kerosene to be churned up in it. If these were used for spraying, they must add nine times the quantity of water. They found that in pruning young trees, a great quantity of eggs were destroyed, but the prunings should not be left about the gardens, or else the eggs would hatch. They took them all away and burnt them. They then came to the question of greasing in the spring, to catch late comers. Last year they greased on March 2, in case any caterpillars should hatch in the Currant bushes and find their way up the Plum trees, but they caught very few. He did not think it paid to do, but should be glad to hear some practical opinion on the point.

As regarded the caterpillar when it hatched, supposing they had not greased, and their trees were covered with them, what was to be done? Shaking was not much good, if they had bush fruits under. They tried that in a plantation that was badly attacked, but they shook them on to a sheet and caught thousands, and they shook them on to the black Currants, and they attacked them, and they even tackled the Strawberries. If there were grass underneath the trees, shaking might be useful. The caterpillar, immediately on hatching, ate its way into the nearest bud, and there remained until the bud opened, by which time it had grown considerably. The time to kill by washing was when it first hatched, but the difficulty was to catch it at the right moment. What they wanted was a wash that would kill it after the leaves were out. They had tried everything they could think of; they had tried paraffin and soft-soap, but with paraffin care was necessary. They used 1 pint to 3 gallons of water as an experiment, and killed the tree; but he thought the reason the tree was killed was because the paraffin was not properly mixed with the water. No doubt several solutions would kill the caterpillar if they could get at it. They had tried 2 oz. of soft soap boiled in 1 gallon of water, and a quarter of a pint of paraffin added, and they found that if they held a branch in it the caterpillar swere killed; but syringing a tree with it did very little good apparently. Common soda was tried, first 14 oz. to 3 gallons of water; this killed the caterpillars, but shrivelled up all the leaves and fruit. Then they tried 8 oz. to 3 gallons of water, which slightly burnt the foliage, but did not kill the caterpillars. But then the caterpillars were nearly full grown, and what the result would have been had it been tried before he could not say. They had also tried other things. Mr. Fletcher had written a letter to Captain Corbett, in which he stated that he was under the impression that the most satisfactory mode of treatment would be to spray about the tree with some preparation of arsenic.

Use of Paris Green.

For his part he preferred Paris Green as being the most uniform in quality. The chief thing to be guarded against was getting the liquid too strong. He went on to express his opinion that the only successful treatment was spraying on the trees just when the caterpillar was hatched. Fumigation was also recommended. Mr. Wise mentioned that last spring they were burning a road through one of the largest plantations, and there they had a very large crop of fruit indeed. Spraying should, he thought, be done between April 14 and 30, and if done then he did not think any fear need be occasioned by the use of Paris Green where they had Currants, Raspberries, Gooseberries, or Strawberries, as these fruits would not have advanced enough to be contaminated, but in the case of vegetables it was a different matter. Miss Ormerod pointed out that the proportion of arsenic would be so minute—only about 1 oz. in 40 gallons of water—to an area of about 1 acre of flat leafage, that it seemed to her impossible that any ill results could arise from the poisonous nature of the application to human health.

NEW USES FOR COTTON-SEED OIL.

It is well known that the oil from Cotton-seed is now an article of very large consumption, both in America as well as in this country, and that when clarified and refined, it comes into our markets as pure Olive oil. Cotton-seed oil is a pure, sweet vegetable oil, and if sold as such, there is nothing to be said against it, but there is much to be said against the practice of giving it a name which does not properly apply to it, and thus obtaining for it a higher price than it would otherwise realise.

As a culinary oil, then, whether under its own name, or under that of another plant, Cotton-seed has established a reputation. The latest develop-

ment, however, is in the preparation of another household article, namely, lard; for under the name of Cotton-seed lard, the oil is now being much used in America. Samples of this lard were exhibited in the American division of the late Paris Exhibition, and, as there shown, consisted of a pale straw-yellow coloured substance of a similar consistency with ordinary lard, possessing, according to the manufacturer's statements, many advantages of hog's lard, some of which are, that it prevents or even cures dyspepsia, in assisting digestion; that it emits no disagreeable odour in cooking, and leaves no taste in food cooked with it or made from it; and, lastly, it is claimed that a great trade is expected with it amongst Hebrews, who can have no objection to its use. The composition of this so-called lard, however, is not of Cotton oil alone, but, as stated, "simply from the highest obtainable grade of the oil of the Cotton-seed and beef suet; nothing else." This preparation obtained a Gold Medal at the Paris Exhibition, and the American company who have started its manufacture are now advertising laundry, bath, and toilet soaps and soap-powder from pure Cotton oil. Are these preparations intended to displace Pears'?

NEW OR NOTEWORTHY PLANTS.

Phaius Cooksoni×, *n. hyb.** (fig. 57, p. 389).

This is a new and handsome hybrid, raised by Norman C. Cookson, Esq., of Oakwood, Wylam-on-Tyne, between Phaius Wallichii, Lindl., and P. tuberculosus, Blume, the former being the seed-parent. A fine raceme and leaf have just been received at Kew, with the following particulars:—The plant was fertilised in February, 1887, and the seed ripened, and was sown in the following December. It will thus be seen that the plants have reached the flowering stage in but little over two years, an unusually short period. The seedlings are said to be in most respects intermediate, the pseudobulbs being more elongated and lighter in colour than the mother-plant, but the general habit is more like this than P. tuberculosus. The leaf is quite intermediate, but in the lighter colour takes somewhat after the last-named plant. It is said to be very robust. The raceme sent bears five large flowers, 4 inches across, with much of the general shape of P. Wallichii, but having a more open lip, and the spur reduced to a slight and very blunt protuberance, both of which characters show a decided approach to P. tuberculosus. A plant was exhibited at the meeting of the Royal Horticultural Society on March 11, under the above name, when it was awarded a First-class Certificate.

Angræcum primulinum, *nat. hyb.!*

A raceme of a very interesting little plant has been received from Messrs. Hugh Low & Co., of Clapton, with the information that it came from Madagascar, and that "the plant is exactly intermediate between Angræcum hyaloides and A. citratum." Racemes of these two species were also enclosed for comparison. I have a strong suspicion that it is a natural hybrid between these two species, as it is not only intermediate in habit, but also in some other characters. The raceme is very similar to that of A. citratum, and bears similar dark brown bracts, but the flowers are smaller and closer together; in fact, it bears seventeen flowers, while a piece of A. citratum of the same length bears only eleven. The spurs of A. citratum are an inch long, are twice sharply bent, and hang pendulous under the distichous raceme. In A. hyaloides the spurs are only ¼ inch long, quite straight, and parallel with the pedicels. In our novelty the spurs are also nearly straight, and parallel with the pedicels, but are ⅝ inch long. They are also a little flattened near their tips, as in A. hyaloides. In other respects the flowers much resemble A. citratum, except that the dorsal sepal is spreading, not bent forward over the column. The lip is also shorter and with a broader base. Both agree in having this part of the flower white, while all the rest is of a pale primrose shade. The pollinia appear to be more like A. hyaloides than the other species. At one time the question would have been whether it was an anomalous variety of A. citratum or a closely allied species; but there is now a third alternative, and I cannot help suspecting that it is a natural hybrid between the two species named, and tolerably intermediate between them, though with the characters of A. citratum predominating, except in the spur and pollinia. *R. A. Rolfe.*

New Hybrid Narcissus.

We may be permitted, no doubt, to inform our readers of the fact, interesting to all lovers of the genus, that Professor Foster has obtained a remarkable and beautiful hybrid, now flowering for the first time. It has made a most successful *début* in the form of a beautiful potful of many white flowers. These are sufficient attractions at first sight, but further observation suffices to show that there is something peculiar and novel about their form, which does not belong to the plant they first recall to one's mind. N. (Corbularia) monophyllus is clearly in evidence, but some other species, not so apparent, has given a bulge to the corona, which by information is known to be N. calathinus, of the distinct sub-genus Ganymedes.

It appears to be the first time that these sub-genera have been united artificially, the first time that either of the parents have taken part in the production of a garden hybrid, and the first time as it must be from their distant habitats—that these particular plants have ever married together. Though the sub-genera do hybridise in a wild state, it does not appear that either of these plants have illustrated the fact, as indeed, from their out-lying homes, would be unlikely. The union, from different points of view, was happily made, and certainly so from the result, which partakes chiefly of N. monophyllus, having the same dwarf habit, much the same appearance of foliage and being of the same, or similar, white colour in flower. It is marked by the bulge of the corona, which helps it towards the fardingale form of N. calathinus. The future of this hybrid will be of interest, in one point to learn whether from the influence of N. calathinus, it will not, in some degree, be less special in its requirements than N. monophyllus, the other beautiful parent of this equally beautiful offspring. *R. J. Lynch.*

KITCHEN GARDEN NOTES.

Supposing Onion seed was sown in warmth in February, and the plants are now in a fit state to plant out, choose a nice, dry, quiet day, and prick them out with a somewhat blunt dibber (taking care to put the roots only under-ground); of course, this may be beside the main crop, or in any other situation. Strawberry plantings (for stock only) form a very suitable place, rows of these being usually 3 to 4 feet apart. I have frequently heard it said that pricked-out Onions do not do so well as those sown where they are to grow, but I am certain that bigger bulbs may be obtained in this way.

Celery.—Sandringham or Sutton's Gem Celery may at once be sown, and a good red variety may be sown at the same time. In some heavy soils white Celery rarely comes to such perfection as do the reds, and therefore it should not be entirely relied upon for supply. I have found also that insects, slugs, &c., do not so readily attack the red varieties. Major Clark, Standard Bearer, Ivery's Nonsuch, are excellent varieties. The seed should be sown and treated similarly to the Onion, with the exception that it must be pricked off either into a frame or boxes as soon as it is 3 inches high, and hardened off by degrees.

Brussels Sprouts are indispensable vegetables, and require a long season to grow, and plenty of space, if they are to be grown profitably. The earliest lot should stand 3 feet 6 inches each way. We cannot mention varieties; there are many of great excellence, and the choice lies between a good selection of the old-fashioned small Sprout and the new ones, that rival a Colewort in size. Three sowings should be made. The plants from the early sowings will grow to 3 and 4 feet in height, with sprouts the whole way up, but later-sown plants are dwarfer. Deep digging and liberal manuring are essential in all cases.

Cabbages.—The plots should be constantly looked over, and if slugs are making their appearance, soot and wood-ashes should be freely used on the soil around the plants, and the ground be made firm, as Cabbages do no good in loose soil. The best varieties are, for main crop, Ellam's and Veitch's Matchless, and Sutton's All Heart; and for early, Little Gem.

Leeks.—For fine Leeks, seed should have been sown in February, and treated like the Onion, till they were about 3 inches high, when they should have been pricked off into other boxes at a distance of 4 inches apart, and gradually hardened off, and finally planted out in well prepared trenches. In this way they may be grown from 10 to 14 inches in circumference. I prefer the Lyons to any other. *W. A. Cook.*

Asparagus.—No time should be lost in covering the autumn dressing of short dung on Asparagus beds with soil from the alleys, which was raked thereinto from off the beds in October. This should be broken fine with the spade before being distributed over the beds, and be afterwards raked over with a rake of medium size.

Summer Spinach.—A few drills, 12 inches apart, and 2 inches deep, should be sown between the rows of early Peas, or on a warm border, successional sowings being made at intervals of ten days or a fortnight. Sow the seed thinly, drawing the soil into the drill with the feet, and treading it before raking the ground. The young plants should be thinned out, first to 3 inches, and subsequently to 6 inches in the rows, and the Dutch-hoe passed between them a few times during growth.

Autumn-bearing Raspberries.—Where the cutting down to the ground of autumn-bearing Raspberry canes has been neglected, the operation should be performed forthwith, as this variety produces its fruit on canes of the current year's growth. *H. W. W.*

FLORISTS' FLOWERS.

THE RANUNCULUS.

Old cultivators of the flower were much tied down to particular times to plant, and they obstinately adhered to the time-honoured dates. The time to plant the Ranunculus was in February, and when I first grew them I always tried to get them into the soil by the middle of that month, but I find after years of experiment that they do much better if they be not planted out before the middle or end of March. They like a rather clayey soil, but it is a good plan to have some fine dry soil to place over the tubers; and light sandy peat, decayed leaf mould, or road scrapings answer admirably, but the last-named materials should be well exposed beforehand. In planting try to get the tubers as nearly as possible at the depth of 2 inches. They like a soil that is deep and rich, and one that is retentive of moisture, few plants suffering more from drought than does the Ranunculus. *J. Douglas.*

The Gladiolus.

The weather in March has not been favourable to planting. At one time, indeed, it was favourable, but the fine time did not last long, and March was ushered in with hard frost. I like to prepare the

* *Phaius Cooksonæ*, n. hyb.—Segments salmon-coloured in front, pale delicate pink behind. Lip slightly 3-lobed, throat ⅛ inch across, externally deep yellow below, passing into reddish-maroon above, internally bright yellow on disc and base, marbled with crimson-brown on sides of throat, the rest marbled with two shades of reddish-maroon. The margin is somewhat undulate, and there are from one to three indistinct linear keels, the character apparently varying from flower to flower.

ground for Gladiolus early in the autumn, and when the surface becomes caked, as it will with sun and rain, it is forked over, and always taking care to do so when it is in a dry state. By doing this two or three times in fine weather, the surface, even if it be a clay soil, becomes friable and in excellent condition for planting in March, but not if it is moved about or trodden upon in wet weather. I have sometimes found it necessary to plant out these and other bulbs and tubers when the ground has not been in the best condition, and in that case drills are drawn without treading on the ground to be planted, dry soil from the potting-shed being used to fill the drills.

Gladiolus corms should be planted 3 inches deep, and some sand put under and over each. The smaller corms I do not plant quite so deep. I like to get in the one-year-old seedling corms early in March, and these range from the size of a marrowfat Pea to a Filbert, but even those not much larger than a Pea will produce a flower-spike by the end of the season. These small sets grow away from the first with more vigour than do named varieties; indeed, some of these small corms will throw up a spike of bloom to the height of 4 or 5 feet. Heavy soils do not suit the Gladiolus so well as more sandy ones, but they will do well even in clayey loam, if the drills are filled up with a well prepared sandy soil, pressed down firmly with the back of a rake or a spade. About the last week in March, or early in April, Gladiolus seed may be sown, and where large quantities of plants are required, it can be sown on the open border, in beds of sandy soil; but gardeners and amateurs who may have space to plant only a few hundreds, would do well to sow the seed in 32-sized pots, each pot holding about fifty plants. The seeds vegetate in a mild bottom heat in about ten days, and as the plants advance in growth, more air must be admitted to the frame until the end of May, when the lights may be removed entirely. But I do not disturb them then, but leave them where they stand. As soon as the leaves turn of a yellow colour, that is in the autumn, the corms are taken up, and stored in dry sand for the winter. They must be watched closely about the ripening stage, or they will start into growth almost as soon as the leaves decay. *J. Douglas.*

ANEMONE HORTENSIS.—We have received a bunch of these welcome flowers of spring from Mr. Wolley Dod, accompanying a note describing the mode of culture pursued at Malpas, and which we shall print in our next issue.

KEW NOTES.

NATAL LABURNUM (*Calpurnia lasiogyna*).—This is a small tree, with the habit, leaves, and flowers of our native Laburnum, the general appearance of the two being so similar that non-botanical people in Natal look upon the Calpurnia as the same as the Laburnum of "home." A plant of it is now in flower in the succulent house (No. 5). It grows fast and freely, and shows well for flower; but hitherto most of the flowers have fallen owing to fogs and winter gloom. As a pot plant the Calpurnia does not promise to be of much value, but it will probably prove an ornamental plant for large conservatories in England, and for out-of-doors in countries where severe weather is not experienced. There is a poor figure of an allied species, viz., C. sylvatica, in the *Botanical Magazine*, t. 2617, under the name of Virgilia intrusa.

Anemone caffra.—Under the figure of A. Fanninii, published three years ago in the *Botanical Magazine* (t. 6958), Sir Joseph Hooker mentions the close relationship of that species with A. caffra, observing that:—"It may indeed prove to be a gigantic form of A. caffra, from which it differs chiefly in its very much larger size, and the more rounded lobes of the leaf." A plant of A. caffra now in flower at Kew bears out this opinion, for there is nothing except size to distinguish one from the other. In A. Fanninii the leaves are 1 foot or more in diameter; the scape from 2 to 5 feet high, and the flowers are 4 inches across. In A. caffra the leaves are 6 inches across, the flowers nearly 3 inches across, and the scape is 15 inches high. There is a difference also in the hairyness of the plants, A. Fanninii being clothed with long silky almost villous hairs, whilst in A. caffra they are shorter and less abundant. Both species are worth growing for the sake of their large flowers, which last at least a fortnight on the plants.

Hæmanthus multiflorus, generally known in gardens as H. Kalbreyeri, is one of the most ornamental of the many species known, and it is now in bloom in the Begonia-house. It requires warm-house treatment all the year round; when the leaves fade, no water should be given, but when growth recommences the soil should be kept constantly moist. At Kew this plant, which is generally a failure under cultivation after the first year or so, has flowered annually for the last four years under this treatment, which is precisely the same as suits H. Katherinæ.

Euphane toxicaria.—The plant of this now flowering at Kew, and which was exhibited at the meeting of the Royal Horticultural Society, March 11, has not been grown in the pot in which it was shown, but had been planted in a deep border of rich soil in a rather dry intermediate-house. Here it grew well, and when it was lifted the roots at the base of the bulb were as thick as a man's little finger, very fleshy, and they went straight down into the soil for at least 18 inches below the bottom of the bulb, which was buried in the soil and measured 10 inches in length. Where the roots were the soil would be constantly wet. This is the first time this interesting plant has flowered at Kew within the last ten years.

Godwinia gigas.—The odour emitted by the flowers of this plant is disagreeable and penetrating. The Kew example, an unusually large one, is now at its best (or worst), and consequently the house in which it stands is not a place to linger in. *W. W.*

CULTURAL MEMORANDA.

TUBEROUS BEGONIAS.

SEED may now be sown in well drained pans, affording them a temperature of 65°; the seedling will soon appear above the soil, and should then be pricked off into pans of sandy soil, pressed firmly. If before sowing the seed the soil be watered thoroughly, only a slight covering of the seeds will be required, a little dry sand scattered evenly over it sufficing. A piece of slate should be placed over the pans, to be replaced by a piece of glass, and which need not be kept over them for more than a week, till the seed germinates. Damp is the great enemy to be avoided, which is best done by transplanting the seedlings as soon as they may be readily handled. With care, Begonias may be bloomed in July of the same year; the fine colours and forms may then be separated for planting in beds, or growing in pots, the following season. Begonias being gross feeders, they should be planted on well manured soil, and during full growth, watered with manure-water as the plants may seem to need it. Dryness of the soil must be avoided in hot weather, and the plants well syringed towards the evening. *H. Markham.*

GREVILLEAS FOR CUTTING PURPOSES.

We find Grevilleas very useful plants for foliage in winter and spring, remaining good for two or three weeks when used in vase bouquets. Seed should be sown at this season, and old plants repotted. Grevillea robusta and G. filicifolia are the best species to grow, and will be found good substi-



FIG. 57.—PHAIUS COOKSONIÆ: COLOUR NANKEEN FLUSHED WITH PINK. (SEE P. 388.)

tutes for Ferns. Grevilleas, if they get a good start in the early spring, do much better if planted out on a well-manured south border, and never allowed to suffer for want of water. The foliage under this kind of treatment is dark green and strong, much stronger than that of pot-grown plants. Young seedlings require a little nursing the first season, and a slight bottom-heat has advantages. Thrips and red-spider are troublesome pests if the plants are grown in a cool-house, but not when planted out. Lift the plants early in the autumn, the young growths being tender and readily injured by cold, and place them in a cool pit out of the reach of the sun, and syringe them twice daily until new roots form. *G. Wythes.*

Gardenias.

Cuttings or slips, with a heel of older wood, root quickly if plunged in a brisk bottom-heat, and, with proper attention, will make nice plants to flower in February next. The plants require warmth and moisture during growth, and slight bottom-heat is of advantage at the first. Want of attention to watering is not unfrequently the cause of loss of leaf and other evils.

Dracænas.

Probably the quickest way of increasing Dracænas is to cut up a stem into pieces of 1 inch long, and put these into pots or pans, and plunge in a brisk bottom-heat, water being afforded very sparingly till growth appears to have begun. Whether pots or pans are used, they should be thoroughly clean and well drained, and the soil should be made firm. Dibble in the pieces 2 inches apart and 1 inch under the soil, and, when grown to a height of 3 inches, lift carefully and pot, and plunge in bottom heat after watering them. For table plants, the pieces are best put singly into quite small pots, which soon get filled with roots, and suffer no check by removal. Dracænas may be assisted with manure-water, and should be kept quite clear of all insects, or loss of beauty will certainly take place. *H. Markham.*

The Tuberose.

The bulbs of this plant may be potted in 3-inch pots as soon as they can be procured in February, and at intervals of a fortnight to July, and with suitable pits and houses in which to grow the plants, flowers may be procured from June to March following. In potting them, all the bulblets at the base must be rubbed off, and well-drained pots and a light sandy loam employed; the apex of the bulb should range half an inch above the soil. Plunge the pots containing the bulbs in a Melon or Cucumber bed, or in a shallow box filled with sawdust or leaf-mould; water them, and place the box over hot-water pipes in a forcing-house. When about 9 inches of growth have been made, shift the plants into 6-inch pots, and give them a position near the glass, all side suckers being removed without delay, and the plants, when well rooted, kept well supplied with water and liquid-manure thereat, and syringed overhead morning and afternoon of bright days, to check red-spider and promote growth, until the flowers begin to open. *H. W. Ward.*

The Bulb Garden.

IRIS ROSENBACHII.

This is an Iris to be remembered. It may be known as a fine and gaily coloured species, but until seen in quantity, as in the fine mass flowering in Prof. Foster's garden, it is impossible to understand what it now is, and what it promises to be. Any attempt to describe the numerous and distinct forms would probably result in failure, but it may be remarked that several of them inspire a vision of what the effect would be if they were separated and grown by themselves in quantity—something, at least, quite lively in spring gardening. Fortunately it is of easy culture and propagation, and it is likely also to repay the best efforts of the improver, though perhaps it is not yet on record that it seeds freely. Difficulty, however, on this account is not to be anticipated; it is a plant to be required from dealers by the hundred. *R. I. Lynch.*

Crocus stellaris.

For more than a century, I believe, the pretty, anomalous Crocus stellaris has been known in our gardens, while no one could solve the mystery of its birth. It has always been considered to be a hybrid between aureus and susianus, and this, I think, may now be taken as the fact. In a patch of ground in my garden, where aureus and susianus are growing in company, and seeding freely, an evident hybrid between the two appeared this spring. It conforms botanically with the old stellaris, differing only in its greater size and beauty. A specimen has been forwarded to the Kew Herbarium, a second blossom having been left on the plant to see if it will prove fertile. The origin of Crocus sulphureus striatus still remains unknown, but is probably the same. *R. Trevor Clarke, Welton Place.*

POTATO EXPERIMENTS.

The twenty-seventh annual report of the Michigan Board of Agriculture, recently issued, gives, among much valuable information, the account of some experiments on Potatos, which may prove of interest at the present planting time of this crop.

The soil in which the Potatos were grown was a sandy loam, which had been in Wheat for the two preceding years. The land was not manured immediately before the Potato crop, but had been enriched with farmyard dung freely for several years previous. The land was ploughed 7 inches deep, harrowed and marked with furrows 4 inches deep, and 3 feet apart each way. The Potatos were cut into pieces, having three or four eyes each. The cultivation was thorough during the growing season.

Eighteen varieties were planted in plots of ⅛ acre each, the following data gives the name of the variety and the produce per acre of a selected twelve:

1. Beauty of Hebron	... ...	134 bushels per acre.
2. Dakota Red (late)	... ...	129 ,,
3. Thorburn (late)	... ...	129 ,,
4. White Star (late)	... ...	126 ,,
5. Alexander's Prolific	... ...	120 ,,
6. Chicago Market	... ...	119 ,,
7. Mammoth Pearl (late)	...	118 ,,
8. White Elephant (late)	...	112 ,,
9. Lee's Favourite	... ...	98 ,,
10. Early Maydower	... ...	98 ,,
11. Rural Blush (late)	... ...	92 ,,
12. Early Harvest	... ...	91 ,,

Nos. 9 and 12 were among the earliest; they were budded in about thirty days from time of planting. No. 1 grew the most vigorously, and seemed to withstand drought better than others. Of the medium ripening varieties, White Elephant is named as one of the best. This variety does not grow quite so smooth as some other kinds, and the tubers are not of quite so good shape, but after several years trial at this station, its merits are obvious. White Star is said to be one of the best late Potatos in the list.—*Experiments on Potatos at New York.*

We have also been favoured with a report of some elaborate Potato experiments, conducted during the past year, at the New York Agricultural Experiment Station, which embraces a list of varieties. Cuttings *versus* whole tubers of the same weight. Sprouted *versus* unsprouted seed tubers. The influence of treatment of the seed tuber upon the earliness of the crop. Fertilizers placed below *versus* above the seed tuber. The consumption of the seed tuber by the plant.

The conclusions arrived at by these investigations were that:—

A. Little or nothing was gained by using cut Potatos for seed, over whole tubers of the same weight.

B. Seed tubers, badly sprouted, yielded about 8½ per cent. less than unsprouted ones.

C. The earliness of the crop was not influenced by exposing the tubers to light and warmth before planting. There was a slight difference in the yield of merchantable Potatos in favour of the tubers exposed to the light.

D. The yield was materially reduced by removing the seed end of the planted tubers, there being an estimated loss of 20 per cent.

E. Fertilizers placed below the seed may be slightly preferable to placing it above, the gain being about five bushels per acre.

F. The more rapid consumption of the seed tuber on rich than on poor soil, is probably due to a more abundant supply of moisture. *J. J. Willis, Harpenden.*

Foreign Correspondence.

ORCHIDS AT THE UNITED STATES NURSERIES.

From New York City by the Delaware and Lackawana Railroad, along the beautiful and picturesque Orange Valley, the pretty village of Short Hills is reached, perhaps the prettiest in New Jersey, and where are situated the "United States Nurseries" of Messrs. J. R. Pitcher & W. A. Manda.

The establishment is the development of the private collection of Mr. J. R. Pitcher, and Mr. W. A. Manda was formerly superintendent of the Harvard University Botanic Gardens at Cambridge, Mass. The specialties of the firm are Orchids, and of Cypripediums nearly 400 species and varieties are grown. Chrysanthemums and other perennials receive a good share of attention, and it was from here that the famous Chrysanthemum Mrs. Alpheus Hardy was sent out.

The Cypripedium-house contains many unique specimens now in flower, amongst the more striking of which are C. Salleri Hayeanum, a beautiful golden hybrid (C. villosum × C. insigne), the pretty C. Savageanum (C. Harrisianum × C. Spicerianum), with its pretty dorsal sepal, inheriting the tint of the former; C. pavonianum, a dark coloured hybrid of C. venustum × C. Boxalli; C. Leeanum, and C. superbum, C. insigne Sanderæ, C. Godseffianum, C. œnanthum porphyrianum, and the lovely C. melanopthalmum, &c.

The Cattleya-house, in which some 800 plants are in flower, presents a good spectacle—the greater number of the plants are varieties of C. Trianæ, including the lovely variety Mrs. de Witt Smith, which has a dark petal, and a remarkably dark and broad lip. Some specimens of C. speciossima have flowers measuring 9 inches across.

I also saw for the first time the delightful white D. Wardianum, and the new Lælia introduced by this firm. L. Arnoldiana, in form like L. autumnalis, but of a deeper colour, and far more pleasing; it is named after one of America's most liberal patrons, Hicks Arnold, Esq., of New York City.

Other features are a mass of Lycaste, which includes some fine examples of L. Skinneri alba, with very broad petals; and a house full of Odontoglossum crispum, with a profusion of their pleasing arching spikes. The show-house contains good examples of Phalænopsis, Angræcum, Epidendrum, Calanthe, &c. *Our American Correspondent.*

The Chinese Lily.

In a note on this plant at p. 207, vol. vii., inquiry is made as to what should be done with the bulbs after flowering. I find they will not flower during the succeeding year under any form of treatment, and have concluded that planting in the open ground would be the cheapest and easiest method of proving their future utility. There is but little ground for hope that they can again be made to give satisfaction under water culture, or, indeed, under any system of management, in the climate of England, or the northern parts of this country. The Chinese in the United States, as may be supposed, grow their sacred flower much more extensively than any other class of the inhabitants, and they invariably discard

the bulbs as useless after one year's service. In China, I am informed, they are retained for propagation. When an imported bulb has finished its growth, several smaller bulbs, it will be observed, appear in its place; and at present only Chinese skill—combined, perhaps, with some peculiarity of the Chinese climate—can impart to these the unusual size and floriferous character of the original. It is difficult to wring information of any kind out of a Chinaman, and when questions are put to him concerning the production of "Heooll Sin Fah" bulbs, he just assumes a look of more than usual cunning, and sagely shakes his head. If those celestial beings, with whom I am sometimes privileged to hold communion by means of divers signs and ejaculations, know anything about any process to which the bulbs may be subjected in China, they guard their secret with laudable determination. *M. Barker, Botanic Garden, Cambridge, Mass., U.S.A.*

Plants and Their Culture.

Propagation of Plants to Flower in the Autumn.—The work of getting plants in readiness for the autumn should be diligently carried on, so that the plants may have acquired strength by the time of flowering. The Bouvardias are fine plants, easily grown, and not delicate, and cuttings should now be taken from those that were cut down some weeks since, and placed in an intermediate-house. They should, if practicable, be taken off with a heel, as rooting is then more easily effected; place the cuttings round the sides of a small pot of sandy compost, and place in bottom-heat of 80°. The glass should be removed for a quarter of an hour daily to dry the foliage. More loam and less leaf-mould should be given Bouvardias at each potting they receive, and the old plants should be shifted into larger pots after the cuttings have been taken. They will be useful planted out in an intermediate-house, or they may be removed to a cold frame, finally hardening them off.

Begonias of the fibrous-rooted species are of service early in the autumn months. At Sion only a few sorts are grown, but a large number of new forms have been sent out by Messrs. Veitch, which are great acquisitions. Adonis is a beautiful winter bloomer; John Heal has large flowers of a rose colour, and the plant has a good habit, making it when full grown good for vases. Among the older species that are good for autumn decoration is fuchsioides, hybrida multiflora, Digswelliana, insiguis, Knowsleyana, Ruckeri, Socotrana, and Weltoniensis. These should now be propagated, and cuttings chosen that are not attenuated, the striking of these being done in the usual manner. Keep the young plants when struck close to the glass, and pot off singly, finally shifting them into 5-inch pots. These Begonias will do well in a cold frame for the summer, that is, when they have filled their pots at the last shift. When in heat, in their earliest stages, the points of the leading shoots should often be pinched out. Last season's plants should be cut hard back, and, when broken, repotted, and given a warm house for a few weeks; they will produce a quantity of bloom during the summer months. A few pots of Abutilons may be grown in the manner advised for Begonias, growing them in rather small pots, and feeding liberally in the early autumn; plunging them in the open air for part of the summer, but removing them early in the autumn. Eupatoriums, which may now be propagated, will take up but little room during the summer, and will do well if plunged in a warm border in the open. E. Weinmannianum, E. riparium, and E. odoratum are profuse bloomers. All of these plants take manure-water freely; as the plants increase in size, good loam and decayed manure only should be used, as it is a difficult matter to keep the plants healthy in hot weather if a light compost be used. E. atrorubens, a species requiring more warmth than the others named, may be kept in a pit or frame in the summer. Eupatoriums in summer time should be damped overhead at the close of the day, if it has been warm and bright.

Libonia floribunda and L. penrhosensis, if propagated at this date and grown in a compost of leaf-mould, peat, and sand, in a cold frame, make bushy plants by the autumn; an intermediate-house is best for them when first housed in the autumn; but a cool bottom during the summer, and when in bloom prevents red-spider from attacking the plants. Another useful plant is the rather neglected Linum Trigynum, which requires much the same treatment as the Libonias, and which is subject to the same troublesome pest, red-spider. We dip our plants in tobacco-water in which is a little soft-soap, before removal to a warmer house after their summer growth is finished. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

Cattleya-house.—Oncidium splendidum, as it goes out of flower, should be kept on the dry side, until roots and growth are seen to be getting active. It is a fine winter bloomer, and the late importations of the plant seem to be of stronger constitution than the earlier ones. Cattleya Schroderæ, a useful plant, comes into flower just when the majority of the C. Trianæ are going over, and keeps up the show of flowers until C. Mendelii comes in. The plants are of very free growth, and last for some long time in flower. Chysis bractescens, C. Limminghii, and C. Chelsonii, now pushing flower-spikes, should receive copious supplies of water. A sharp look should be kept upon plants of Lælia anceps, or the young roots may get damaged by insects, slugs, &c. The temperature may now be allowed to rise to 65° at night, and the house be thoroughly syringed and shut up soon after 2 P.M.

Intermediate-house.—Cœlogyne cristata and its varieties may be repotted. I like to grow the plants in shallow pans, and when the spikes of flowers are pushing up, I hang them up to the roof with wires, and in this way they are more attractive. Old specimens, which may not have been divided for some years, and are crowded, may be carefully parted, and placed in a mixture of one part turfy loam, two parts peat, and one of sphagnum moss.

Comparettia macroplectron and C. falcata, now pushing growths and roots, should not be allowed to become dry at the roots. These Orchids do well in suspended baskets near the glass. Angræcum falcatum, perhaps the prettiest of all the miniature Angræcums, should now be rebasketed or surfaced according to its needs, and very little water afforded now or at any other time, the plant being liable to damp off. The temperature of this house may now rise to 60° at night, and care should be taken that as the heat rises the atmospheric moisture is well maintained. *A. G. Catt, Parkfield, Worcester.*

Fruits Under Glass.

Ventilation.—Ventilation of all forcing houses will necessarily require unremitting attention and care at all times during the day. Many of the evils noticeable afterwards will be traceable to fluctuations of temperature. Growth at this early stage is usually tender, and, therefore, very liable to suffer from these changes. Rust in Grapes, dropping of the fruits in Peaches, Nectarines, and Figs, are often caused by cold draughts of air; and on the other hand, a few minutes only of bright sunshine, without adequate ventilation, produces scorched foliage, to be followed usually by attacks of various insects.

Pineries.—Fruiters if there is a likelihood of too many fruits ripening together, some of them may be removed to a drier and cooler place, but not before they are about half coloured. Queens and others, a stage later, may now have every encouragement to swell their pips, it being found that those fruits which have fully developed pips are more luscious in flavour than larger fruit, but which ripened prematurely, through having experienced a check, as, for instance, by overheating of the bed. Growth is now active, and watering must be frequently seen to; tepid liquid-manure at 90° may be afforded, dewing the plants overhead daily at closing time with quite clean water, those in flower or ripening excepted. The atmosphere should be in a dry state at least once a day, or unwieldy crowns will form. The temperature in this house may reach 90°, or even 100°, at closing time, and the night temperature may fall to not less than 70°. Houses with an acute angle, facing due south, need a slight shade for a few hours in the brightest part of the day. Remove any gills or suckers not required for stock.

Succession and Potted Suckers.—If the newly half-developed leaves are of a pale green colour, and their growth erect, it is a sign that they are lengthening too rapidly, and that bottom-heat is in excess, or ventilation is scanty, one or both, and which no after-treatment will modify. *W. Crump, Madresfield Court.*

The Kitchen Garden.

Tomatos for planting outside should be potted up, putting two plants in small pots, and employing a rather light soil at this potting. Give a gentle watering with a fine rose-pot, and place the plants on a shelf near the glass, shading them till they begin to root into the new soil. For the present, a temperature of 55° to 60° by night will be high enough, and the plants be slightly dewed over daily in bright weather. Where Tomato seed has not been sown, no time should be lost in getting it in, growing on the plants quickly, or poor crops of fruit will result.

Turnips.—A moderate sowing of Early Munich and Snowball should be made on a warm border. The first-named variety is remarkable for earliness, but it does not keep good for any great length of time. It will be advisable to sow again in the second week of April, as these early sowings soon run to flower. Sow the seed in drills about 18 inches apart, and cover over with burnt garden refuse ashes. Turnips should be grown on rich land, as a poor soil produces stringy, hot-tasting bulbs. To prevent loss of seeds by birds, slightly damp them with milk-and-water, and roll in powdered red-lead. Turnips which may have been left in the open should be pulled up, the tops trimmed off, but the roots left entire, and be pitted in a cool place. Those required for tops should be left undisturbed.

Beet.—A small sowing may now be made, but the first week in May is soon enough for the main sowing. Ground that has not been recently manured is best for Beet; it should be deeply dug and well pulverised, and five seeds dropped in at distances of from 8 to 10 inches apart, the rows being 15 inches apart.

Carrots.—If not already done, make a good sowing of early Nantes on a sheltered border; and the main crop may be got in when the weather is suitable. Sow the long rooted kinds on deeply trenched soil, well worked, free of lump and stone, and rank manure, 1 foot from row to row. Before sowing the seed, rub it first between the hand, mix some dry sand with it, otherwise the separation of the seeds is difficult; sow evenly and not too thickly. If maggot be troublesome, dress heavily with soot and lime previous to sowing, and cover the lines with dry soil and wood ashes.

Basil may now be sown in heat, transplanting it when large enough to handle. Seed sown outside in May will form a succession to this sowing.

Capsicums.—Seeds should be sown in pots in heat, and pricked off when ready, putting three plants in small pots and shifting them into larger size when well rooted; at the final potting, employing a rich loamy compost, and potting with moderate firmness. Golden Gem, Bird's eye, Prince of Wales, Long Red, and Monstrous Red are useful varieties.

Herbs.—Tarragon: plantings of this herb should be made each alternate year in a warm place, in the herb garden, and the soil in which it is planted should be in good heart. Divide the roots, and plant in patches, at 10 inches apart or less, according to size of plants. Chamomile, Pennyroyal, Fennel, Chives, the Thymes, Balm, Winter Savory, may likewise be divided and replanted. Dill, Chervil, Burnet, and Borage may be sown on prepared beds, covering the seed with fine sandy soil. Sage, Rue, Lavender, &c., may now be propagated by slips, planting these on good soil, deeply dug, making them very firm. Thyme may be increased by seed sown in pans in a slight heat, but when grown from divided roots the pieces should be made very firm in the earth, otherwise they will not grow well. *H. Markham, Mereworth Castle, Maidstone.*

Snow in the Riviera.—Mr. Hanbury writes from La Mortola, near Ventimiglia:—"The winter has been favourable, except for the fall of snow, which took place on the 2nd, covering everything to the depth of 3 inches for about twenty hours, with less damage, however, than might have been anticipated. The two preceding occasions, when I have seen snow here, were March 9, 1883, and Dec. 1, 1879, both far worse in their effects than this time.

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, April 3—Linnean Society.

SHOWS.

TUESDAY, April 1—Haddington Hyacinth.
WEDNESDAY, April 2—Royal Caledonian, at Edinburgh (two days).

SALES.

MONDAY, Mar. 31—Lilies and Plants, at Protheroe & Morris' Rooms.
TUESDAY, April 1—Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, April 2—Roses, Fruit Trees, Shrubs, and Border Plants, at Stevens' Rooms. Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY, April 3—Orchids in Flower, Lilies from Japan, &c., at Stevens' Rooms. Nursery Stock from Sample, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—41°.6.

Salads.

Salad-eating, like the consumption of raw fruit, is a survival from those primitive ages, when cooked food was much less indulged in than in these pampered times. Both supply the craving experienced by man for a succulent food that shall still his thirst, gratify his palate, and supply the materials out of which his tissues are manufactured, although the last-named acknowledged facts were as unknown to the primitive man as the construction of his brain.

We are reminded how various are the materials out of which a European salad is concocted by an admirable paper read by M. Henri de Vilmorin, of Paris, before the meeting of the Royal Horticultural Society on Tuesday last. How varied must be the salad plants of China, India, and Persia? We may divide mankind roughly into salad eaters and salad abstainers, the proportions of the former to the latter being in inverse ratio as we recede from the warmer parts of the earth and approach the cold north.

The consumption of salads has made considerable headway in these islands within the last quarter of the century, and like sea-bathing, which was also in its beginning fifty years ago, is the outcome of fuller knowledge of the requirements of a healthy system of living.

We can recollect when a salad, if we except one made with Cos Lettuce, Mint leaves, sugar and vinegar, and perhaps flavoured with young Onions, was rarely found in the house of the man of moderate means. Even now at the tables of the rich the salads are extremely monotonous, although the materials at hand are varied enough; and the dressing is nearly always the same. "Does the lassie think I'm a coo," aptly expresses the attitude of a native of the northern part of our own island, when he had a plate of salad put before him one warm summer's day in a house of refreshment in a Midland town. And truly a salad to be enjoyed to the full, should be eaten in warm weather, or at least in a warm apartment, and where the warmth and dryness of the surrounding air tend to develop a certain degree of thirst. In winter the salad seems, to the ordinary man, an addition to the repast that might well be dispensed with, or is one that should be cooked first, and get its dressing according to taste afterwards. But, after all, the consumption of salads at all seasons is an acquirement, as will readily be granted by those whose lot has been cast with the salad-consumer's *par excellence*, the Italians, French, and the Southern Germans, and less so the Poles and North Germans.

At the tables of the first three salad is eaten almost every day, especially by townsfolk, and in summer time it is as certain to appear as is the soup; and it must frequently be confessed that it is often more palatable than that. The real salad-lover scorns "dressing," as the inhabitants of these isles understand it, and gets his due admixture of flavour from the ingredients themselves. The bulk of a salad may consist of Cabbage Lettuce, rarely Cos, Endive, Chicory, Cucumber, Celeriac, Beetroot, and Cauliflower, the three last-named cooked, of course; but flavour will be cunningly added, and generally by the guest himself, with a little Chervil, an atom of Spearmint, more liberally of Tarragon, Parsley, the young blossoms of the gay Nasturtium, Watercress, or some other kind of Cress.

An Italian, Hungarian, and Croatian will add Garlic, but rarely Onions. Of course there is no social ostracism for the Garlic eater, as with us for the consumer of the more delicate Onion! Garlic, with its insidious, all-pervading odour, may have its uses, medicinal or otherwise, in countries tainted with miasma, and where stomach complaints are common, but to the native of this country it is usually an abomination. *Apropos* of the bulb, it is an interesting question, as in what form a certain large firm of pickle-makers disposes of 50 tons of it a-year! Does the Briton consume it as sauce, or is it exported?

Out of our own country the Cos Lettuce and blanched Celery are seldom eaten raw, and yet with Radishes and Beetroot they have hitherto formed the main part of our salads. But we find instead the Cabbage Lettuce, which is botanically a fixed sport of Cos Lettuce, and to which its origin is traceable in the various forms now grown, largely used abroad.

Cabbage Lettuces are now grown in all good gardens, although for marketing purposes the Cos variety still holds its own — more being grown of the latter in weight per acre, and the plant does not need so much care in packing for market, although the troublesome tying which nearly all market garden strains of it need, should tell with 'cute men against its almost exclusive cultivation near London and other large towns.

No salad is either quite palatable or good for the stomach without the addition of oil, and the first step in making the salad popular will be in the acquisition of a taste for Olive oil, or its excellent substitute, that expressed from the seeds of the Cotton plant, and when we are assured that the major part of the sardines we eat are preserved in the latter, it should not be so difficult of acquirement.

The Lettuce in all its varieties is of the easiest culture, if only certain conditions are fulfilled. It must have a moderately deep soil, and if it incline to a loamy nature so much the better. It must be well manured with substances quickly available for plant growth, for it is a plant whose life is very short; and if, therefore, animal manure be used, it should be in a thoroughly decayed state. On some soils not rich in humus, decayed leaf-mould grow Lettuces quickly and to a good size. It is not a good plan to dig ground for Lettuces long before it is to be planted, the moisture needed by the plant becoming soon evaporated from the surface, in warm weather at least, and watering becomes an almost daily necessity. Dig the ground, trample it well, and put out the young plants, which should have been pricked out in beds. Market men, with their rough-and-ready ways, draw direct from the seed-bed, and plant with the dibber; but planting prepared plants with the trowel is far better, as there is then little check given to growth, the plant suffering next to nothing by its removal. Some kinds of Lettuces need a distance of 15 or more inches between the plants, but as a rule 1 foot is about a suitable distance at which to plant. Some of the small varieties, like Tennis-ball, Tom Thumb, Black-seeded Dutch (*Laitue monte à peine verte, a graine noire*), a pale green variety, small dark red, and a few others need scarcely so much space as this, unless the ground be very rich. By paying proper attention to the sowing of seeds of various kinds of Lettuces, they may be obtained all the year round. The first sowing beginning with the year should be made early in February in a stove or succession Pine-pit, not in a warm frame, as the plants would be liable to damp off there, unless very carefully handled. The seed pans should be gently watered, and allowed to get dry on the surface when the seeds may be sown, and a little sandy leaf mould sifted over, just enough to hide the seeds. Water again quite lightly, and stand the pans, protected with a tile or a sheet of brown paper, anywhere until germination has begun to take place, when the pans, without the loss of an hour, should be put on a shelf near the light. Shading will hardly be necessary if watering is duly attended to.

There may be two sowings made in this way in February, and the plants resulting from these must be pricked off into other pans and boxes, allowing space for development. A sowing may be made in March in a frame on a bed of fermenting leaves, and all after-sowings, at intervals of ten or fourteen days, may take place in the open air under a hand-glass for the first two of these, followed by several on a south border. The midsummer sowings may be made on a north border, and the early autumn and last sowings on a south border.

The plants raised in the hothouses in February are intended for growing on mild hotbeds, and should be put into these before the expiration of March.

A bed for forcing on Lettuces need not have a greater warmth at bottom than 75°, which will be high enough, with due attention to linings of warm manure at the sides failing hot-water pipes for top heat. The night temperature of such frames should range between 55° and 60°, with some small amount of ventilation, and ventila-

tion should be freely afforded by day in fine weather.

Matting up the frame must be well done in the event of severe weather occurring, and straw or bracken may even be needed at such times, remembering that any check to growth is injurious. Stirring the surface soil round the plants at frequent intervals is of great help to Lettuce growing, and must not be omitted either in frames or the open ground.

Some good kitchen gardeners do not prick out their later sowings of Lettuce, but they draw either from the seed-beds or sow thinly in lines, and leave a crop of plants by thinning out all the superfluous ones. In hot weather there is something to be said in favour of sowing and thinning out, but watering must be carefully attended to, and the thinning done before the plants have had time to spoil by being crowded together. In planting out summer Lettuces, the plan of drawing a drill 3 inches deep is a good one, as it puts the roots at once into a moist medium, shelters them somewhat from the sun's rays, and the water afforded the plants is not spread over the surface, as would otherwise be the case. Lettuces sown and thinned out are the better for being moulded up slightly when half-grown, that is, up to the lower tier of leaves; they are thus kept from wind-rocking, and the additional soil drawn over the roots preserves the moisture about the latter.

In Northern France and Belgium, the *cloche*, or bell-glass, is largely in use for forwarding and protecting Lettuces, but whether it be due to their expense, or the impossibility of repairing them when broken, or because our gardeners do



Fig. 58.—Citrus japonica. A, section of fruit; B, flower from which the petals and stamens have been removed, to show the ovary, surrounded at the base by a cushion-like disc. (see p. 383.)

not understand their uses, these capital aids in growing early Lettuces, Cauliflowers, Rhubarb, Peas, &c., are not much in vogue with us.

We believe the secret of management is, where Lettuce is concerned, to give little or no air in late winter and spring, ventilation inducing toughness in the leaf of the plant, and the cold winds check its growth. The different varieties of Lettuce form the bulk of our salads, but adjuncts besides those already named are found in the leaves of the following—Whitloof, a superior kind of the common or Bitter Chicory; Endive, plain, curled, and moss-curled; Dandelion, the common form; Salsify, Scorzonera, Skirret, Rampion, Cress of all kinds, the tip of Asparagus shoots, Borage flowers, Tomatos, Red Cabbage, Stachys, Chives, Capsicums, Onions in a small state, and hard-fleshed close cooked Potatos—used cold.

To give directions about growing these various plants would unduly lengthen this glance at the salad question, but we will just give a few of Mr. de Vilmorin's remarks on Dandelion culture as practised in Belgium, its head-quarters, and about the outskirts of Paris. The ground for the plant should be deeply dug after being well dressed with decayed manure. When the ground is dry on the surface, say in March, it should be very firmly and evenly trodden, and made level. Drills should then be drawn as for carrots at 18 inches apart, and the seed dropped therein in bunches of five or six, at the same distance apart in the drills, for the plant being of spreading habit requires considerable space in which to develop. Thinning out the bunches of plants must be done by hand before they get large, and these thinnings will do to fill up gaps in the rows if the tip of the root be not lost. Summer culture consists of keeping the ground clean. In late October the leaves may be cut off 2 inches above the crown, and earth drawn over them as in moulding up the Potato. Here the plants are safe for the winter, and may be dug up entire and forced after the manner of Chicory, that is in a dark place with a warmth of 60°, or the plants may have pots put over them, and over all warm manure, to give the required impetus to growth. In cutting the crop, as also that of Chicory, which gets similar culture, a slice of the root is taken, not for eating, but as tending to keep the leaves fresh for a longer time than could otherwise be done. The price fetched by blanched Dandelion leaves ranges from 8*s.* to 20*s.* per cwt.

M. de Vilmorin's lecture was well attended, well delivered in irreproachable English, and contained details concerning some salad plants little used in this country, to our great and unnecessary loss. For the full text of this important communication we must await the publication of the *Journal* of the Society. As gardeners will be eager to know what so high an authority had to say on a subject so interesting to them, it is to be hoped that no long delay will ensue before it is issued.

Flower Shows for April.—The following list includes all the fixtures of which we have received information: On the 1st, Haddington Hyacinth Society; on Wednesday, 2nd, Reading and Royal Caledonian Society, 2-day spring show at Edinburgh opens; on Tuesday, 8th, the Royal Horticultural Society meets at Westminster; and on the following Tuesday (the 15th), the 4-days Daffodil Conference and Show opens at Chiswick; a 2-day show opens at Newcastle-on-Tyne on Wednesday, the 16th; on Thursday, 17th, there is a show of the Royal Horticultural Society of Ireland at Dublin; the Royal Horticultural Society meets at Westminster on the 22nd, when the exhibition of the National Auricula Society will be held in conjunction. On Wednesday, 23rd, Royal Botanic Society's second spring show; and on the 29th, the second spring show of the Manchester Royal Botanic Society, and the Royal Aquarium Co.'s second show (2 days), opens.

Protection for Plants.—There is an idea afloat that the "Association pour la Protection des Plantes," has induced the Swiss Government to order the destruction of plants sent through the post. This is an absurdity, of course, but is probably founded on the equally absurd Phylloxera regulations which effect a minimum of good at a maximum of expense and inconvenience. All that we can say is, that on the day of writing we have received two packets of living plants by post, one from Switzerland, and one from Italy. We have received an official denial of the statement referred to, which we shall publish next week, being precluded from doing so now by the great pressure on our space.

The British Fruit Growers' Association.—Mr. L. Castle, Honorary Secretary of the above, informs us that a meeting was held in the Town Hall, Ellesmere, Salop, on Saturday, March 22, at 7 p.m., by members of the above Association, in conjunction with the local Society. Brownlow R. O. Tower, Esq., occupied the chair, and Mr. J. Wright's lecture upon "Profitable Fruit Growing" much interested a large audience. Several other members took part in the discussion which followed, and the meeting was highly satisfactory.

The Daffodil Exhibition and Conference at Chiswick.—The following schedule has been issued. For the better examination and comparison of the flowers, it is particularly requested that exhibitors will divide their collections into the following classes:—1, Corbularia; 2, Ajax (yellows only); 3, Ajax (bicolors only); 4, Ajax (white or pale sulphur, *e.g.*, albicans, cernuus, Moschatus pallidus Præcox, tortuosus, &c.); 5, Incomparabilis, Barri, and Leedsi; 6, Humei, Backhousei, Nelsoni, montanus, Macleai, Sabini, Bernardi, and tridymus; 7, triandrus; 8, Burbidgei, poeticus, odorus, juncifolius, and jonquilla; 9, gracilis, intermedius, Polyanthus, and double Polyanthus; 10, double and semi-double Daffodils of all kinds (*e.g.*, Ajax, incomparabilis, odorus, poeticus, jonquilla, &c.), except Polyanthus; 11, new or unnamed seedlings of the Ajax classes; 12, new or unnamed seedlings of any other class than Ajax. No doubles or semi-doubles may be shown in Classes 1 to 8 inclusive. Various prizes are offered.

The arrangements for the Conference are as follows:—Tuesday, April 15.—The judges and committees of selection will be engaged in examining the flowers and drawing up their reports. Fellows will be admitted to the Gardens at 1 p.m., and the public at 2 p.m. H.R.H. the Princess Mary, Duchess of Teck, has kindly consented to open the exhibition at 3 p.m.

Wednesday, April 16.—Admission to the Gardens at 11 a.m. The Conference will be opened at 2 p.m. by Professor Michael Foster, Sec. R.S., President of the Conference, who will deliver an opening address. Mr. C. R. Scrase-Dickins, Secretary of Narcissus Committee of the Royal Horticultural Society, will give a short *resumé* of the work done by the committee since its appointment in 1886, and will present the report of the committee as to the exhibits and awards of the judges. The following papers will then be read, and discussion invited: "Historical Account of Cultivated Narcissi," by Mr. F. W. Burbidge, M.A., F.L.S. Mr. T. A. Dorrien-Smith has been asked to read a paper on "Daffodils in the Scilly Islands." "The Poeticus Group," by the Rev. G. H. Engleheart, M.A.

Thursday, April 17.—Admission to the gardens at 11. The Conference will be resumed at 2 p.m., Mr. J. G. Baker, F.R.S., in the chair. Papers to be read:—"On the Natural History and Cultivation of the Trumpet Daffodil and its Hybrids," by the Rev. C. Wolley-Dod, M.A. Herr Krelage has been asked to read a paper on "Polyanthus Narcissi." "On Irish Varieties of Daffodils with special reference to the white forms," by Mr. John T. Bennett-Poë. "Notes on Seedlings and Seedling raising," by the Rev. G. H. Engleheart, M.A." "Daffodils for the London Market," by Mr. James Walker.

Friday, April 18.—Admission to the gardens at 11 o'clock. The Exhibition will close at 4 p.m.

Intending exhibitors are requested to communicate with Mr. Barron, Superintendent, Royal Horticultural Society's Gardens, Chiswick, on or before Friday, April 11, stating the classes in which they propose exhibiting, and giving an approximate idea of the amount of space they will require.

Linnean Society.—On March 20, Mr. W. Carruthers, F.R.S., President, occupied the chair. Mr. G. F. Scott Elliott was admitted and Mr. H. E. Milner elected a Fellow of the Society. After reading the minutes of the last meeting, the following resolution was moved from the chair and unanimously adopted, "On the occasion of a gift from Mr. Crisp of a handsome oaken table for the meeting-room, the Society desires to record its deep sense of the valuable services rendered by that gentleman not only as Treasurer, but by numerous acts which are not generally appreciated because they are practically unknown to the Fellows." Professor P. Martin Duncan, F.R.S., exhibited several specimens of Desmophyllum cristagala, obtained from off an electric cable at a depth of 550 fathoms. Though showing great variation in the shape and nature of the wall, the specific characters of the septa were maintained. The core extending as a thin lumina far beyond the peduncle, had no connection with the septa. A section of Carophyllia clavus showed stem between the septa, and a section of Lophohelia prolifera exhibited a true stem extending beyond the septa.

The Trade in Apples in Denmark.—In a recently issued Government Report on the trade of Denmark, it is stated that the exportation of Apples has very largely developed. The Apple trade has always been one of local importance, and during the autumn and winter months rows of small craft from the Islands of Lolland, Fyen, &c., may be seen moored to the quays, whose cargoes are entirely composed of this fruit, laid up in this manner for the winter; and, roofed over with Deal planks, they become floating fruit shops, dealing directly with the consumer. It is only quite recently that attempts have been made on any scale to promote the export of the fruit. It seems that a society has been formed for promoting the export of garden produce, and that during the past year they exported over £5600 worth of Apples and Tomatos, fetching an average price which made the ground occupied five to six times more profitable than if devoted to the cultivation of corn, grass, or roots. The Society having thus created a market for this produce in England, the demand rapidly increased, and further purchases were made in Denmark, amounting to over £555,000! In addition to this, there have been simultaneously large quantities exported to Hamburgh, so that an industry which had hitherto been of comparatively small importance, has, during the past year, been successfully developed. It is stated that the Apple chiefly selected for the foreign market is the agreeable winter-eating kind known as the Gravenstin.

"Le Journal des Orchidées."—Another publication devoted to Orchids! Another little stranger to be welcomed into the horticultural press. This time our salutations and good wishes are claimed by the *Journal des Orchidées*, of which the first number is before us. It is an octavo of twenty pages, and is to be published fortnightly. The periodical is to be devoted expressly to the cultivation of Orchids, concerning which, according to the Editor, there existed previously no practical guide—a statement which surprises us not a little, but it is the function of youth to create surprises. Among articles conforming to the programme we find Notes on the Potting of Orchids, on the Culture of Orchids in Dwelling-rooms and for Market Purposes (*grande*

culture), together with general directions for the month. The Editor proposes to take a *plébiscite* or popular vote as to the best twenty-five Cypripedia; the next best set of twenty-five; the twelve species or varieties suitable for cut flowers or market cultivation; and as to the species and varieties to be eliminated from all select collections as unworthy of "house room." The Editor of the new journal, which has our hearty sympathy, is M. Lucien Linden. The office of the journal is Rue Belliard, 100, Brussels; and the cost of subscription 10 francs a year.

Plants at La Mortola.—The collection of plants in Mr. Hanbury's garden near Mentone, excites the admiration and astonishment of northern visitors. Its treasures have often been commented on in these columns, and quite recently have been treated of in the *Kew Bulletin*. Now we have before us a catalogue in two parts of all the plants growing in the open air in that establishment, compiled by Mr. G. Cronemeyer. We estimate the number of entries at nearly 4000, and of these about 500 were, we learn, in flower on New Year's Day. In one part the plants are classified under their respective natural orders, the name of each plant being given as well as that of its sponsor, the work in which the name is registered, the period of flowering, and the native country. In the other list the names of plants are arranged alphabetically, whilst in an appendix they are all grouped according to the geographical regions from which they come. Plants indigenous to Italy are marked with an asterisk (*). Such a catalogue will be of great service to those interested in the botany of garden plants.

Trees for Street Planting.—Mr. William Holmes, of the Frampton Park Nurseries, Hackney, who has had considerable experience of planting in different parts of London, expresses the opinion that Planes and Poplars are much the best suited for street planting in cities and towns. He particularly recommends Populus canadensis nova, or Rumsey's Egyptian Poplar, as more likely to enable the planter to surmount the many difficulties experienced in the successful culture of trees in streets than any other. He has witnessed many illustrations of the fact, that this form of the Poplar will live and grow for years in positions where Planes will scarcely last for a season. The space in front of the London Hospital at Whitechapel affords an illustration in point. Planes were planted and died; they were renewed, and again died; when Mr. Holmes suggested the employment of this Poplar, and several were planted, with the satisfactory result that they have now stood for six and eight years, making a really splendid growth. Again at Silvertown where some reclaimed land had been filled up to a depth of from 12 to 14 feet with London clay and soil, vitiated by an atmosphere charged with impurities from the many chemical and other works in the immediate neighbourhood, Mr. Holmes had an opportunity of experimenting with trees, and he found that Poplars and Ailanthus glandulosus would alone endure; most of the others died the first season, and the remainder, with very few exceptions, the second year. This is a valuable testimony, well worthy the attention of planters.

The Genus Ephedra.—Dr. Otto Stapf, of Vienna, has lately published a monograph of the genus Ephedra, accompanied by an introduction treating of the morphology and distribution of the species, some of which are in cultivation. The work seems very thoroughly done, but it is to be regretted that contrary to usage the author divides the genus into sections, and these into tribes, thus making the tribe of lower value than the genus. The ordinary sequence is tribe, subtribe, genus, subgenus, section, and any departure from this convention is embarrassing. In dealing with the species, the author gives first of all a diagnosis, then a full description and an account of the varieties. These are happily all in Latin. Then comes a paragraph devoted to the geographical distribution, which is in German; others to the literature and synonymy, all very fully treated. The uses to which various species are put, occupy a separate section, and another is given to the uses of the several species. Fine quarto lithographic plates accompany the monograph, which though confined to less than forty species—or perhaps for that very reason—is one of the most complete of its kind.

Stock-taking: February.—According to the Trade and Navigation Returns for the month of February, "minus has it," as will be seen from the usual excerpts, given below. Either, then, we have been overdoing the business of importing, or the purchasing power is lower. The former is probably the case, for we find a large increase in the exports of British produce and manufactures. Our abbreviated summary runs as follows:—

	1889.	1890.	Difference.
	£.	£.	£.
Total value of imports	32,340,026	31,018,842	—1,321,254
§II.—(A.) Articles of food and drink—duty free	9,242,955	9,138,840	−204,115
(B.)—do., dutiable	1,842,832	2,185,372	+342,540
§VI. Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	8,411,385	7,138,890	−1,272,495
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper making, &c.)	2,353,112	2,119,513	−233,599
§IX. Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,151,674	1,133,008	−18,766

By the way, one is apt to wonder how it pays to invest in sugars. Things have altered—for the consumer—very much within the last few months; our grocers are selling sugars at from 1¼*d.* per pound, and through various farthings and qualities, of course, up to 2¾*d.*: The following extract from the general returns possess their usual interest for the fruit and vegetable growers and vendors:—

	1889.	1890.	Difference
§ II. Fruit:—			
Apples, raw ... ... bush.	370,785	192,866	−177,919
Unenumerated, raw ... ,,	9,921	10,607	+686
Onions ... ... ,,	341,038	313,486	−27,552
Potatos ... ... cwt.	23,345	20,517	−2,828
Vegetables, raw, unenumerated ... ... Value	£41,186	£40,857	£329

Judging alone from the increased volume of the Returns—25 per cent. over last month's—it would seem as if our manufactures were increasing in variety, and the "market range" widening.

Kingston and Surbiton Chrysanthemum Society.—The above society has now entered on its fifteenth year; its finances during a rather checkered career being looked after by Mr. John Drewett, and to him was due much of the credit of its recovery from the low ebb to which it had fallen. Some few of its supporters felt that a tangible mark of their appreciation of Mr. Drewett's efforts should be made him, and contributions were privately solicited to that end, and which amounted to £36. The gift took the form of a gold watch, a "Tantalus" stand for the sideboard, and an inscription on vellum. The presentation took place on Saturday, March 8, at the Kingston Hotel.

Rare Plants at Ghent.—M. A. van Geert, of Ghent, has a magnificent variety of Cattleya Trianæ in bloom, with very broad petals. The colour is pure white, flushed with the lightest rose tint. In the same establishment is a delicate form of Cypripedium grande ×, superior in form and colour to any that we have seen before. A very rare Fern, Gymnogramma Muelleri, introduced about twenty-five years ago, is to be seen here. It is quite unlike an ordinary Gymnogramma, and recalls a fossil Fern. M. Dallière has a new form of Euonymus from Japan, and which goes by the name of E. japonica microphylla variegata. It is a pretty little dwarf shrub, of compact habit, and small, delicate foliage, the leaves lanceolate, green-edged, and spotted with pure white, thus producing a highly decorative effect. The plant is hardy, and of rapid growth, and is well suited for an edging plant.

Wildsmith Memorial Fund.—In addition to the sums previously acknowledged, which amounted to £43 3*s.*, the following have been received or promised:—

	£	s.	d.
George Palmer, Esq., J.P.	5	5	0
Sir Henry and Lady St. John Mildmay	5	0	0
Lady Codrington ...	2	10	0
W. H. Myers, Esq. ...	2	2	0
Rev. G. J. Thomas ...	2	0	0
Mrs. Marsland ...	1	1	0
A. E. Phillips, Esq. ...	1	1	0
James Bishop, Esq. ...	1	1	0
S. B. Stevens, Esq. ...	1	1	0
Miss D. Tate ...	1	1	0
Mr. D. T. Fish ...	1	1	0
Martin Hope Sutton, Esq.	1	1	0
Alfred Sutton, Esq., J.P.	1	1	0
Messrs. Cowslade (*Reading Mercury*)	1	1	0
Messrs. Rivers & Slaughter (*Reading Observer*)	1	1	0
Mr. and Mrs. W. Bailey	1	0	0
Mr. W. H. Lees ...	1	0	0
Mr. E. Molyneux ...	1	0	0
Mr. T. D. Myles ...	1	0	0
Mr. J. Hudson ...	1	0	0
Mr. E. Butler ...	0	10	6
Mr. W. Cook	0	10	6
Mr. W. Gilbert ...	0	10	6
R. D. Catchpool, Esq.	0	10	0
Mr. G. Bunyard ...	0	10	0
Mr. A. F. Barron ...	0	10	0
Mr. J. R. Petch ...	0	10	0
Mr. G. Trander ...	0	10	0
Mr. A. H. Thorne ...	0	10	0
Mr. A. M. Wade ...	0	10	0
Mr. J. Willard ...	0	10	0
Mr. C. S. Fudge ...	0	10	6
From the following Members of the Reading Gardeners' Association:—			
Mr. G. Stanton ...	1	0	0
Mr. W. Lees	0	10	6
Mr. R. Fenn	0	10	0
Mr. J. Tagg	0	10	0
Mr. W. Babcock ...	0	10	0
Mr. J. P. Jones ...	0	10	0
And in amounts under 10*s.*	6	7	0
Making a total of £91	9	6	

up to date. Further subscriptions are still required, as the requisite sum has not yet been obtained.

Rose Show Fixtures, 1890.—Mr. Mawley kindly forwards the subjoined list of dates:—June 24th, Drill Hall, Westminster (N.R.S.); 27th, Royal Aquarium; 28th, Eltham, Reigate.—July 1st, Canterbury, Hereford, Sutton; 2nd, Croydon, Dursley, Hitchin; 3rd, Bath, Farningham, Norwich; 5th, Crystal Palace (N.R.S.); 8th, Gloucester, Ipswich, Winchester; 9th, Diss, Ealing, Tunbridge Wells; 10th, Birkenhead, Worksop; 17th, Birmingham (N.R.S.), Helensburgh; 22nd, Tibshelf. The only Rose show which extends over more than one day is that at Winchester, which will be held on July 8 and 9.

PLANT PORTRAITS.

Aërides Houlletti, *Orchidophile*, January.

Allium cyaneum, *Gartenflora*, March 1.—Leaves filiform, flowers umbellate, blue.

Allium Kansuense, *Gartenflora*, March 1, t. 1317.—Leaves linear-lanceolate, flowers umbellate, blue.

Begonias, single-flowered varieties, *Illustration Horticole*, t. 97.—1, Hemisphere, scarlet; 2, Linnæus, rose; 3, Jussien, rose; 4, Attila, rose—one of the largest known; 5, Pactolus, orange. All raised by Crousse, of Nancy.

Begonias, double-flowered varieties.—1, Jeanne Majurel, purplish-red; 2, La France, rose; 3, Dr. Feltz, deep red; 4, Mrs. French, white; 5, Notary Dubled, cherry-red; 6, Miss White, pale rose, tinted with nankeen. All raised by M. Crousse, of Nancy, and figured in *Illustration Horticole*, t. 98.

Billbergia Saundersi, *Gartenflora*, t. 1316.—Leaves mottled, serrate; panicles loose, with long crimson bracts and blue-tipped petals.

Calanthe Veitchii ×, *Lindenia*, t. 217.

Carnation (Madame Arthur Warocqué), *Illustration Horticole*, t. 95.—A dwarf deep red form of the Souvenir de la Malmaison Carnation.

Coburgia trichroma, *Revue Horticole*, 1890, p. 108.

Coffea liberica, *Revue Horticole*, p. 104.

Coreopsis tinctoria, *Garden*, t. 202.

Croton variegatus, var. Marquis de Guadiaro, *Illustration Horticole*, t. 96.

Lycaste costata, *Lindenia*, t. 220.

Masdevallia ignea, *Lindenia*, t. 219.

Rose (Tea), Dr. Grill, *Garden*, January 18.

HOME CORRESPONDENCE.

IRIS SINDJARENSIS.—Mr. Dewar is unfortunate, perhaps, in having a poor form of this plant, for he says (*Gardeners' Chronicle*, March 22, p. 364), "although not deserving a very high place as a garden plant, it may be called passable." Now the opinion I formed of this plant in Professor Foster's garden was a much higher one; I thought it one of the prettiest and most charming of the newer Irises, but evidently, from the figure given in the *Gardeners' Chronicle* (fig. 55), there is a decided difference between the two plants. The plant I saw would be described, I think, as somewhat stately in habit, as bearing decidedly handsome foliage, and as bearing flowers of good form, charmingly coloured. The flower illustrated in the *Gardeners' Chronicle* appears thin and poor in comparison. Mr. Dewar does not give dimensions, but the flower of Professor Foster's plant was 3 inches across, with falls 1 inch wide in front of the stigmas. These falls struck me as remarkable in the sudden and considerable widening above the claw, and here is a striking contrast with the figure, for these widened bases of the blade not only gathered up on each side of the styles, but imbricated with one another, leaving below, and above each one of the spreading standards, a well-formed window-like opening, pointed at the top and bottom. Further, it may be said of form that the falls were rounded at the apex, and not pointed, as in the figure. The recurving portion of the fall was decidedly ample, the standards were spreading horizontally, and in shape more nearly obovate, and less spathulate than is shown of the Kew plant. The coloration of the flower was by no means the least attractive feature. The standards, I believe, were of uniform deep blue, but looking down on the flower it seemed to be deep blue in the centre, imperceptibly shading off to the circumference in the almost pure white of the recurving portion of the falls, there with just enough, perhaps, of blue to make the white still whiter. The plant is described as being half a foot in height, but this one was of twice that stature. *L.*

—— My friend, Mr. Dewar, must not prematurely disparage this Iris. The plants collected by Mr. Max Leichtlin vary not only in the size, but to some extent in the colour, and, indeed, if fig. 55 is correctly drawn, in the form of the flowers. I have now in a bed, but under glass, a plant in bloom with very fine large flowers, which, though not gaudy, are very pleasing to the eye, the pale yellow of the blade of the fall harmonising agreeably with the delicate blue of the rest of the flower. The delicate perfume of the flowers, not far removed from that of Vanilla, is in itself an acquisition. The plant probably will never be very popular, but will be welcomed by those who appreciate an early spring flower of unpretending beauty. I have as yet no plants fully exposed in the open, but I believe the species will prove hardy, though the luxuriant lax foliage will run the risk of being damaged by wind and snow. It must be remembered that the plant will probably in the future not flower so early as it has done this year. Its neatest ally is I. fumosa, which flowers earlier, and which, in my hands, has unfortunately succumbed to the English, or, at least, Shelford climate. I. orchioides and I. caucasica are not far removed, but I. palestina and I. Stocksii seem to me a considerable way off. *M. Foster, Shelford, March* 22.

SPIRÆAS FOR FORCING.—Those who require a large quantity of cut flowers should obtain the new Spiræa astilboides sent out by Mr. Bull. It is a useful decorative plant when well grown, and, as is often the case with Japanese plants, it lasts a long time in bloom, if not forced too hard. Many of the Spiræas force well if given plenty of time, and are fine plants for large houses or the cool conservatory. They seem to do best if placed in a fruit-house just started, and if brought on slowly there, they will last for many weeks. Spiræas require considerable quantities of water when the plants have filled their pots with roots, and are growing vigorously. It is a good plan to stand the pots in shallow pans when coming into flower, as they then last longer. S. astilboides is a graceful plant, and will in time become plentiful, as it follows in point of date the older S. japonica. Plenty of liquid-manure is required when in active growth—say at each alternate watering. Another useful Spiræa for later forcing is palmata, a now well-known species, and one that forces well if not given too much heat. The flowers are of a much higher colour, if forcing is gradual. I have grown this species for some time to succeed S. japonica, and find that it is very effective if grown well. S. japonica aureo-reticulata is a dwarf variety, useful for pot culture, and for using in the front rows of plants on stages or for small beds. It is the more useful where only small pots may be employed, as it does not make much growth. It should be treated like the others after flowering is over; that is, dividing the roots, and planting the pieces out-of-doors in a good compost in a warm border. If a year's rest in the border can be given the plants, they are greatly benefited thereby. S. confusa is another nice plant of stronger growing than any of the above. It is as easily forced as they, and is equally good for cut blooms. The plants require a light and airy place when in bloom with abundance of moisture at the roots. S. Thunbergii should also get a place in this collection of useful Spiræas, as it forces freely, and for large houses it is very effective. It is not so much grown as the others, but as it becomes better known, it will, I believe, be a favourite plant. Treatment like the rest. *G. Wythes, Syon House.*

DAFFODIL SIR WATKIN.—Mr. Wolley Dod gives an interesting history of the early days of this Daffodil (p. 355); but it seems to me so utterly improbable, that I hesitate to accept it as being founded on fact. John Bright used to say that early Roman history was a tissue of fables, which the wise had agreed upon to believe. Let us be careful, therefore, how we make history in our own time. Here we are told that, so far back as the first decade of the present century — 1800-1810 — a mining Captain Byers, brought the Sir Watkin bulbs from Bideford, in Devon, to Merionethshire, and we may gather from this that it was a well-known flower in Devonshire at that early date—eighty years ago! What were the Veitchs of Exeter and the Kelways of Langport about not to find out so great a treasure earlier, whilst it it was thus growing almost at their doors? Next it appears that Capt. Byers died at Dolgelly about 1845, and that there were then plenty of these Daffodils in cottage gardens, near Dinas Mawddy. We may infer that this information has been gleaned from rustic sources, in 1889, forty years after the decease of Byers, and eighty years after the exit of the plant from Devonshire. I think we must, for the present, treat this as one of John Bright's fables, based on Westmen's gossip. Perhaps some of your Devonshire readers will make enquiries about Bideford and endeavour to learn if Captain Byers was a reality or a myth, and if Sir Watkin blooms unknown in any old world garden thereabouts. It is, however, true enough that the Sir Watkin Daffodil is a very old stager, and the wonder is that it remained so long unknown to the bulb merchants. Mr. Pickstone deserves the credit of its practical discovery, although he cannot claim to be its raiser. But for him it would probably have still been unknown to the Daffodil Conference. The history of its introduction to commerce by Mr. Pickstone, taken down mainly from his own recital, is to be found in *Gardeners' Chronicle*, April 26, 1884, p. 553, &c. The flower was figured in the same number, from a sketch supplied by Mr. Wolley Dod, and the plate there given may be compared with the illustration in Hale's *Eden*, pl. 41, to be referred to hereafter. Mr. Wolley Dod now gives us the history of the purchase of the bulb stocks by Messrs. Dickson, which brings the commercial history down to the present time, although the narrative does not commence at the very beginning. After Mr. Pickstone had made his large sale to Messrs. Dickson, it transpired that there were a great many bulbs in other gardens. Several communications reached me, and I sent a note to the *Garden*, October 25, 1884, pointing out that Sir Watkin was far older than Mr. Pickstone's finding of fifteen years ago, and that the bulbs were far more plentiful now than anyone knew at the time of Messrs. Dickson's purchase. That the very high price at which the bulbs were selling had stimulated enquiries, and that many thousands of bulbs would be forthcoming, believed to be the same Daffodil, from the mountain districts of Wales. This, it will now be noted, Messrs. Dickson afterwards found to be the case. I then went on to say, "I am told that this Daffodil has been known in Wales for forty years, as the Giant or Mountain Daffodil. But the evidence goes further back than this. In Hale's *Eden*, 1st edition, 1757, and also in Hill's *Eden*, 1773, this large form of N. incomparabilis is figured, plate 41. The diameter of the flower is 4 inches, and the height stated to be 2 feet. It is described (p. 481) in both volumes as follows:—"The Nonpareil Daffodil: It was early distinguished by writers on plants, and obtained from its great size and fine colouring very honourable names—the Incomparable, the Nonpareil, and the Excellent Daffodil. The Latin authors have called it N. maximus, and Omnium maximus, and C. Bauhine, N. latifolius pallidus calyce amplo, the broad-leaved pale Daffodil with a great cup. The cup and petals are proportioned to one another, both very large. The colour in both is yellow, but the petals have the tinct pale, and the cup is deeper." If anyone will compare Mr. Wolley Dod's figure with that in Hale's *Eden*, the likeness will at once be evident. I have shown them side by side to many of our best florists, who have visited Brockhurst at Daffodil time, and with the actual flowers of Sir Watkin for comparison, and there can be no doubt about it. We have sundry Welsh forms of this Daffodil growing here, nearly as large as Sir Watkin and exactly similar, and these are from other districts, so it is evident that the plant was widely distributed in Wales. I have never heard of it in Devonshire. *Wm. Brockbank, Brockhurst, Didsbury, March* 24, 1890.

NATIONAL CHRYSANTHEMUM SOCIETY.—May I invite the co-operation of Chrysanthemum growers throughout the length and breadth of the land in the effort that is now being made by the Special Committee of the National Chrysanthemum Society, viz., Mr. Lewis Castle, Hotham House, Merton, Surrey; Mr. George Gordon, 1, Stile Villas, Wellesley Road, Gunnersbury; and Mr. C. Harman Payne (Hon. Sec.), 60, Thorne Road, London, S.W.; in the preparation of an entirely new edition of the Catalogue issued by that Society. The Society has good reason for being satisfied with its last Catalogue—that of 1888—both in regard to its acknowledged advantages of classification and general information, and also the sale of the same, which has considerably more than balanced the cost incurred; but it desires that the new edition should be even more complete, several fresh features being added. To this end I venture to ask for space for this note, in the hope that many who are interested in the work of the National Chrysanthemum Society will lend us their assistance, by offering suggestions, and specially by affording any information as to synonyms of varieties, and by pointing out errors either of omission or commission in the previous editions. Such information will be welcomed by either of the gentlemen forming the committee, or by *W. Holmes, Frampton Park Nurseries, Hackney, London.*

EARLINESS OF ASPARAGUS.—In raking down my Asparagus beds, a day or two since, it was found that the mild season had started the plants into growth, and on the sides of the beds several heads were noticed that stood 1½ inches out of the soil. This forwardness of growth renders care necessary in raking the soil down into the alleys. *W. L., Bath.*

A NICE POINT.—On the occasion of the recent annual meeting of the National Chrysanthemum Society, exception was taken to one of the auditors acting in that capacity, on the ground that at the meeting of the General Committee in December he had been appointed a member of the latter body, the rules distinctly stating that the accounts are to be audited by two persons not being members of the committee; and the accounts, therefore, had been audited by a member of the committee. It was argued on the other side—first, that the gentleman in question was not a *bonâ fide* member of the committee until the minutes recording his election had been confirmed at the following meeting of the committee, the accounts having been audited in the meantime; secondly, that the audit had taken place before the auditor elected to the committee in December had taken his seat; thirdly, that the appointment of auditors rested solely with the annual general meeting. Great exception was taken to the chairman's ruling as to the necessary confirmation of the election of the auditor to the committee. The matter in dispute led to the examination of precedents, and it has transpired there is an Act of Parliament in existence bearing upon this point. This Act recites, firstly, that minutes should be confirmed as to their accuracy of entry; secondly, that they should be confirmed and adopted as to their desirability and legality; thirdly, that no business is valid until the adoption and confirmation of business done at previous meeting at a succeding one. In the face of this, it appears obvious that the chairman of the annual meeting was correct as to his ruling, and

that the auditor elected on the committee had not had his election consummated at the time he audited the accounts, the minutes of the committee setting forth his election not having been confirmed in the manner required by the Act of Parliament. This narration appears to indicate a matter of some importance, and I hope you will give it a place in your columns. *R. D.*

CAMELLIAS AT CHISWICK HOUSE.—Here at the residence of the Marquis of Bute, in a structure 300 feet in length, is, at the present time, a fine display of flower—in old-fashioned varieties—of this beautiful decorative shrub, huge bushes that tower upwards, and will soon require cutting down, or increased height of roof to the house. Monarch is very conspicuous with its large vivid scarlet flowers and fine foliage. Lady Grafton, rich red flowers of great substance; Mr. May, the gardener here, highly recommends this variety as a good traveller. Chandleri-elegans is a fine light rose flower. Of the old alba-plena, there are several good trees—the collection is indeed rich in fine whites. A most curious flower is franco-frutens (Waratah?), blossoms deep red, the petals in the centre being tightly rolled together, giving the flower quite a distinctive appearance. Amongst other good sorts noted in flower were atro-rubens, picturata, Lombardii, fimbriata, imbricata, Anemone flora elegans, and Woodsii, the last named is a very early red flowering variety. *B.*

THORPE PERROW.—The well-known gardens of Sir F. Millbank, at Thorpe Perrow, possess at the present time great attractions in spring bedding, the beds being bright with Crocus and Scilla, the latter as an edging plant in general use. They will shortly be ablaze with Tulips, Hyacinths, Polyanthus, and other plants, giving promise of as fine a display as that of last year. A walk round the garden shows many fine Conifers, which have been planted by Mr. Culverwell, the gardener, for thirty or forty years. A notable specimen is Picea nobilis, given to him by the late Dr. Lindley when it was in a small pot. The fruit trees are in a healthy state, their flower buds prominent for the season, and if the spring will be a genial one, Peaches will flower freely. At Thorpe, a young gardener finds much to admire and interest, and a longer stay than was possible on this occasion would have been to my advantage. *A. J. Brown.*

THE CLEMATIS.—Mr. Jackman has done well to call attention to the Clematis, and its great usefulness. It seems to me that it is a subject that does not receive so much attention as it really deserves. I am particularly anxious to call attention to the group of patens, or early-flowering Clematises. They are numerous, and generally very free, and varied in beauty; but the great difficulty besetting this group is to make gardeners understand the essential difference between the pruning required for the spring flowering and the summer-blooming types. Not long since I was in a garden where some varieties of Clematises—the spring and summer bloomers being among them—are grown, and I found the gardener had cut them all back, patens and Jackmanii types, with the result that all the bloom from the latter is lost for the season. He frankly stated that he did not know any difference between them, and therefore he treated them alike; and yet it is not difficult to discriminate between the two, for the spring bloomers are mostly of less robust growth, and in early spring form plump buds where they will blossom, and these are plentifully found on ripened wood of well managed and established plants. The summer blooming varieties, when they start into growth in early spring, put forth shoots at the points of the old wood, which soon elongate, and at that stage there is no sign of flower buds. Thus, there are two main differences which are soon recognised and understood by those who have a collection of spring and summer blooming varieties under their care. I venture to add two others to the selection of patens varieties given by Mr. Jackman, viz., Duke of Edinburgh and Mrs. S. C. Baker. And I am pleased to see him giving a prominent place to a very old favourite of mine in this group. I mean Miss Bateman, white, a variety remarkably free to flower, with stout and well-formed blossoms. Too much cannot be said in praise of C. montana; if any one would see this species in all its beauty in the month of May, they should make a journey to the village of Sonning, near Reading. It can be seen there on many a house, blooming gloriously. The plant appears to have quite taken root in the place, and to have become a general favourite. Close by the river bank is a well known boating and fishing hostelry, and a very large specimen of C. montana covers a good portion of the walls, a good deal of the plant being under a glass verandah. Here the plant blossoms with remarkable luxuriance, and it is worthy a journey of miles to see it. It appears to do well in this place in almost any position, but a sunny one appears to be that best adapted to bring out the chaste beauty of this valuable and effective species. *R. D.*



Fig. 59.—MALFORMED ORANGE (SEE P. 380).

SETTING THE BLOSSOMS OF PEACHES AND NECTARINES.—In his note, p. 334, Mr. Sheppard appears to condemn the practice of tickling the blooms of Peaches and Nectarines with rabbits' tails as being unnecessary, he finding that a good set may always be procured without this tedious performance. I agree with Mr. Sheppard, providing there is much more bloom than is required for a good crop. But what about such shy-bearing varieties as Waterloo, Stump the World, and Noblesse Peaches?—the latter, one that is very prone to drop its buds. Would Mr. Sheppard condemn the tickling of their flowers? if so I fear the crop would sometimes be a very scanty one. I have never failed to secure an abundant set of these fruits, but I am always delighted to see the bees about the trees, carrying as they do the pollen from flower to flower; but when there are no bees about in the blooming time, I take the precaution of distributing the pollen by some other means. *A Bishop.*

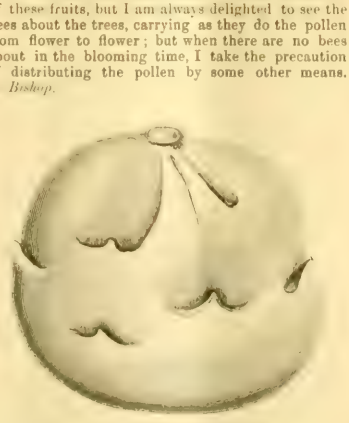


Fig. 60.—MALFORMED ORANGE (SEE P. 380).

CENTROPOGON LUCYANUS.—As a winter flowering, showy plant, of easy cultivation, Centropogon Lucyanus should not fail where winter flowers are in request. The first blooms are terminal, but when these are removed, bloom issues from every lateral shoot, and affords a long succession. The milky juice of the plant may be got rid of in cut blooms for the coat, by cutting them a short time before they are wanted, and laying them in a pan of water. To propagate this plant, young shoots taken from the stems, about 3 inches long, and with a heel, strike readily in brisk heat, under a bell-glass, or in a propagating-box, or hand-light. Pot off when struck, and keep them close and moist for a short time, afterwards placing them on a shelf near the glass, with a temperature of from 60° to 70, and in this position they may remain till June; but after that period a pit or frame will meet their requirements, provided the lights are closed early in the afternoon, the plants freely syringed to keep the leaves healthy. Early in the autumn the plants should be placed in the stove in a light situation, and occasionally weak liquid manure may be substituted for clean water in watering them. The soil most suitable to grow Centropogon Lucyanus are loam and peat of equal parts, with enough sand to keep it open. Old plants may be cut back, and when they break shaken out and repotted. These old plants make fine specimens, fresh growth issuing freely from the crowns. *J. S.*

THE FLOWERING ASH.—We have growing here a similar specimen of this rare tree to the one mentioned by Mr. Webster in last week's *Gardeners' Chronicle*, and when in flower it merits the praise given to it. I have for years tried to obtain seed from it, but have failed to do so. The tree appears to be grafted about 2 feet above ground. *H. Lindsey, Huntroyde Park.*

WINTER FLOWERING PLANTS AT COLWYN BAY.—Among shrubs which have shown an unexpected power of adapting themselves to a different climate, may certainly be mentioned Cytisus racemosus. Some four or five years ago, I planted out two or three plants here as an experiment. These have grown into bushes about 8 feet high and 10 feet in diameter, and have been flowering continuously and abundantly since November. A bush in front of my window as I write is now a mass of golden-yellow and deliciously fragrant blossoms. The spikes of flowers are much longer than on pot plants, and do not seem to be in the least injured by a temperature of 26° in a Stevenson case, which is the lowest registered this year. I am strongly inclined to think that this shrub is much hardier than is commonly supposed, and as it is, in my opinion, unquestionably the most valuable flowering shrub we possess, from its free, long-lasting, and (in mild seasons) winter blooming habit, it is certainly worth a trial in every tolerably warm garden with a stony soil. The following list of shrubs and plants which were in flower here in January last may interest your readers, as showing the extreme mildness of this climate. I may mention that all the shrubs have been planted for some years. Among the trees which were not in bloom there are five species of Eucalyptus, three of which—viz., E. globulus, E. viminalis, and E. coriacea—are 23 feet high. The scarlet Habrothamnus, on a S.E. wall, has survived the last two winters unprotected: *Shrubs.* Roses, tea and hybrid perpetual, Veronica imperialis, V. parviflora, V. elliptica, V. blue gem, Desfontainea spinosa, Fuchsia microphylla, Lonicera fragrantissima, Berberis japonica, B. Darwinii, Pittosporum Tobira; Viburnum tinus (Laurustinus), Arbutus photinifolia, A. unedo, Escallonia macrantha and other species, Choisya ternata, Grevillea rosmarinifolia, Cistus monpeliensis. *Plants.*—Doronicum plantagineum, Potentilla albida, P. Hopwoodiana, Schizostylis coccinea, Aubrietia Eyrei, Cheiranthus mutabilis, Erigeron mucronatum, Iberis gibraltarica hybrida, I. sempervirens, Erodium hymenodes, Chrysanthemum indicum vars., C. coronaria vars., Vinca, major and minor; Campanula muralis, Dianthus Seguieri, var. collinus; Helleborus niger, H. colchicus. Also abundance of Stocks, Wallflowers, Violets, Primroses (double and single), Snowdrops, Mignonette, zonale Pelargoniums, &c. *Alfred O. Walker, Nant-y-Glyn, Colwyn Bay, January* 12.

LILIES IN TUBS.—It is interesting as showing the way in which able gardeners can differ who are situated in diverse districts and operating in diverse soils, that Mr. Elwes on the one hand, Mr. Ingram on the other, should hold such diverse opinions respecting the merits of planting roots in tubs in the garden borders as advised by Mr. Wilson. That gentleman, whose remarkable success at Wisley in what he undertakes shows that his experiments have undoubted merit in them, evidently regards the roots of trees and shrubs in the flower borders as cormorants, only too ready and certain, if not prevented, of eating up the sustenance of everything else. I will venture to say, that if the soil immediately round those Lily tubs at Wisley could be examined, it would be found that almost a wall of greedy hungry fibre had been formed eagerly anxious to prey upon the soil within, which for the time, at

least, the tubs so effectually safeguard. Practically the tub system is but another method of sinking or plunging plants into the borders in pots. A more kindly view of the action of predatory shrub roots than Mr. Elwes exhibits can hardly be conceived; it is so kind of them to rush in and carry off the superfluous moisture in hot weather, and the excessive nutriment from soil already too liberally exhausted. Of course, there are roots and roots, for some are madly hungering after all possible nutriment, and run all over the borders like lions seeking for prey; others never get far from home, and are content with a limited radius. Mr. Elwes probably thinks of the latter; Mr. Wilson of the former. Both are doubtless right in a certain sense, but, on the whole, the latter shows the most practical wisdom in determining to keep all marauding roots at bay. *A. D.*

Societies.

ROYAL HORTICULTURAL.

The last meeting of the above Society, held in the Drill Hall of the Loudon Scottish Volunteers, James Street, Westminster, on the 25th inst., brought a large number of trade exhibits, consisting of Cliveas, Narcissi, pot Roses, forced Lilac, and Cineraries, together with an interesting collection of Orchids from private growers and nurserymen. Visitors arrived in considerable numbers towards three o'clock, at which hour M. de Vilmorin commenced the reading of his capital paper on Salads.

Floral Committee.

Present: H. Marshall, Esq., in the chair, and Messrs. R. Dean, A. Truffaut, G. Paul, H. Herbst, B. Wynne, T. Baines, C. T. Druery, Ch. Jeffries, J. Walker, F. Ross, H. Turner, W. C. Leach, R. B. Lowe, H. H. D'Ombrain, J. Fraser, H. Cannell, W. Holmes, and L. Castle.

An extensive collection of plants was staged by Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway, N. A number of finely grown Cliveas were included, a specimen of Ambroise Verschaffelt being very noticeable on account of its large number of flowers as well as the size and depth of colouring of the individual blooms. Martha Reimers was also well shown Forced Lilac, the varieties being Charles X., alba marginata, and Persian were represented by well-flowered specimens, and of the Gueldres Rose there were also several forced plants in pots. There was, moreover, a collection of about one hundred Hyacinths of fair quality, the varieties including such well known favourites as King of the Blues, Lord Derby, Marchioness of Lorne, Roi des Belges, Luna, Mimosa, and Von Schiller. Half-a-dozen pots of Lily of the Valley, very evenly and nicely flowered, several of Boronia megastigma, and one plant of Epiphyllum Russellianum Gaertneri, with a profusion of rich red flowers completed this large collection, which filled one side of the centre table.

From Messrs. Paul & Son, Old Nurseries, Cheshunt, N., came a group of pot Roses, very well grown, and having a nice lot of flowers. There were, among others, Souvenir de S. A. Prince, which is one of the best of recent introductions, and, as shown, superior to The Puritan and The Bride, which were also exhibited; Caroline d'Arden, a fine bright flower; Marquise de Castellane, alba rosea, Comte de Paris, Baron W. de Rothschild; and of smaller-flowered sorts, Mignonette, Clothilde Soupert, and the single Grandiflora.

A few interesting alpines were contributed from the Royal Gardens, Kew, which included Saxifraga oppositifolia, S. splendens, S. Boydii, S. arctioides præcox, Primula denticulata, P. d. alba, P. Fortunei, P. pubescens alba, and a few others. There were also specimens of Hyacinthus ciliatus, with dull flowers of brown; Sisyrinchum grandiflorum, and a finely flowered Hæmanthus multiflorus, with bright scarlet flowers.

Messrs. Wm. Cutbush & Son, Highgate, N., sent a collection of various Epacris, Lady Panmure, pure white; Vilmoreana, rose-pink; and Rubella, rose, showing up well. They also had specimens of Boronia heterophylla.

A box of Carnations was sent by Mr. C. Turner, Royal Nurseries, Slough, in which was a handsome flower of a very fine dark crimson, variety named Lord Rothschild. A striking flower too was seen in novelty state with carmine flakes, and is by no means unattractive.

Primroses in a variety of colour where shown by Mr. R. Dean, Ealing, W., who also had Bedfont Yellow Wallflower a very serviceable variety, of dwarf habit; and a violet self Auricula, suggestively named Violetta—it has a good deep colour and a heavy paste.

Messrs. H. Cannell & Sons, Swanley, Kent, had a collection of cut trusses of their zonal Pelargoniums brilliantly coloured and the pips large, also a few double Cinerarias, altogether a very showy display.

Mr. G. W. Cummins, gr. to A. H. Smee, Esq., The Grange, Wallington, sent two pots of Veltheimia viridifolia with flowers of dull coral-red, spotted with yellowish-white, the leaves shiny green.

Philadelphus inodorus was sent by Mr. W. C. Leach, Albury Park Gardens, Guildford, who recommended it for forcing purposes, its scentless white flowers are very pretty, and the plant itself attains a height of about 6 feet, the same exhibitor also sent flowering branches of Deutzia candidissima fl.-pl. with very showy large sized flowers.

From Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., were some few specimens of Trillium discolor atratum, the flowers being deep purple-brown, and the sessile leaves dull green mottled with a lighter shade. A few Hyacinths were also sent, of which Bouquet blanc, a pure white single variety was a fine one, with large pips and solid spike. Admirable is pink with a darker centre nerve, and Fleur de Paradis, a rich cream-coloured variety, both of which are singles.

A considerable number of varieties of Daffodils were contributed by Messrs. Barr & Son, 12, King Street, Covent Garden, W.C., which embraced several of the best known forms, a relief to the mass of yellow being given by an edging of Anemone fulgens, various Scillas, &c. Iris Sindjarensis, which was the subject of an illustration in our last issue, where full particulars of this plant will be found, was also sent by Messrs. Barr.

Messrs. Charlesworth, Shuttleworth & Co., Heaton, Bradford, sent under the name of Pteris Harrisoni a pretty Fern with the fertile fronds some some 15 inches long, pinnæ at the top, bi- or tripinnate at the base, the pinnæ being long and narrow, dark green with a comparatively wide toothed band of white in the centre, very decorative.

Mr. T. H. Froud, gr. to J. W. Ford, Esq., Chase Park, Enfield, N., sent a collection of cut Camellias, including Donkcelarii, alba plena, Corallina, Chandlieri elegans, Marchioness of Lorne, &c., and also sprays of Acacia retinoides.

A fine growing vigorous form of Lily of the Valley was sent by Mr. E. Morse, Ascot Nurseries, Epsom, under the name Fortin's variety. The bells were very large, and bore about fifteen or sixteen on a spray. The leaves were also remarkably broad and richly coloured.

A showy lot of Cinerarias was sent by Mr. J. James, Woodside, Farnham Royal, and showed his strains to be of nice dwarf habit, and possessing several good colours.

Orchid Committee.

Present: Sir Trevor Lawrence, in the chair, and Messrs. S. Courtauld, T. B. Heywood, H. M. Pollett, H. Balderson, H. Ballantine, J. Dominy, Ch. Pilcher, E. Hill, H. Williams, L. Castle, F. Moore, F. G. Tautz, A. H. Smee, James O'Brien, and Dr. M. T. Masters.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., sent a charming new hybrid Lælia Cattleya Hyppolyte, the result of fertilising Lælia cinnabarina by the pollen of Cattleya Mossio. The resulting plant is fairly intermediate in all its parts, and the flower, which displays a most beautiful rich Indian yellow colour, is about 5 inches across, the lip closes over the column, and is slightly tinged with madder on the median lobe, which is somewhat undulate; the petals are ovate-acute, with a slightly serrated margin, the sepals being lanceolate. The foliage was also of an intermediate character.

Messrs. F. Sander & Co., St. Albans, contributed a few good specimen plants, having a well-flowered example of Dendrobium nobile nobilius, Miltonia vexillaria, St. Albans variety, with large richly-coloured flowers; and of Oncidium bifolium majus; also Angræcum Germinyanum, with a delicate white flower; Oncidium tetrapetalum; the finely-lipped Cattleya Trianæ var. marginata, referred to in the report of the last show; C. T. vivicans, a form with lightly-tinged petals, and a deeply-coloured lip of moderate dimensions; and Phaius Cooksoni, shown at the last meeting, and described on p. 388 of this issue (see also fig. 57, p. 389). Phalænopsis Schilleriana gloriosa, the petals and sepals being white, with a tinge of rosy-mauve down the centre, and spots of brown on the lip, was sent by Messrs. H. Low & Co.

Several fine Orchids were shown by F. G. Tautz, Esq., Studley House, Hammersmith, gr., Mr. Cowley. These consisted of Cattleya Trianæ Tautziana, in which the lip is a beautiful feature, deep in colour, and regularly frilled; Dendrobium chrysodiscum, Lycaste cruenta, a plant of two shades of yellow, and purple stripes in the throat; D. Freemanni, a form of D. nobile, with white margin to the lip, and a patch of deep purple colour in the throat; Odontoglossum Blandianum, a plant carrying two spikes.

From A. H. Smee, Esq., The Grange, Wallington (gr., Mr. Cummins), came two large plants of Cyrtopodium Saintlegerianum, figured in our pages, August 18, 1888, and Certificated by the Royal Horticultural Society, March 9, 1886.

Mr. Ballantine, Baron Schröder's gardener, The Dell, Egham, exhibited Baron Schröder's variety of Dendrobium Wardianum, in which all the segments of the blossom are white, but the points which are bright purple colour, and the interior of the throat as in the type; Odontoglossum Leeanum, a well-developed spike of this showy Orchid; Cattleya Trianæ Schröderi alba, white, all but the upper interior part of the throat, which is yellow. The plant bore two flowers.

A small well-flowered Dendrobium nobile was shown by H. F. Nalder, Esq., Mornington Lodge, West Kensington.

Messrs. Pitcher & Manda, United States Nursery, Hextable, Swanley, showed a collection of new Cypripediums, including Chlorops, a greenish flower, and continuous flowerer, Boxalli superbum and B. atratum, Dautheri, &c.

A finely grown Angræcum citratum, shown as var. gigantea, was sent by Mr. G. Elliott, gr. to W. F. Elliott, Devonshire House, Stamford Hill, N., the plant bore four large spikes of well developed flowers, and made a good display. Oncidium sarcodes in a good specimen, came from W. C. Walton, Esq., Percy Lodge, Winchmore Hill (gr., Mr. G. Cragg). Mr. T. A. Glover, gr. to E. Ellis, Esq., Manor House, Wallington, sent a good form of Odontoglossum Andersonianum, with large flowers heavily spotted, also blooms of Lycaste Schilleriana, and Dendrobium nobile.

A hybrid Cypripedium named C. hybridum Poyntzianum, came from R. Young, Esq., Linnet, Liverpool; it was a small flower, the dorsal sepal apple green, with darker lines, petals dull rose on the apical, half greenish at the base with a few conspicuous brown spots, lip pale brown fading to a yellowish hue at the bottom of the pouch.

Mr. C. J. Catt, gr. to J. C. Parr, Esq., Grappenhall, Hayes, Warrington, sent blooms of a large form of Angræcum sesquipedale.

Fruit Committee.

Present: Sir C. Strickland, Bart., in the chair; and Messrs. H. de Vilmorin, P. Crowley, R. D. Blackmore, H. Weir, J. Cheal, Ch. Ross, G. W. Cummins, J. Smith, J. Willard, W. Warren, J. Wright, A. H. Pearson, G. Wythes, J. Hudson, F. Q. Lane, H. Balderson, G. Bunyard, Arthur Sutton, R. Hogg, A. Watkins, T. F. Rivers, and Arnold Moss.

Mr. Charles Ross, Welfork Park Gardens, Newbury, sent a new seedling Apple named Armorel, which is a small fruit of a yellow-brown colour, somewhat broader than deep. The flesh is said to be rather hard. From W. Roupell, Esq., Harvey Lodge, Roupell Park, S.E., came some well-kept fruits of Annie Elizabeth, Melon, Bismarck, and striped Beefin, all of which were quite plump. A box of fine fruits of La Grosse Sucrée Strawberry was sent by Mr. J. Simms, gr. to W. Eastwood, Esq., Kingswood, Englefield Green. They were very fine fruits. Specimens of Lockie's Perfection and Sutton's Telegraph Cucumbers were sent by Mr. Lockie, Oakley Court, Windsor; and Mr. J. Smith, Mentmore Gardens, Tring, also had a brace of Cucumbers. Bulbs of James' Prize Keeping Onion, a moderate sized long-shaped bulb, with a pale brown skin, was sent by Messrs. Rutley & Silverlock, Savoy Street, Strand, W.C.; and from Mr. W. C. Leach, Albury Park Gardens, Guildford, were heads of Veitch's Standard Bearer Celery, which was said to be very hardy, it evidently blanches well, and is very sweet.

The awards made will appear in our next issue.

ROYAL BOTANIC.

March 26.—The first spring show was held in the gardens at Regent's Park, on Wednesday last, when the weather proved very favourable. Exhibits were chiefly from nurserymen.

Messrs. H. Williams & Son, Fortis Green, Finchley, were successful exhibitors, and won prizes for Narcissi, Tulips, Hyacinths, Lily of the Valley, and Primulas, and showed a good lot of plants in all these classes.

In the Amateurs' classes, Mr. J. Douglas, Great Gearies, Ilford, stood well, leading for Hyacinths, Tulips, and Crocuses, the last named being very good. The same exhibitor also won first for six Deutzias, showing well-flowered and large specimens.

Mr. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, was first for a nice lot of six Azaleas, in the amateurs' class, while Mr. R. Wills, Longton Nursery, Sydenham, had the best six in the nurserymen's section, both of these classes showing a little improvement on last year's style.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, had a pretty lot of Amaryllis, and won first in the class for twelve, with strong plants, Alton Locke, carmine, with a white nerve, being one of the best. The same firm was also placed first for a collection of Roses, showing a nicely grown and well-flowered lot in which Alba Rosa, Souvenir de S. A. Prince, and Caroline d'Arden were seen. Again for a collection of hardy herbaceous plants, as well as for bulbous plants, Messrs. Paul & Son were placed first, having a good representative collection, including Saxifrages, Primulas, Iris reticulata, Erythronim, deus canis major, Tulipa Kaufmanniana, white segments, with orange yellow base, bearing a distinct red spot at the top of the yellow colouring. Mr. Phillips, of Langley Broom, Slough, had some fine Cyclamens, and was placed first for them in two classes.

Among the miscellaneous collections was a group of Hyacinths, Narcissi, Viburnum opulus, Amaryllis and Cliveas, including Meteor, a variety with short set flowers, and a compact head from Messrs. B. S. Williams & Son, Upper Holloway, N. (Large Silver Medal.) Messrs. H. Williams & Son sent a lot of about a hundred nicely grown Hyacinths and other plants, for which a Silver Medal was awarded. Messrs. Barr & Son, Covent Garden, and Mr. T. S. Ware each sent a bank of Narcissi of the usual character, for which Large Bronze Medals were given. Small Silver Medals were given for a collection of Cyclamen, which had the Duke of Fife, from the St. George's Nursery Co., Hanwell, to Mr. J. James for Cinerarias, in which was Gem, blue, with a white inner zone; to Messrs. W. Paul & Son, Waltham Cross, for a collection of Camellia blooms in well-known varieties; to Messrs. J. Laing & Son, for a group of miscellaneous plants, in which were Orchids, Azaleas, and Cliveas, including the variety Stansted Beauty, pale salmon-red; and to Messrs. Paul & Son, for a nice lot of pot Roses. And Bronze Medals went to Messrs. H. Cannell & Sons, Swanley, Kent, for zonal Pelargoniums and double Cinerarias; and to Messrs. W. Cutbush & Son, for a collection of Epacris, Azaleas, Acacia grandis, &c. Mr. Odell, Gould's Green, Hillingdon, also sent a nice lot of Cyclamen.

The Certificates given will appear next week.

NOTICES OF BOOKS.

The Cultivated Oranges and Lemons of India and Ceylon . . . with researches into their origin and the derivation of their names . . . with an atlas of illustrations. By E. Bonavia, M.D. (W. H. Allen & Co., Waterloo Place.)

We are told in the preface to this book that its subject matter is not confined to Oranges and Lemons, but comprises all varieties of Citrus. It was originally begun with the object of showing how many varieties might be advantageously cultivated in India, for the sake of their fruit, or for preserving purposes, or the manufacture of citric acid.

In the course of his researches into the cultivated fruits, the author found his materials increasing, not only in bulk but in variety, and in consequence his book has a wider scope than was originally intended. The author has had the opportunity of seeing and handling a larger number of forms than any of his predecessors, and he has been at the pains of giving outline illustrations of their foliage and fruit, rarely of their flowers or seeds. These drawings are, as he says, rough, but they are all to scale; every botanist will admit that they are more serviceable for his purposes than the elaborately-finished or artistically-drawn flowers, which are supposed to represent what the artist sees, and nothing else. As the artist generally sees but little, and that little very imperfectly (of course we are speaking from a botanical point of view only), his effective and pretty sketches are generally useless. This cannot be said of Dr. Bonavia's sketches, they are merely the rough memoranda of a botanist; but they represent the peculiarities and variations of all the forms known in India, and as such they have permanent value.

Dr. Bonavia suggests that Orange growers in India and Ceylon, with their command of cheap labour, might advantageously compete in the London markets with the growers in Florida and their dear labour. He estimates labour in India as tenfold less costly than in Florida, where, moreover, frosts occasionally occur. He shows that one of the best Pummelos is to be found in Bombay; that Tanjore possesses the best Portugal Orange in India; that the sweetest Orange to be had in the world grows semi-wild on the borders of Nepal; that in the Punjab and North West India, blood oranges are grown; that Almora possesses a Citron from which candied peel can be made better than that from Leghorn; that the Malta, Portugal, or Sicilian Lemon can be grown all over India and Ceylon, and that they are efficient remedies for intermittent fever and enlarged spleen. Dr. Bonavia proceeds to give in successive chapters an account of the several "groups" of Oranges, Citrons, Limes, and Lemons, embodying the results of much research, literary, philological, historical, and botanical. To show how variable are the plants of this genus, the author tells us that it is sometimes difficult to decide which is an Orange, which a Pummelo, and which a Lemon or Citron! This would seem to indicate long cultivation and extensive interbreeding, and yet there is evidence to show that in some cases, at least, cross-fertilisation is uncommon: the Seville Orange will not cross with the sweet, nor the Limes and Lemons with the Orange. The Seville or bitter Orange has been grown for ages from seed, and though perhaps originally from the same stock as the Malta type, is now so distinct that it refuses to cross with it. Ten chapters are devoted to the description of the several "groups," but there is a want of a general summary of the author's conclusions, and the reader has to work through a series of historical and linguistic details—of great interest, doubtless, but which are embarrassing to the student in search of the characteristics by which the groups may be distinguished one from the other.

Under the head of cultivation, the importance of a sandy soil mixed with humus, and capable of retaining a good deal of moisture, is insisted on. In the Khasia hills the Orange is grown from seed only; the seedlings are grown in the nursery for three or four years, with little care beyond the removal of weeds. When the seedlings have attained a height of 3 to 4 feet, they are planted out in their permanent quarters, about 300 trees going to the acre; jungle growth is removed every year, but neither hoeing harrowing, nor irrigation is required. The trees begin to bear about the sixth year, or the third from transplantation, the general average being about the eighth year. At first five to ten fruit per tree are produced, increasing for the next five years, when about 800 fruits per tree are produced, and this general average is thenceforth maintained, though not unfrequently very much larger crops are yielded. The garden remains productive for from thirty to fifty years, according to the richness of the soil. It must be remembered that the Khasia hill climate is one of the wettest in the world, and that the cultural conditions have to be greatly modified elsewhere. In the Azores the *laissez faire* system has resulted in disease in the Orange groves, and very serious loss. In Nagpur the Orange is propagated by budding, the sweet Lime being the stock used; it is evident that by this means good varieties can be propagated with much greater certainty than by seed. Mr. Ridley's remarks on the cultivation of the Orange, at p. 109, are too long for transcription, but they should be read by all intending cultivators; and they go to show that careful cultivation pays, whereas carelessness and neglect entail eventual ruin.

The chapter on the commercial products, and that on trade statistics, are full of information, deserving attentive consideration on the part of those concerned in the development of the agricultural resources of India and the Colonies.

The chapter on the morphology of the fruit, reveals that Dr. Bonavia's views are not at all in accordance with those of most botanists. For Dr. Bonavia the ripe pistil or fruit consists of two whorls, "the outer or rind whorl and the inner or pulp whorl." So that the rind is considered as an outer series of barren carpels enclosing the pulp or fertile carpels. It was the opinion of the elder De Candolle, *Organographie Végétale*, ii., p. 41 (1827), that the peel or rind was an enlargement of the disc shown in our figure of the Kumquat flower (fig. 58), and which grows over and encloses the carpels. It is true that in some monstrous fruits a double row of carpels is found one above the other, just as in a Pomegranate (see fig. 59), but this circumstance does not help Dr. Bonavia much, for the inner carpels in these cases are covered with rind as usual.

Dr. Bonavia further considers the pulp cells to be the homologues or equivalents of the oil cells of the rind. If the latter are to be considered as referable to hair-like productions or trichomes, Dr. Bonavia's contention would be admissible, for the pulp-cells are, as was many years since shown by Caruel, to be modified hairs lining the inner surface of the carpels. The author indulges in further speculations: he considers the leaf of the Citrus to be "a modified branch; the serrations on its edges, abortive leaflets; the oil-cells in their angles, abortive buds in abortive axillæ; and in the normal bud, the spine, the oil-cell of the leaf and the rind, and the juice vesicles of the pulp, the pollen grains and the seed-bud would all have to be considered as homologous." We are afraid Dr. Bonavia here makes a larger draft upon the morphologist, than they will care to honour, but he candidly confesses it to be speculation, and the chapter may have its uses by stimulating further observations.

The fifteenth chapter is devoted to a discussion on the origin of the several varieties as illustrated by philology. This again is very interesting, but highly conjectural, and does not come within our scope.

A series of appendices, occupying more than 100 pages, or nearly one-half as long as the volume itself contains a great variety of interesting matter extracted from various sources, and relating to a great diversity of subjects germane to the author's main theses. Among other things, a translation of Rumphius' remarks on the forms of Citrus in the Herbarium Amboinense is given; in fact, this portion of the volume is an encyclopædia of knowledge relating to the genus Citrus. It is unfortunate that the index is not so contrived as to render access to these varied contents easy; for instance, much is said in the body of the work about Oranges and Orange-culture in Florida, but the word Florida does not occur at all in the index under F, nor under the heading cultivation, though other countries are mentioned. Under D, it is true, we find Disadvantages of sojourn in Florida. Should a new edition be called for, a good classified table of contents, and a complete index suitably constructed, would be great boons. As it is, the value of an excellent and suggestive book is marred by the provoking character of the index.

Whatever we may think of Dr. Bonavia's speculations, and of his want of symmetry and method in the arrangement of his material, there is no question that he has got together a very large amount of valuable and interesting information, and that his work will stimulate practical men to undertake and

extend the culture of Oranges and similar fruit in suitable places, and will give rise to much difference of opinion among botanists, from which much increase in knowledge, and the gradual evolution of the truth, may be anticipated.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending March 22.	Accumulated Temperature. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1890.	Below 42° difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1 +	13	28	+ 28	— 51	5 +	62	14.6	21	17
2	1 +	13	25	+ 16	— 87	4 +	49	7.7	17	22
3	1 +	14	21	+ 3	— 77	4 +	43	4.5	21	21
4	1 +	30	17	— 13	— 17	11 +	48	5.3	31	28
5	1 +	33	20	- 2	— 16	0 av.	42	4.8	27	24
6	0 av.	30	14	+ 6	— 34	2 +	42	5.3	30	25
7	1 +	17	25	+ 14	— 52	1 —	54	12.8	30	20
8	1 +	26	13	+ 14	— 51	1 +	50	7.3	27	22
9	1 —	29	15	— 9 +	32	1	48	8.3	36	28
10	2 —	18	32	— 10 —	18	2	56	8.0	41	23
11	3 —	22	33	— 10 +	15	2 +	53	11.5	41	27
12	1 +	29	0	+ 56 —	13	4 —	50	7.6	43	35

The districts indicated by number in the first column are the following :—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 22nd, is furnished from the Meteorological Office :—

"The *weather* was dull and changeable, with rain almost daily, in most parts of Great Britain, but in Ireland and the Channel Islands rain was less frequent, and several bright intervals were experienced.

"The *temperature* has continued slightly above the mean in nearly all parts of England and Scotland; in Ireland and the south-west of England, however, it has varied from 1° to 3° below the normal value. The highest of the maxima were registered in most cases on the 18th, and ranged from 54° in 'England, S.W.,' and 'Ireland, N.,' to 60° in 'Scotland, E.,' and 62° in 'England, E.,' and 'Ireland, S.' The lowest of the minima, which were recorded on irregular dates over Ireland and Scotland, and on the 18th at most of the English stations ranged from 24° in 'Ireland, N.,' and 25° in 'England, S.W.,' and the 'Midland Counties,' to 32° in 'England, N.W.,' and 36° in the 'Channel Islands.'

"The *rainfall* has been more than the mean in the north and east of Scotland, in the south of Ireland, and over the major part of England, but less in the Channel Islands, 'Ireland, N.,' 'England, S.W.,' and Scotand, W.' In 'England, E.,' the excess has been very large, owing to heavy falls which occurred on Wednesday.

"*Bright sunshine* has been more prevalent in Ireland than it was last week; elsewhere the values do not differ materially from those which were then recorded. The percentage of the possible duration ranged from 17 in 'Scotland, E.,' to 31 in 'England, E.,' 36 in 'England, S.W.,' 41 in Ireland, and 43 in the 'Channel Islands.'"

LAW NOTES.

MESSRS. CARTER & Co. traverse some of Mr. Van Geert's statements, and send the original invoice to show that the route was not indicated. We can insert no more on this subject.

Obituary.

ROBERT WALKER, of Richmond, near Peterhead, Aberdeenshire, was buried on the 21st inst. The deceased was a gentleman of rare qualities in many ways, but he was particularly known as a botanist. The assistance which he rendered to the late Professor Dickie, Botany Chair, Aberdeen University, in some of his lectures, was highly appreciated and gratefully acknowledged by that famous botanist. He was also passionately fond of gardening, and his chief outdoor occupation, when not on tour through the country, was attending to his garden.

W. CAULDWELL.—We regret to announce the decease of W. Cauldwell, of "The Ivies," Wantage, on the 22nd inst., at the age of sixty-eight years. He was well-known for his splendid strain of coloured Primroses, Polyanthus, &c. At one time the deceased was an occupant of a large farm, but having a love for flowers, he gave up the pursuit of farming, and purchased the land known as the Grove Nursery, to carry out his hobby. Of late years he had cultivated all the best kinds of annuals extensively for seeding purposes, and was very successful.

MARKETS.

COVENT GARDEN, March 27.

MARKET very quiet, with good supply of indoor fruit and vegetables. Grapes, although a short supply, are sufficient for the demand. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0
Arum Lilies, per doz.	9 0	18 0
Aspidistria, doz.	18 0	42 0
— speci. plants, each	7 6	10 6
Azaleas, various, each	2 0	3 0
Cineraria, per doz.	6 0	10 0
Cyclamen, dozen	9 0	24 0
Cyperus, per dozen	4 0	12 0
Daffodils, doz. pots	8 0	12 0
Dielytra, per doz.	9 0	12 0
Dracæna terminalis, per dozen	30 0	60 0
— viridis, per doz.	12 0	24 0
Erica Cavendishii, per dozen	18 0	48 0
— ventricosa, doz.	15 0	24 0
Ericas, various, doz.	8 0	24 0
Euonymus, in var., per dozen	6 0	18 0

**** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0
Acacia (French) bun.	0 9	1 6
Azaleas, doz. sprays	0 6	1 0
Bouvardias, per bun.	0 8	1 0
Callarethiopica, 12 bl.	3 0	5 0
Camellias, white, doz.	2 0	4 0
— various, per doz.	1 0	2 0
Carnations, 12 blms.	1 0	2 0
Crocuses, 12 bun.	1 0	2 0
Cyclamens., 12 blms.	0 4	0 6
Daffodils, 12 bunches	0 3	0 9
Eucharis, per dozen	3 0	5 0
Gardenias, 12 blooms	6 0	12 0
Heliotropes, 12 spr.	0 6	1 0
Lilac, white, Fr., bun.	4 0	6 0
Lilium, var., 12 bl.	2 0	6 0
Lily of the Valley, doz. sprays	0 6	1 0
Maiden Hair Fern, 12 bun.	4 0	9 0
Mignonette, 12 bun.	2 0	4 0
— French, per bun.	1 6	2 0
Marguerites, 12 bun.	3 0	6 0
Narcissus, various, doz. bun.	1 6	6 0
Pelargoniums, scarlet, 12 spr.	0 6	0 9
— dozen sprays	1 0	1 6
Primroses, 12 bun.	0 6	1 0
Primulas, double, 12 sprays	1 0	1 6
Roman Hyacinths, Eng., doz. sprays	0 6	1 0
Roses, Tea, per doz.	1 0	3 0
— coloured, dozen	2 0	4 0
— French, dozen	1 0	2 0
— red, per dozen	3 0	5 0
— Safrano, dozen	1 6	2 6
Spirea, doz. sprays	0 6	1 0
Stephanotis, 12 spr.	9 0	12 0
Tuberoses, 12 blms.	1 6	2 0
Tulips, doz. blooms	0 6	1 0
Violets, 12 bun	1 0	2 0
— French, bunch	1 0	2 0
— Parma, bunch	3 0	4 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Apples, ½-sieve	1 6	7 0
— Nova Scotia, brl.	12 0	25 0
Cobs, per 100 lb.	140 0	—
Grapes, per lb.	2 0	5 0
Lemons, per case	12 0	20 0
Pine-apples, Eng., lb.	1 0	1 6
— St. Michael, each	2 0	6 0
Strawberries, lb.	4 0	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.
Asparagus, English, per 100	12 0	—
Beans, French, lb.	2 0	—
Beet, red, per dozen	1 0	2 0
Carrots, per bunch	0 6	—
Cauliflowers, each	0 3	—
Celery, per bundle	1 6	2 0
Cucumbers, each	1 0	1 6
Endive, per dozen	2 0	—
Herbs, per bunch	0 4	—
Leeks, per bunch	0 3	—
Lettuces, per dozen	1 6	—
Mushrooms, punnet	1 6	—
Mustard and Cress, punnet	0 4	—
Onions, per bunch	0 5	—
Parsley, per bunch	0 6	—
Rhubarb, per bundle	0 6	—
Seakale, punnet	2 0	—
Shallots, per lb.	0 6	—
Spinach, per bushel	6 0	—
Sprue, per bundle	1 6	—
Brussel Sprouts, pr lb.	0 3	—
Tomatos, per lb.	1 0	—
Turnips, per bunch, new	0 4	—

POTATOS :—Prices for old Potatos are low, all round, and a very bad finish for them generally may be anticipated. New, mostly Canary Island Potatos, are arriving in larger quantities; quotation 2*s.* to 4*s.* per cwt. easier. *J. B. Thomas.*

SEEDS.

LONDON : *March* 26.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market quiet, with a small attendance. Red Clover seed continues cheap and abundant. In Alsike the advance now established is quite £10 per ton. There is no change in either white or Trefoil. For heavy perennial Rye-grasses more money is asked; French-Italian is now remarkably cheap; Timothy and Cocksfoot are dearer. For Tares there is an improved sale, available supplies are getting into narrow compass. Blue Peas steady; Rapeseed, being very scarce, is dearer; Scarlet Runner Beans offer less freely. Sanfoin finds buyers at last week's terms, this variety now more and more takes the place of natural grasses.

ENQUIRIES.

"*He that questioneth much shall learn much.*"—BACON.

PARIS MARKET GARDENERS AND NURSERYMEN.—Will some of your readers who know France well kindly tell me the principal market gardens and nurseries in the neighbourhood of Paris, and which are most worthy of a visit from a gardener's point of view? *Henry Perkins, Greenlands, Henley-on-Thames.*

NOTICES TO CORRESPONDENTS.

*** **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

APPLE TREES: *A. P.* Decapitation was not meant, but severe pruning only. The former would be preferably performed just at the fall of the leaf.

BOOKS: *J. A. O.* The books you require may be had of M. Nutt, foreign bookseller, Strand, London, W.C.; and Williams & Norgate, Henrietta Street, Covent Garden, W.C.—*H. C.* Boissier's *Flora Orientalis* is to be obtained of H. Georg, bookseller, Bale, price 140 francs, 6 vols., or Williams & Norgate as above. Tristram's *Western Palestine* only contains a list of plants, without descriptions.

CARNATIONS SALMON-COLOURED: *C. T. A.* Mrs. Dodwell, rosy-salmon; Mrs. Logan, salmon-scarlet; Little Nell, rosy-salmon, fine form. We name these, still the one you saw in the North may be a different flower.

CROTONS PROPAGATED BY MEANS OF THEIR LEAVES: *Rex.* It may be accomplished if a thin shield of wood be taken off with the leaf attached, but we know of no grower who adopts this method exclusively. They would require a top heat of 80°, bottom heat, 85° to 90°, and to be kept close under a bell-glass, or in a case, each leaf being fast to two sticks. The upper part of the shield should be above the sand of the propagating pan.

ERRATUM: HELICONIA ACREO-STRIATA.—This plant was erroneously mentioned as coming from the Amazon district. It is not clear whether it is a native of New Guinea, or one of the South Sea islands. It is thriving at Kew.

GREENHOUSES: *W. M.* In the absence of agreement, you are liable to remove at three months' notice. The houses belong, in law, to the landlord, if resting on brick foundations in the soil.

HEAD WORKING GARDENER: *W.* We are sorry not

to be able to help our correspondent; but we will keep the application before us in case of inquiry.

Richter's Imperator Potato: *A. P.* It is a German variety. Stem vigorous, erect, stiff, tall. Leaves rather far apart with roundish plaited leaflets. Flowers lilac. A late mid-season variety not unlike Paterson's Victoria, but with larger and not so symmetrically formed tubers.

Names of Fruits: *F. Hughes.* Wadhurst Pippin.—*H. Corder.* Hanwell Souring.

Names of Plants: *W. C. Fordwich.* 1, Crown Imperial, Fritillaria imperialis; 2, Erythronium dens canis, Dog's-tooth Violet; 3, a Lily of some sort; 4, Hemerocallis, Day Lily; 5, Daphne mezereum; 6, not recognised.—*J. H.* 1, Saxifraga Wallacei; 2, Myrsiphyllum asparagoides; 3, Acer rubrum; all wretched scraps.—*J. V.* Acacia lobata.—*Miss F.* Triteleia uniflora.—*A. B. R.* Teucrium scorodonia.—*H. May.* Vanda suavis; Veitch's variety.—*A. McRae.* Dendrobium nobile; very nice flowers. Thanks for sending them. We find no Odontoglossum, but two blooms of Cœlogyne cristata.—*H. Dunkley.* Cœlogyne cristata; probably the Trentham variety.—*J. C.* Cypripedium barbatum majus—*H. & B.* Veronica Buxbaumii.—*H. C.* 1, Nigella arvensis; 2, Erucaria aleppica; 3, Fagonia arabica; 4, Ononis antiquorum; 5, Acacia albida; 6, Populus euphratica.

Orchids: *R. M.*—The growth on your Dendrobium nobile, of which you complain is, doubtless, caused by improper conditions, especially with regard to ventilation. The Orchids mentioned in your list are not accepted as garden favourites.

Tin Boxes for Parcel Post: *W. McA.* Horticultural sundriesmen in a large way of business will supply you with them. Consult the list published in the *Garden Annual* or *The Horticultural Directory.*

Tulips Producing Leaves only: *C. T. A.* The question was answered in our last issue, in Notices to Correspondents, and unfortunately in the present state of our knowledge of the subject there is nothing more to add to what is there stated.

Vine Border: *Warwickshire.* The soil sent presents the appearance of being quite worn-out, and is utterly unable to support a strong growing plant like the Vine. Inside borders require frequent additions and partial renewals, employing for this purpose the best turfy loam, mortar rubbish, crushed bones, charcoal, and mulching of rich manure annually. In this case, you should clear out the old soil, and make a new border 4 feet wide and 2 feet deep. See that the drainage is good before commencing to make up the border of the above-mentioned materials. Plant growing canes in May, and make additions to the width of the border whenever the roots reach the outside of it. The outside turves should be laid regularly in courses like brickwork.

Water from Artesian Well: *Artesian Well.* Whether you will need a tank and from thence send the water, by means of a pipe, on to the tennis lawn, or send it direct, without the intervention of a receiving tank, is of no consequence; the point for you to ascertain is the force of the water sufficient to raise it to a height of 20 feet, —the height of the lawn above the point of issue. If it has that necessary force the difficulty vanishes. Water at 50° will do no harm to the turf in summer time.

Yew Tree: *J. H.* The leaves are certainly injured by the poison, not from the transplanting. We fear nothing can be done, but to wait with a fair prospect of recovery.

Communications Received.—E. P., Ghent.—Our Berlin Correspondent.—Professor Hansen, Copenhagen.—F. W. B. —J. A.—J. B.—Our Swiss Correspondent.—C. C. B. (enquiry has been made).—F. F.—P. E. N.—J. K. H.—W. H. D. (many thanks).—A. D. W. (thanks) —J. M.—F. L. Mawdesley.—W. G. S.—W. E. D.—J. Wallis.—R. A. R.—W. B. H.—J. B.—J. R. J.—A. E. (next week).—A. D.—F. A.—P. W.—W. H. S.—W. H. Y.—H. H. D'O.—W. C.—F. S. & Co.—F. Schulze & Co.—S. Goodur (we cannot undertake to notice every exhibit).—W. D. (next week).—J. B., Ardarroch.

DIED, on March 22, at The Ivies, Wantage, William Caudwell, in his sixty-eighth year. Friends will kindly accept this, the only intimation

NOTICE TO ADVERTISERS.

Friday next, *April* 4, *being* Good Friday, *the* "Gardeners' Chronicle" *will be published on* Thursday, *April* 3.

Advertisements *for* next week *must therefore reach the Office not* later *than* Wednesday Morning, *April* 2.

THE
"PERFECT"
WEED KILLER
(*Trial sample post-free.*)

TRADE MARK
SWITA-SURE

WITHOUT WHICH NONE IS GENUINE.

Maintains its Superiority over all Rivals
for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, &c.
Used at Kew Gardens, Royal Horticultural Gardens, &c., &c.

COMPLETE SATISFACTION GUARANTEED
to all using Weed Killer bearing our Trade Mark, without which none is genuine. *Refuse Imitations.*

Price—Gallon, 2s.; 5 gal., 1 4 per gal.; 10 gal. 1 3 per gal.; 40 gal. 1 1 per gal. Special quotations for quantities. *Carriage paid on 5-gals. and upwards.*



DISTRIBUTOR for
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Holds 40 gallons. Wrought iron frame-work neatly painted. Galvanized tubes with tap to regulate flow. Gives spray 56 ins. wide. Price £4 net on rail Glasgow.

Sole Manufacturers: The
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Works: 97, Milton Street, Glasgow.
Principal Agents: Blackley, Young and Co., 103, Holm Street, Glasgow.

NOTICE.—*We originally had our Works at Tonbridge, Kent, but removed them to* GLASGOW *in January, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.

SOLD by SEEDSMEN and FLORISTS.

"ROSIKA"
Trade Mark Registered.
Effective, Harmless.
Promptly clears Roses and all plants from green fly, caterpillars, spiders, and other insect pests. It recommends itself to all who have tried it for its efficiency, pleasant odour, the facility with which it is applied, and its cleanliness in application; so that anyone, however particular, can use it, and it is always ready for use. Price 1s. Sold at all Chemists and Seedsmen, or direct from the manufacturers,
F. SCHUTZE & CO., 35a, Aldersgate Street, London, E.C.
Apparatus for use of Rosika, 3 sizes, 1s. 6d., 3s., and 4s 6d.

COLE'S BLOOD AND BONE MANURES.
Manufactured from Animal Substances.
Rich in Ammonia. Readily absorbed by the Plant. Suitable for all Crops Farm or Garden.
Detailed Price List and Testimonials on application.
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BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

CARSON'S PAINT
Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of
OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.
1 Cwt., and Oil Mixture, Free to all Stations.
Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.
LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C.
BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

ORCHID PEAT, best quality; BROWN FIBROUS PEAT for Stove and Greenhouse use. RHODODENDRON and AZALEA PEAT. Samples and Prices to WALKER and CO., Farnborough, Hants.

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LAWN-TENNIS LAWNS, and CRICKET GROUNDS.
As Supplied by us for KENNINGTON OVAL and Other Important Grounds.
BEALE'S
CONCENTRATED FARMYARD MANURE.
Thoroughly Sweetened and Deodorised, Ammonia Fixed, and Excess Moisture Evaporated. Analyses equal to eight times the bulk of ordinary manure. It can be easily and quickly applied, and will soon work in amongst the turf roots, which it will nourish and keep warm. It is clean, portable, and ready for use, and it may be mixed with a bulk of fresh soil to Cover Newly Sown Grass Seeds. Two sacks of "CONCENTRATED" are equal to a ton of Farm-yard Dung.
The "CONCENTRATED" was included in our exhibit at the N.C.S. Grand Show, at the Royal Aquarium, Nov. 12 and 13, and for which we were awarded the Society's Bronze Medal.
Particulars on application to the Sole Manufacturers,
R. BEALE & CO., The North London Horticultural Stores, New Southgate, London, N.

To Nurserymen and Gardeners.
PEAT for SALE.—Good Brown Fibrous Peat, Black Fibrous ditto, Light Sandy ditto for Orchids, Azaleas, Rhododendrons, Heaths, &c., or for general purposes. Also good yellow gravel for drives, concrete, gravel, screenings, yellow sand, &c.—For particulars apply to Mr. J. ASTRIDGE, Brackendale Lodge, Camberley, Surrey.

GENUINE BONES, Guaranteed Analysis.—A 1 Meal, 12s.; A 2 Meal, 10s. 6d.; Nutted Bones, 9s. 6d. per cwt. Carriage paid; P. O. with order. Samples and prices per ton on application to
F. REGAN, Bone Merchant, Appley Bridge, Wigan.

LEMON OIL INSECTICIDE Kills all Insects; cheap, harmless, easily used. Sales rising by leaps and bounds, owing to its merit. Pints, 1s. 6d.; quarts, 2s. 9d.; half gallons, 5s.; gallons, 9s.

EUCHARIS MITE KILLER. During the year it has been before the public it has saved thousands of Bulbs, *vide* Testimonials. Doubters, Try it! Half-pints, 1s. 6d.; pints, 2s. 6d.; quarts, 4s. 6d.; half gallons, 7s. 6d.; gallons, 12s. 6d.

CLIBRAN'S SHADING for GREENHOUSES, SKYLIGHTS, &c. Is a wonderful novelty. In wet weather the shading is almost transparent; as the glass dries it reappears. All Plant Growers will see the great advantage. In packets, 1s., 1s. 9d., and 2s. 9d., post-free.
N.B.—Above three preparations from Seed and Nurserymen; or, CLIBRAN, Oldfield Nursery, Altrincham and Manchester.

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Two Prize Medals.
Quality, THE BEST in the Market. (All sacks included.)
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GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.;
BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d.
BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s.
COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth or Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.
Terms strictly Cash with order.
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J. STEVENS and CO., 153, High Street, Battersea, S.W.

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For GREENHOUSE or GARDEN.

Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
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And in 6d. and 1s. packets.
To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST and SON, 152, Houndsditch, London

TO NURSERYMEN, FLORISTS, and others.—Quantity of good PEAT to be sold in Darenth Wood, near Greenhithe, Kent, in lots of not less than a quarter of an acre.—Apply, Mr. HODSOLL, Auctioneer, Farningham, Kent.

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Universally acknowledged the best fuel for Horticultural purposes. For lowest quotations apply—
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FOR SALE, a 4-feet Whitley Court BOILER, in good condition, capable of heating 2000 feet of 4-inch piping, with Fittings, Valves, &c.
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AN Unrivalled INSECTICIDE for the use of Plant Cultivators, being an effectual ERADICATOR of SCALE, THRIPS, GREEN FLY, MEALY BUG, and ALL PARASITES affecting PLANTS, **WITHOUT INJURY TO FOLIAGE.** It has now undergone a thorough test by some of the most practical men in Horticulture, and it is proved, beyond all doubt, that no Insecticide will bear comparison with it for its deadly effect on Insects, combined with perfect safety to the Plants themselves.

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Dog and Bird Fanciers should all use it.

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For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

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One application will keep the Walks and Drives clear of Weeds for at least Eighteen Months.

Highly commended by the Judges at the Alexandra Palace Rose Show, 1889, after 15 Months' Trial. Awarded a Certificate of Merit by the Scottish Horticultural Association, 1889.

Mr. W. G. HEAD, Crystal Palace, says:—"We were so satisfied with your composition and its price, that we have used it absolutely, and have every confidence in recommending it."

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Mr. G. WYTHES, *Syon House, writes*:—

"Bentley's Insecticide is a great saving in comparison to others. We use it largely, and it never fails to thoroughly eradicate all insect pests." Bots., 2s. 4d., 4s. 1d., postage paid, Half-Gallons, 5s.; One Gallon, 9s.

To be had of the Trade, or the Sole Manufacturer, **JOSEPH BENTLEY,** Chemical Works, Barrow-on-Humber, **HULL.**

Great Reduction in Price of

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Nothing can surpass this method for the total destruction of Insect Pests in Greenhouses. It CANNOT fail where the houses are secure. No possible injury to the most delicate plant.

PRICES—For Frames, &c., of 50 cubic feet, 6d.; 100 feet, 9d. Houses, &c., 500 feet, 1s.; 1000 feet, 1s. 6d.; 4000 feet, 5s. each.

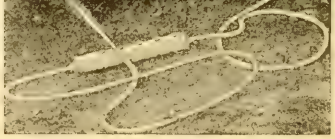
Owing to the enormous demand, intending users should give their Seedsmen Early Orders to secure a supply.

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CERTAIN DEATH TO INSECT PESTS.

Cheap, Simple, and Effectual.

Prices, Press Opinions, Testimonials on application to

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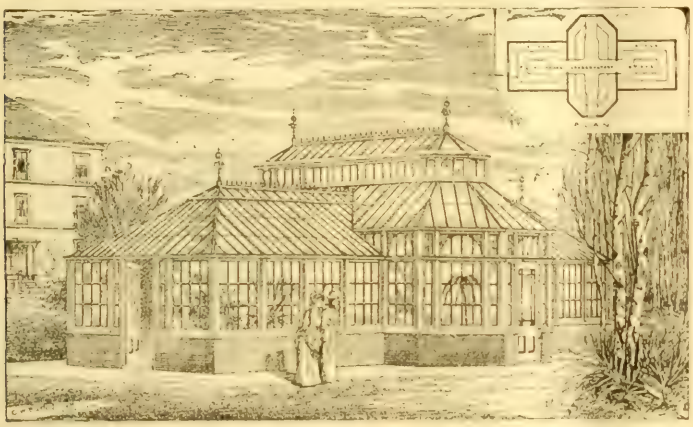
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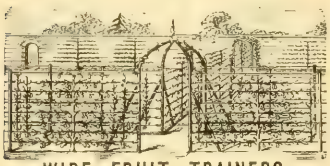
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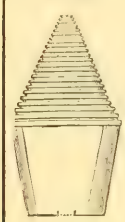


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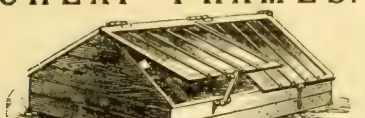


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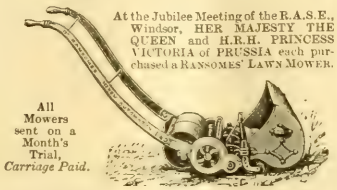
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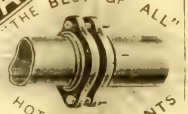
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WANTED, a young MAN, for the Flower Garden, age not under 24 years; also a young man for Kitchen Garden; wages, 18s. per week.—J. MARTIN, Barcote, Faringdon.

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WANTED, an active young MAN, used to Growing Soft-wooded Plants, Tomatos, Chrysanthemums, &c., for Market. Permanent situation if suitable. Must have good character.—Apply, stating wages expected, to G. BENNETT, Florist, Hanwell, W.

WANTED, good Cucumber and Fern GROWER. Married man. E. F. SMITH, Market Gardener, Smallberry Green, Isleworth.

WANTED, a Young MAN, for Flower and Kitchen Garden. Must be well up in Kitchen Garden work, and willing to take his turn at the Fires.—J. C. COLLINS, Melton House Gardens, Waterloo Ville, Cosham, Hants.

WANTED, a MAN well up in Growing Cucumbers and Tomatos for Market. State wages, age, and reference.—FIELD AND ANSTED, Brunswick Gardens, Leamington.

WANTED, a respectable MAN, well up in Flowers; Inside and Out, and look after Pony and Trap. Wages, 24s. Good character indispensable.—J. BAYST, The Hollies, Gascoyne Road, South Hackney Common, N.E.

WANTED, a young MAN to make himself generally useful in a Small Nursery, and to Attend to a Pony. State wages required, &c.—C. F. WATERS, The Nursery, Balcombe, Sussex

WANTED, a young MAN, used to Potting and Tying.—Mr. ORPWOOD, Florist, Tangley Park, Hampton, Middlesex.

WANTED, in a Market Nursery, a strong YOUTH, with some knowledge of Potting and Watering Plants.—Apply, stating wages required, to H. HUNT, Florist, Sutton-on-Trent, Notts.

WANTED, TWO young MEN, for General Work on a Small Nursery, wages, 18s. Also strong active LAD to Assist in Pleasure Grounds, in Country; abstainer preferred.—WILLIAM HOLMES, Frampton Park Nurseries, Hackney.

WANTED, a HEAD FORESTER, for an Estate in South Wales; age about 40. Reply by letter, stating terms, &c., experience and references, to AGENT, Stepney Estate, Llanelly.

WANTED, in a large Belgian Nursery, a respectable young Man (Nurseryman's son preferred), as IMPROVER.—E. L., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, an active LAD for the Garden, age 16 to 18. Apply, stating wages expected, with Bothy, milk, and vegetables.—SLEIGHTHOLM, Burntwood Gardens, Brierley Barnsley.

To Florists

WANTED, a thoroughly practical MAN, about 30 to 35 years of age, who has had experience in the London trade. Undeniable references as to ability, sobriety, honesty, &c., required. – Write full particulars, stating experience, salary expected, &c., to HORTUS, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a BOOK-KEEPER, to Assist in Correspondence.—WM. PAUL AND SON, Waltham Cross, Herts.

Head Shopman.

WANTED, IMMEDIATELY (owing to illness), in a leading Dublin House, a thoroughly qualified Man as HEAD SHOPMAN, must be a good SALESMAN, and of good address. A knowledge of the Nursery Trade also indispensable. Character must bear strictest investigation.—AGRICOLA, 93 Philsboro' Road, Dublin.

Florists.

WANTED, a LADY, for Flower Stalls, in Leeds Covered Market. Must be a good Saleswoman, and first-class Wreath and Bouquet Maker.—Address, stating wages and references, to SHAW BROS., Market, Leeds.

WANTED, an experienced LAUNDRESS, after Easter, married, husband as Garden Labourer; church people, furnished cottage, country, no children preferred.—Mrs. W., Coton Hall, Bridgnorth.

WANT PLACES.

Gardeners, Farm-Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, *(Limited)*, are always in a position to RECOMMEND MEN of the *highest* respectability, and *thoroughly practical* at their business. All particulars on application. Telegraphic and Postal Address—"DICKSONS, Chester."

Gardeners, Foresters, and Farm Bailiffs.

LITTLE AND BALLANTYNE, The Queen's Nurserymen and Seedsmen, Carlisle, invite correspondence with Landed Proprietors, Agents, and others requiring the services of GARDENERS, FORESTERS, and FARM BAILIFFS. Their extensive business relations throughout the Kingdom enable them to distinguish men of good character and ability, such as they would be glad to recommend.

B. S. WILLIAMS AND SON beg to intimate that they have at present in their Nursery and upon their Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Victoria and Paradise Nurseries, Upper Holloway, N.

JOHN R. BOX'S Register includes several practical and well-experienced HEAD GARDENERS, of good character, whom he can introduce to Employers.—East Surrey Seed Warehouse, Croydon.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

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GARDENER (HEAD).—Scotch; of undoubted character and ability, is open for re-engagement in a place where Houses, Gardens, and Grounds are kept in first-class order. Knowledge of Forestry. Leaving through no fault.—GARDENER, Blairhoyle, Stirling.

GARDENER (HEAD); age 32, married, no family.—Mr. J. S. Moss wishes to recommend his Head Gardener to any Lady or Gentleman, who for the last five years has had charge of Orchids, Plant and Fruit Houses, Flower and Kitchen Gardens, and Park. Excellent character. State wages, &c.—J. SMITH, Wintershill, Bishop's Waltham.

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GARDENER (HEAD); age 38, married.—Mr. D. WILLIAMS, Gardener to the Earl of Feversham, can with confidence recommend a thorough, practical, all-round Gardener, with several years' experience as Head. Thoroughly conversant with the requirements of a large establishment.—Address in first instance to F. G., Mr. D. Williams, Duncombe Park Gardens, Helmsley, Yorks.

GARDENER (HEAD WORKING). — Age 34, married; thoroughly experienced, with good character. —HEAD GARDENER, Cowesfield House, Salisbury.

GARDENER (HEAD WORKING). Age 33; a first-class all-round man. Life experience in good establishments.—A. G., 6, Vernon Street, West Kensington, W.

GARDENER (HEAD WORKING).—Married, one daughter (age 14); twenty-five years' experience. Good character. Leaving through Gentleman leaving neighbourhood.—JAMES TICKELL, Mells Rectory, Frome.

GARDENER (HEAD WORKING), where three or more are kept.—Age 31; sixteen years' practical experience in all branches, highest reference.—H. NIGHTINGALE, The Gardens, Wallingford Castle, Wallingford.

GARDENER (HEAD WORKING).—Age 31, married, no family; seventeen years' experience in Vines Stove, Greenhouse, Flower, and Kitchen Garden; good testimonials.—J. R., 23, Charlton Road, Harlesden, N.W.

GARDENER (HEAD WORKING). — Age 30, married, no family; fifteen years' practical experience in good places. Excellent testimonials.—F., 41, Wellington Street, Strand, W.C.

GARDENER (HEAD WORKING).—Age 33; eighteen years' practical experience in all branches. Well up in Forcing Vines, Peaches, Cucumbers, Melons, &c. First-class references from past and present employers. Abstainer.—F. LANE, Alma Road, Reigate, Surrey.

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GARDENER (HEAD WORKING); age 31, married. £5 will be paid to anyone procuring Advertiser a good situation. Thoroughly practical in all branches, with highest references.—F. G., Mrs. Hewett, Stewart Road, Malmesbury Park, Bournemouth.

GARDENER (HEAD WORKING). Age 33, married, no family; seventeen years' experience in all branches of the profession. Four years as Head. Highly recommended. Left through death.—H. MUSTOW, Yellington, Budleigh Salterton, Devon.

GARDENER (HEAD WORKING).— Age 30, married; thoroughly experienced in Stove and Greenhouse Plants, Grapes, Melons, Cucumbers, and Peaches; also Flower and Kitchen Garden. Good references.—A. H., Lower Gardens, Bulstrode Park, Gerrard's Cross, Bucks.

GARDENER (HEAD WORKING).—Age 40; offers his services to any Nobleman, Lady, or Gentleman requiring a thoroughly competent man in Orchids, Vines, Ferns, Stove Plants of all kinds, Early and Late Forcing; good Kitchen Gardener. Good references. Abstainer.—E. D., The Gardener, The Old House, Betchworth, Surrey.

GARDENER (HEAD WORKING); age 33, married.—R. CALLAGHAN, for the past six years Head Gardener to G. Burt, Esq., J.P., Purbeck House, Swanage, is open to treat with any Lady or Gentleman requiring the services of a thorough, practical, all-round Gardener; excellent testimonials from past and present employers. — Address as above.

GARDENER (HEAD WORKING).—Age 39, married, one child; understands Vines, Peaches, and general routine of Gardening. Good references.—H SWEET, Appley Towers Lodge, Ryde, I. W.

GARDENER (HEAD WORKING).—Age 34, married; eighteen years' experience in Early and Late Forcing in all branches of the profession. Three years' good character. Leaving through family going abroad. — B. STRANGE, Wote Street, Basingstoke.

GARDENER (HEAD WORKING); age 28.—C. J. WAITE, Glenhurst Gardens, Esher, wlil be pleased to very highly recommend his present Foreman, T. Lucas, who has been with him three years, also three years Foreman at Merewerth Castle, Maidstone, and several years at Longford Castle, Salisbury, to any Lady or Gentleman requiring a thorough practical and reliable man.

GARDENER (HEAD), or good SINGLE-HANDED.—Age 30; married, one child; experience in all branches, five and a half years' good character from present situation.—VIZOR, King's Wall, Malmesbury.

GARDENER (HEAD), or SINGLE-HANDED; single.—H. TURNER, Fineshade Abbey Gardens, Stamford, can highly recommend his Foreman as a trustworthy, energetic man. Nine years' good character.—Address above.

GARDENER, or GARDENER and BAILIFF.—The LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard and Nurseries, Garston, near Liverpool, wish to recommend a first-class man in the above capacity. Unexceptional references. Full particulars on application to the Company.

GARDENER, in a Market Nursery.—Age 24, single; quick at Potting, Tying, Watering. Well up in his trade.—A. HAINZ, 28, Cross Street, Clapham, S.W.

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GARDENER; age 36.—J. SMITH, Gardener to the Right Hon. the Earl of Rosebery, Mentmore, Leighton Buzzard, is in a position to recommend a thorough practical Gardener. Competent in every branch of Gardening. Has been Head Gardener to a Nobleman, and can produce first-class references.—Address as above.

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GARDENER (SINGLE-HANDED), or where two are kept.—Age 29, single; good character.—H. SNOOK, Kimpton, near Andover, Hants.

GARDENER (SINGLE-HANDED).—Age 26, single; understands Glass and Outdoor Work. Six years' excellent character.—W. E., 76, Queensborough Terrace, Bayswater, W.

GARDENER (SINGLE-HANDED). — Age 34, married, no family; thoroughly practical, total abstainer, good references, state wages.—J. F., Rockhills, Crystal Palace Road, Sydenham.

GARDENER (good SINGLE-HANDED), or where help is given.—Age 27, married when suited; thoroughly experienced in all its branches. Two and a half years' good character.—T. FEAVER, 3, South Terrace, St. John's, Sevenoaks, Kent.

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GARDENER (SINGLE-HANDED), or UNDER.— Age 23; has had nine years' good experience.—W., Mr. Walker, Leiston Common, Leiston.

GARDENER (SECOND, or good SINGLE-HANDED), where help is given.—Experienced Inside and Out. Five years' good character from present employer.—W. A., 2, Woodside Cottages, South Streatham, S.W.

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GARDENER (Second), in a good Establishment where three or four are kept.—Age 28, married; four years' good character.—F. H., Myskyns, Ticehurst, Sussex.

GARDENER (Second), in Good Establishment.—Age 24; G. DUTFIELD, The Ivies, Winchmore Hill, will be pleased to recommend a young man as above, over nine years' experience, Inside and Out.

GARDENER (Second), or Under; Fruit Growing preferred.—Age 20; a Lady wishes to recommend a young man as above, seven years' good character.—Apply first to the HEAD GARDENER, Thornby Hall, Rugby.

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GARDENER (Under).—Age 21; five years' experience in Garden and Greenhouses. Good character.—W. BROWN, the Rev. E. H. Joyce, The Vicarage, Barrow.

GARDENER (Under), Inside preferred.—Age 19; five and a half years' good character.—F., Gardener, The Bush, Walton-on-Thames.

GARDENER (Under).—Age 20; strong and willing. Good character. Four years' experience, Inside and Out.—G. BALL, 99, Church Road, Upper Norwood.

GARDENER (Under), or Third in good place, Inside and Out. Age 21; seven years' experience. Excellent character. Leaving to improve. Bothy preferred.—THOMAS UMPLEBY, Bolsover, Chesterfield.

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FOREMAN, in Good Establishment.—Age 24; eight years' experience in good places. Well recommended from last and previous employers. Abstainer.—FRANK TALBOTT, The Nurseries, Forest Hill, S.E.

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FOREMAN, in the Houses.—Age 23; nine years' good experience. Mr. ROOKE, Bernhill, Rashley, near Lymington, can confidently recommend a young Man as above.

FOREMAN; age 27. Mr. STERRIN, Dropmore, Maidenhead, wishes to recommend a young Man as above. Three years in present situation; thoroughly trustworthy and experienced.

FOREMAN, Glass or General, in good Establishment; age 27. Mr. BOLTON, Straffan House, Straffan Station, co. Kildare, wishes to recommend his Foreman, William Rigg. Three years in present situation. Trustworthy and experienced.

FOREMAN, or Second, in a Gentleman's Garden. Age 22, single; good references.—WM. JONES, Norfolk Lodge, near Barnet, Herts.

To Nurserymen.

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To Nurserymen.

PROPAGATOR and GROWER of Soft-wooded Stuff. Used to Market Work.—For particulars apply to C. H. G., 3, Church Road, Wickham, Welling, Kent.

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JOURNEYMAN (First), in the Houses.—Age 23; seven years' experience, partly in the Midlands. Excellent recommendations.—H. SNELL, Upton St. Mary Church, Torquay.

To Gentlemen.

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To Nurserymen.

JOURNEYMAN, in the Houses, in good Nursery.—Age 20, seven years' experience.—BAKER, Messrs. Lucombe, Pince & Co., Nurserymen, Exeter.

JOURNEYMAN, in the Houses; age 20.—W. Sutton, The Gardens, Silverland, Chertsey, Surrey, can very highly recommend a young man, four years' excellent character.—Apply as above.

JOURNEYMAN.—Inside and Outside, in Gentleman's establishment.—Age 18; bothy preferred. Five years' reference.—J. WRIGHT can recommend an intelligent steady man as above.—Hatchan Priory Gardens, Herts.

JOURNEYMAN, in the Houses. Age 22; two and a half years in present situation; can be highly recommended.—PHILIP PYLE, Rotherough, Stroud, Gloucestershire.

JOURNEYMAN, Inside, in a good Establishment.—Age 24; well up in Propagating, Potting, Watering, &c. Eleven years' experience. Good character.—J. J. ASQUITH, Newark Road, Croydon.

JOURNEYMAN.—Age 19; five years' experience under Glass in good Gardens. Good recommendations. Abstainer.—PARSLOW, 31, Ponton Road, Nine Elms Lane, S.W.

JOURNEYMAN, Inside, or Inside and Out.—Age 20; six years' experience, fifteen months in present situation. Good recommendation. J. EASON, The Gardens, Hawkswick, St. Albans.

JOURNEYMAN, under Foreman; age 21.—H. Parrott, Wood End Gardens, Chichester, recommends a strong active young man as above. Seven years' experience; two and a half years in present place.

JOURNEYMAN, in the Houses; age 22.—J. Treseder, The Gardens, Milton Park, Peterborough, can highly recommend to any Head Gardener a steady, active, and industrious young man.

JOURNEYMAN, in a Good Private Establishment. In and Outdoor experience preferred, but would not object to its being entirely Outdoors.—Age 21; seven years in present situation.—S. GALLOP, Poltmore Gardens, Exeter.

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JOURNEYMAN, in Houses, or Second, where three or four are kept.—Age 24; six years' good character. Bothy preferred.—WILLIAM THORNTON, Danbury Palace, Chelmsford, Essex.

JOURNEYMAN, in the Houses, or Second in four.—Age 22; seven years' experience in good places. Good character.—R. FAIRCLOUGH, Myuthurst, Leigh, Reigate, Surrey.

JOURNEYMAN, or IMPROVER.—Age 19; three years in present situation, three years previous. Bothy preferred.—H. TUGWELL, 4, Peter's Terrace, Old Town, Eastbourne.

IMPROVER, in a Gentleman's Garden.—Age 17; good character.—A. LINDUS, 13, Lennox Road, Worthing, Sussex.

IMPROVER, Inside, or Inside and Out.—Age 20; five years' excellent character and experience.—C. LONDON, Swallowfield, Reading.

IMPROVER, in a Gentleman's Garden, Inside.—Age 19; good references; Bothy preferred.—G. BURN, Ampfield, near Romsey, Hants.

IMPROVER, in a Gentleman's Garden.—Age 20; five years' good character.—F. SIMMONDS, Chithurst, near Petersfield, Hants.

IMPROVER, in a Gentleman's Garden.—Age 19; strong, acting, and willing. Two and a half years' character from present place. Abstainer.—S. WALTERS, The Gardens, Purbeck House, Swanage.

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IMPROVER, in a Gentleman's Garden, where several are kept, and where he can improve Inside.—Age 20, tall, steady, strong, and willing. Three years' and nine months' good character.—G. GINN, Downe, Farnborough, Kent.

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NURSERYMEN.—Wanted situation where Ferns, Palms, and Chrysanthemums are Grown. Seven years in Market Nursery. Good character from present employers.—REEVES, Strond Rise, Green Lanes, Finsbury Park.

TO NURSERYMEN.—Wanted, a situation; used to Growing Soft-wooded Stuff, quick at Potting, &c. Age 25; good character.—E. H., Elm Cottages, Pavenham, Bedford.

TO GARDENERS, &c.—Head Gardener would like to recommend a young man. Used to Watering, Potting, Tying, and General Indoors Work, and little Outside Work. Age 20; reason for leaving, Gentleman reducing his Establishment. Good character.—Mr. GRAY, Head Gardener, Carville Hall, Brentford, Middlesex.

TO HEAD GARDENERS.—Thos. Butcher would have pleasure in recommending a young man, who has been in his employ for nearly three years, to any Head Gardener requiring a reliable hand.—Address, The Nurseries, South Norwood.

TO GARDENERS, &c.—Situation wanted in a good Garden, where four or five are kept. Has had good practice on Machine Scythe and General Garden Work. Two and a half years' good character. Bothy preferred.—C. NUNN, the Gardens, Stoke, Norwich.

TO GARDENERS.—Wanted by a respectable Lad (age 17), a situation under a Gardener. Twelve months' good character.—F. B., T. Wood & Sons, Farwig, Bromley, Kent.

LABOURER in Garden, where others are kept.—A strong, civil, handy, sober youth (age 17). Has been six years in Garden.—RECTOR, Snailwell, Newmarket.

To Nurserymen, Seedsmen, and Florists.

SALESMAN, &c. Age 31; fifteen years' experience. Expert at Wreaths, Crosses, Bouquets, and other Floral Work. Good references.—D. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

SHOPMAN.—Age 24; good knowledge of the Trade in all branches. Good reference.—MENTHA, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO FLORISTS.—A young Lady seeks situation in Florist's, or Fruiterer's and Florist's. Experienced in Fruit. Good references.—A. BLAKE, 129, Stoke Newington Road, N.

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THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, is $4.30 for Twelve Months.

Agent for America:—E. H. LIBBY, Manager, "The American Garden," 10, Spruce Street, New York, to whom American Orders may be sent.

ROYAL HORTICULTURAL SOCIETY, Chiswick Gardens.
GRAND DAFFODIL EXHIBITION and CONFERENCE, APRIL 15, 16, 17 and 18, 1890.
The Exhibition will be opened on Tuesday, April 15, at 3 P.M., by H.R.H. THE DUCHESS OF TECK.
Conferences on Wednesday and Thursday, at 2 P.M.
Admission: Tuesday, from 2 o'Clock, half-a-crown; Wednesday, Thursday, and Friday, from 11 o'Clock, 1s.

NEWCASTLE-ON-TYNE SPRING FLOWER SHOW, APRIL 16 and 17, 1890.
AUTUMN FLOWER SHOW, AUGUST 20, 21, and 22, 1890.
Entries for Spring close Friday, April 11. For schedules, &c., apply to— JAS. J. GILLESPIE, Secretary.
Cross House Chambers.

SHREWSBURY GREAT FLORAL FÊTE, August 20 and 21, 1890.—For 20 PLANTS, £25, £20, £15. Collection of FRUIT, £10, £4, £3. For GRAPES, £10. Valuable SPECIAL PRIZES given by Messrs. Webb & Sons, Messrs. Sutton & Sons, Messrs. Carter & Co., Messrs. Wm. Wood & Son, and Mr. H. Deverill. Schedules now ready, post-free on application to the Hon. Secs.,
Messrs. ADNITT AND NAUNTON,
The Square, Shrewsbury.

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JAMES CARTER AND CO. have one of the largest and most perfect stocks in the country. For full particulars, see Carter's beautifully illustrated CATALOGUE, Gratis and Post-free to intending Customers.
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Wholesale Price Current, Spring, 1890.
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CHAS. COOPER AND CO., Wholesale Florists, Bedfordbury, Covent Garden, are open to Receive Consignments of Choice Cut Flowers for their Commission Department.

MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
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See large Advertisement, March 22, page 376.

SALES BY AUCTION.

Wednesday Next.

Standard, Half-standard, and Dwarf ROSES, from well-known French and English Growers; 200 AZALEA MOLLIS, and 100 Choice Hybrid RHODODENDRONS in Bud, from Ghent; a large quantity of FRUIT TREES, including many of the best sorts of Apples, Pears, Plums, Peaches, Nectarines, &c.; also a fine Collection of BORDER PLANTS, LILIUM AURATUM, and other LILIES, from Japan, PEARL TUBEROSES, GLADIOLI, &c.

MR. J. C. STEVENS will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 9, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday, April 17.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in Flower and Bud will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 17, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will please SEND LISTS NOT LATER THAN THURSDAY NEXT.

Wednesday Next.

FERNS, PALMS, and other Decorative Plants, Standard and Dwarf ROSES, all from English Nurseries; a large assortment of various LILIES, STEPHANOTIS FLORIBUNDA, HERBACEOUS PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 9, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTANT SALE of ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 11, at half-past 12 o'Clock, by order of Messrs. Fred. Horsman & Co., a choice and unique COLLECTION of MASDEVALLIAS, comprising the most rare and new species, a collection of ESTABLISHED ORCHIDS, mostly in Flower or Bud, containing plants of great interest, and varieties of superior excellence, and a quantity of semi-established and rare AFRICAN ORCHIDS.

100 Lots of various ESTABLISHED ORCHIDS from a Private Collection.

20 Special CYPRIPEDIUMS, and 12 good plants of ANGRŒCUM SESQUIPEDALE in Flower and Bud.

An importation of CYPRIPEDIUM ELLIOTTIANUM, CŒLOGYNE LOWII, and SACCOLABIUM CŒLESTE.

On view morning of Sale, and Catalogues had.

Friday Next.

400 Standard, Half-standard, Dwarf and Climbing ROSES, CARNATIONS, GREENHOUSE and DECORATIVE PLANTS, CONIFERS, and Hardy EVERGREENS, FRUIT TREES, RHODODENDRONS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on FRIDAY NEXT, April 11, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday Next.

CYPRIPEDIUM ELLIOTTIANUM, CŒLOGYNE LOWII, and SACCOLABIUM CŒLESTE.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, April 11, an important consignment of the above ORCHIDS.

On view morning of Sale, and Catalogues had.

Exeter.—Preliminary Notice.

HIGHLY IMPORTANT SALE of the whole of the STOVE and GREENHOUSE PLANTS, &c., by order of Messrs. Lucombe, Pince & Co., who are relinquishing the business.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Exeter Nurseries, Exeter, on TUESDAY, May 6, and following days, the whole of the extensive COLLECTION of GREENHOUSE PLANTS, ORCHIDS, and HERBACEOUS PLANTS.

Fuller particulars will appear in future advertisements

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MR. CHEFFINS will SELL by AUCTION, on TUESDAY, April 15, 1890, at 11 o'Clock, by direction of the executors of the late Miss Cawston, upon the Premises known as "Folly House."

Catalogues may be obtained of Mr. EVERITT, The Gardens, Folly House, Braintree; of Mr. NOCKOLDS, Land Agent, Saffron Walden; and of Mr. CHEFFINS, Saffron Walden, Essex.

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LOCAL EVENING SALE.

MESSRS. JOSHUA BAKER AND SON (late Baker & Sons, of Kilburn), are instructed by Mr. A. Chesterman, who is retiring from business, to SELL by AUCTION on THURSDAY, April 10, 1890, at 8 o'Clock in the evening, at The Crown Hotel, Cricklewood, three minutes from Cricklewood Station, Midland Railway. The long LEASEHOLD PREMISES, well situate in the Edgware Road, Cricklewood, with frontage of 86 feet, and known as Fernehff Villa, containing eight rooms, with three large Greenhouses, &c., and the Goodwill of the Established Florist's Business. Term, eighty-seven years unexpired at the very moderate ground rent of £30 per annum.

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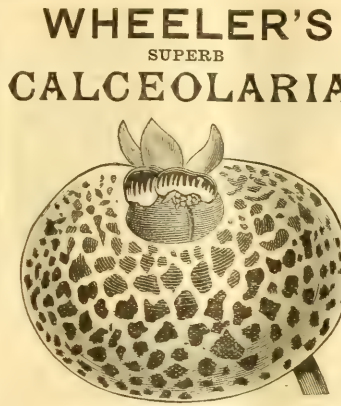
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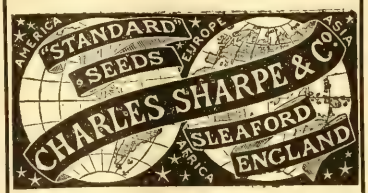
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THE
Gardeners' Chronicle.

SATURDAY, APRIL 5, 1890.

EFFECT OF FOG ON PLANTS.

MY experience of London fog in its effects on vegetation in general, and under glass more particularly, dates back to the autumn of 1870, when I came first to reside within the fog radius. Coming from the country, I followed in my practice the same lines in many respects that were suitable there, and hoped for equally good results, but I was soon taught a lesson that was not forgotten. I had taken especial pains with Strawberries in pots for forcing during the latter part of the summer of that year, and was rewarded by obtaining as good a lot of plants as could be desired. I closed a vinery in the early part of November, and filled the shelves with Strawberry plants, never dreaming of failure. The first intimation I received was a week or two afterwards when visited by Mr. G. Baker, now the gardener at Membland Hall, who asked me what I thought I was going to get from my Strawberry plants, and added that I might as well spare myself any further trouble, and throw my plants away at once. I soon found out my mistake, for every pot failed to show bloom. I placed another batch in a vinery started on January 1, and these were all that could be desired, fine fruit being ripened by the end of March. Since then I have tried more than once, chiefly with my plants in 48-pots, the former having been in 32's, but the result was similar. Now I never attempt to start Strawberry forcing before the beginning of the new year, and even then it may be considered a very risky proceeding for at least three weeks longer, and I doubt if there is any gain at all commensurate with the labour expended upon the preparation of the plants, in starting them before February 1. I have tried the best known early kinds, but the result is the same in nearly every instance: Keen's Seedling and Vicomtesse Hericart de Thury being the two best.

The great difficulty that I, in common with other gardeners, have experienced in Strawberry forcing is in getting the spikes to start away freely, the plants often opening only a few flowers close to the crown, and these in most cases fail to set. I have tried a greater degree of heat than is usual, with little better success in the case of the latter kind. The foliage will often get too far in advance of the spikes, causing the latter to be weaker still. Should a few days of foggy weather ensue just as they are in flower, the risk of not setting the fruit is further increased.

The early forcing of Vines is also a difficult matter, and generally speaking a very tedious procedure, especially if these have been weakened by previous hard forcing. From the time of starting to the time of cutting the first ripe fruit, at least a fortnight longer must be allowed about London than in the country. The extremely small amount of sunshine in the winter, the overcast and gloomy sky through which the sun seldom penetrates, causes weakly growth and thin foliage, that lack the substance and vigour so essential to success. Should a few days of foggy weather ensue just as the bunches are beginning to grow freely, and a few weeks before coming into flower, many of them will cease to grow, gradually turning yellow, and dying off. I have experienced this evil to a serious extent, and where previously I had a good show of bunches with a margin of superfluous ones, the number became so much reduced as not to leave a fair crop. This, I know, happens in more favourable localities if root action is weakly, but worse will be the crop of Grapes, if this happen in the smoke radius. The late Mr. Woodbridge told me that at Syon House, even with only moderately early forcing, his Vines were not trusted to yield a good return after being planted more than ten years, an experience agreeing with mine. After that time the sooner young canes are planted the better. I am much in favour of employing pot Vines for the earliest and the succeeding crop of Grapes, rather than at an early date force Vines planted for a permanency. Should a turn of fog set in just as Peaches and Nectarines are expanding their blossoms, these will be considerably weakened, and if, when in full bloom, the petals will drop prematurely, the result in both instances being a considerable diminution in the crop. The wood buds in the case of these fruits will also, if thinned out very early, get too far in advance of the fruit, and thus exhaust them and prevent them swelling off, as they should do in their earlier stages, in a kind manner. The thinning of the blossoms before expanding may do very well in the country districts, but we are only too glad to retain as many as we can through our critical periods. Thorough ripening of the wood, essential under all circumstances, is absolutely so under such conditions, and to bring about this, I may say I am no believer in removing the lights after the fruit is picked; but prefer, rather, to rely upon a greater amount of heat thus gained to effect the purpose in view.

The early forcing of Melons and Cucumbers has also to be proceeded with in a cautious manner, and if the first lot of plants should fail, it must not be wondered at. I have found, in both cases, that the foliage, by reason of its weak state, is very liable to be scalded by sunshine. To prevent this, light shading has to be resorted to, when under more favourable skies it would be looked upon as an unwise practice. The cultivation of the Tomato through the winter months within the London area is almost an impossibility, the plants soon losing their foliage; Mr. Barron, at Chiswick, has had similar experience in the culture of this fruit in the winter.

Turning from fruits to plants, no better results can be recorded, though the effects are not, in many cases, of so permanent a character. From the month of October onwards to the end of February, is the time when the most destruction occurs to the flowers. Many of the Orchids which flower during that season of the year fall a prey to the fog; the Calanthes in particular, and Phalænopsis in flower or bud, the latter falling off in a few days. The Cypripediums are not so much affected; but Vandas are discoloured and rendered unsightly. Amongst stove plants, the Clerodendrons quickly suffer, especially C. fallax, the flowers and buds of which will fall in a wholesale fashion; Gardenias will turn yellow as soon as they expand, and Ixoras shed their flowers profusely. If Bouvardias are grown at all on the cool side or in too moist an atmosphere scarcely a flower will be left. Of greenhouse plants, the flowers of the Ericas, such as E. hyemalis, lose their otherwise bright colour, and the Epacrises look afterwards as if they had been scalded. Chrysanthemums do not last nearly so long as they should do, nor do they open anything like so well or display that intensity of colour that is peculiar to each kind.

Camellias grow well, set their buds freely, and in some instances shed them almost as completely. I have taken every possible pains to prevent it, but thus far have not succeeded to my satisfaction. C. alba-plena, C. Lady Hume's Blush, and C. imbricata suffer the most, whilst C. Countess of Orkney rarely loses a bud, nor does C. Chandleri elegans. Pelargoniums of the single zonal section, which have been prepared for winter flowering, are not to be relied upon during the prevalence of fogs, casting of the petals being then common. The double varieties are those best suited for the atmosphere of London. Tree Carnations, which in the country can be grown with ease, require the greatest care, even to attain to only moderate results. The double Primulas are another instance of plants, which unless a house is specially devoted to them, give but very poor return. Violets under glass, in pots or in frame, give scarcely any blooms. I have tried different methods, but can never succeed with any. After a severe fog the plants lose nearly all their foliage; I can grow them very well up to the time the fogs arrive. The washing of the glass after foggy weather is indispensable, and it does not do to rely upon a shower of rain to do this, as the matter deposited adheres much too tightly for that. The better plan is to tie an ordinary hair broom upon a longer handle, and then after syringing the glass, but taking care not to force water through the laps, loosen the deposit with the broom, and give another syringing which will send it into the gutters. I think that a slight increase in the temperatures at such times by fire-heat helps to prevent the fog from penetrating into the houses so much as it otherwise would do. The fogs vary greatly in humidity; those that are the most destructive are, in my opinion, the dense yellow ones which do not embody so much moisture, but give a choking sensation in the throat when breathed. It is no uncommon thing for work of importance to have to be suspended when these fogs are at their worst. In the middle of the day I once tried to read the print of an ordinary newspaper, but could not do so with certainty. Sometimes it is so dark that the watering of plants could not be proceeded with in a proper manner. The fogs are generally worse after a few days' frost, and when the thermometer is rising. Fortunately for us we have been very free from any bad fogs since Christmas last, so that forcing in all departments has not been such a tax upon us as it generally is at this season of the year. Outside results I hope to touch upon shortly. *J. Hudson, Gunnersbury.*

Japanese Maples as Decorative Plants.—These elegant plants are much used by Messrs. Hooper & Co. for the decoration of apartments, that part of their business known to the trade as "furnishing." A houseful of them at their Pine-apple Nursery exhibits great variety and beauty of leaf. The elegantly cut-leaved form, known as Acer Gordonii, is certainly one of the best, and the varieties of A. polymorphum have elegantly cut and variously tinted foliage. Mr. Willingham, the able manager here, says that, although hardy, the protection of glass and a little gentle heat in spring is necessary, as the foliage is thus produced and the plants made fit for use earlier than if left unprotected.

New or Noteworthy Plants.

Eucharis Bakeriana, *N. E. Br.* (*n. sp.*).

In the number of its species Eucharis is becoming quite a respectable genus. Here is another new species (fig. 61), of which a specimen was recently sent to Kew by F. Sander & Co., of St. Albans, the plant having been imported by that firm from Columbia. It is a distinct and well-marked plant, differing from the other species in its corona, and in having the tube of the flower of nearly equal diameter almost up to the top, being very little dilated at the throat, although, according to information kindly furnished by Mr. Weathers, one flower had its tube "constricted or attenuated at its base." The flowers are of good size, as may be seen from the accompanying woodcut, and it appears to me likely to prove nearly as good a decorative plant as E. amazonica, provided it can be induced to flower as freely. It is dedicated to my respected friend and colleague, Mr. J. G. Baker, the well-known authority on bulbous plants.

The bulbs are ovoid, clothed with smooth brown scales. Leaves four or five to a bulb, 1½ to 2 feet long, including the petiole; the blade varies from ovate-elliptic to elliptic, acute, and is from 4 to 6 inches broad, and of a bright dark green colour. The scape is from 9 to 16 inches long, slightly compressed, and covered with a glaucous bloom. Umbels four to five flowered; bracts two, broadly lanceolate, acute, 1½ to 2 inches long. Pedicels 1½ to 2 inches long, green. Perianth-tube 1½ inch long, white, rather abruptly curved at the base, cylindrical almost to the top, with the throat about ¼ to ⅓ of an inch in diameter. The expanded flower about 2½ inches in diameter, pure white, or with six pale yellow stripes on the corona; the segments oblong-lanceolate, acute, 1¼ inch long, ½ to ⅔ of an inch broad; corona funnel-shaped, ⅝ to ¾ of an inch deep, and ½ to ⅝ of an inch in diameter, with two obtuse, oblong teeth between each pair of filaments; below these teeth the corona is somewhat plicately folded. Filaments short, about ⅛ of an inch long, narrowed upwards, anthers linear, versatile. Ovary about ⅓ of an inch long and broad, trigonous, green; ovules few in each cell, superposed. *N. E. Brown, Herbarium, Kew.*

Masdevallia Lowii, *Rolfe, n. sp.**

This is a new and very pretty species, belonging to the section Saccolabiata, and with much of the general habit of M. Chimæra, but totally distinct in its characters. It was introduced from the Cauca by Messrs. Hugh Low & Co., and flowered during last autumn. Its nearest ally is M. trinema, Rchb. f. (*Flora*, 1886, p. 558), described from dried specimens, and which I am not aware has ever been in cultivation, but there are so many differences in the description that I think the present species must be quite distinct. As compared with all the species I have seen, our plant has two very marked characters. The lip is small, unusually fleshy, and so shallow as to be almost filled up by the three central keels and the numerous radiating ones, while the colour is light maroon-purple. The sepals are narrower than usual at the base, and then gradually attenuated right to the apex. The plant has now passed into

* *Masdevallia Lowii*, Rolfe, n. sp.—Plant densely tufted, leaves lanceolate, subacute, bright green, 4 to 5½ inches long, ¾ to 1 inch broad. Scape horizontal or ascending, 6 to 7 inches long, with about five sheathing bracts, producing two or more flowers in succession. Perianth tube open, 2 lines long; free part of upper sepal narrowly triangular, 1 inch long, gradually passing into the slender tail, which is 7 to 8 lines long; lateral sepals a little longer than dorsal one, otherwise not different, united for 3 to 4 lines; all the sepals minutely asperulous-pubescent, very densely marbled and dotted with dark maroon-purple on a pale ground; tails palest green. Petals nearly 2 lines long, palest green, with a purple line down centre of basal half; apex dull purple, a little club-shaped, with the usual keels and warts of this section. Lip pale maroon-purple, 3 lines long, basal portion with a pair of blunt curved keels; apex fleshy, and scarcely saccate, with three longitudinal keels, and many radiating ones near margin. Ovary not winged; column with three slender bristles at apex.

the collection of S. Courtauld, Esq., Bocking Place, Braintree, Essex, from whom a second raceme has been received. It is an elegant and very distinct little plant. *R. A. Rolfe, Herbarium, Kew.*

CAMELLIAS.

One of the uses of conferences conducted by the Royal Horticultural Society consists in the re-kindling a partially extinguished interest in some particular flower. The Camellia might be fittingly made the subject of a conference in which the end just indicated, is kept in view. It is one of those flowers smiled upon for a time by fashion, but now in danger of being relegated to something like an undeserved obscurity. A warm meed of praise is due to Messrs. W. Paul & Son, of Waltham Cross, for the admirable representation of this fine winter and spring flower which they set forth at the meeting of the Royal Horticultural Society at the Drill Hall, on the 11th inst. One could see at a glance what a large number of fine varieties are in cultivation; and how much variation of colour they display. No other firm but this famed Hertfordshire one brings such a collection to London. There were to be seen the representatives of some fifty distinct varieties, but this is but a small part of what are grown, for Messrs. W. Paul & Son catalogue as many as 220 varieties, so that they are numerous enough.

Foremost in this collection of cut blooms was C. H. Hovey, unequalled almost for the beauty of its form, and its brilliant hue of scarlet-crimson. So many blooms of this variety were shown, that it must not only be a popular one, but very free also. The old Mathotiana is large and darker, of a maroon-crimson, but of very fine form, and bold shell-like petals; and, like the preceding, having a striking bold foliage. Marchioness of Exeter is of a fine shade of rosy-scarlet; a truly grand flower, with a fine shell-like petal. Bealei, which is reputed to be one of the best Camellias grown, is of a shaded crimson hue, small and somewhat thin, but with a finely-formed petal. Archduchesse Isabella de Toscana is also a fine crimson-shaded variety, of a dark reddish rose-hue, and fine petal; a flower that cups a great deal. Rose de la Reine is of a similar shade of colour, but the petals reflex instead of becoming cupped; but they are occasionally striped or flamed with white.

There are some very attractive varieties among the rose-shades, such as Commendatore Betti, bright rose, a large and well-formed striking flower; L'Avenir, pale rosy-pink, somewhat reflexed, and very good; Bella d'Arligmone, rose, with slight narrow veins, good shape. Elegans, bright pinkish-rose, semi-double; Fatima, rose, with a white flake down each petal, good shape; and Madame Lebois, deep rose, small in size, but of very fine shape.

Of pink shades one of the most attractive is Countess of Derby, soft pink, good shape, and very pleasing, as it is described as white, broadly flaked with rose. Baron de Vriere is also of a soft pink or peach shade, with a broad flame of white along each petal. A very delicate and pretty variety is to be found in Mrs. C. A. Hovey, of the same character as the foregoing, but paler in tint, small in size, but very pleasing. Adelina Benvenuti has a blush-pink ground, with slight carmine stripes, a charming variety when at its best. So is Madame Ambrose Verschaffelt, delicate pink, with a distinct white margin to the petals—stout shell-like petals. Comtesse de Hainault is of a very delicate peach, paling to white on the petal edges, very pleasing indeed.

The leading white-flowered varieties in the collection are Montironi, and its variety Vera, the former very pure and much reflexed; the latter much more cupped, and having a delicate citron centre. Alba plena very good indeed; Countess of Orkney, very nearly pure white, but frequently flaked with carmine; Nymph Egeria, pure white, much reflexed; and Princess Charlotte, pure white; a fine flower, frequently faintly blotched with rose.

The best blush-tinted flowers were Romaniensis, blush, with slight flakes of rose; and Cup of Beauty, of similar character, and of perfect form.

Of striped flowers, mention may be made of Archduke Carl, deep reddish-rose, flaked with white; Princess Clotilde, white, striped with carnation, semi-double; and Prince Albert, white, blotched, and flaked with carnation; very pleasing when in good character.

Among the white varieties should be mentioned La vestale, which Mr. Harry Turner brought from Slough, and which was awarded a First-class Certificate of merit. It is a very fine variety, with a large shell-like petal, full, handsomely reflexed, and said to be later in blooming than the old double white; it is also very free, and a good grower. *R. D.*



Fig. 61.—Eucharis bakeriana. (see p. 416.)

A HISTORY OF ENGLISH GARDENING.

(*Continued from p. 259.*)

Elizabethan Gardening.*

(*a*) The Flower Garden.—In a preceding article we noticed that in the latter part of the fifteenth century Flemish modes of decoration—railed beds and topiary-work—were introduced into English gardens, and that near the close of Henry VIII.'s reign, both the Italian and French† styles were imported into this country by the "bluff king's" gardeners. These three foreign styles were engrafted upon the "old English" garden, and from this curious combination was evolved, late in the sixteenth century, our greatest national style, the so-called Elizabethan. In its broad characteristics this style is peculiarly well adapted to our English climate and scenery, and it certainly deserves a far more considerable share of popular favour than it now possesses. It is, indeed, strange that although so much attention has been paid of late years to the study of the Elizabethan style of domestic architecture for country residences, but little has been done for promoting a knowledge of the style of gardening which prevailed at the same time, and always accompanied it as a very essential part of the design. It is customary to see a not despicable imitation of an Elizabethan house, surrounded by a garden in what is called the "Natural" style, which means a small lawn, with a few small flower-beds cut out upon it in an irregular manner, "after the fashion of the confectioner's ornaments on a tart;" or if a more ambitious style is attempted, it is either an Italian or French garden, altogether at variance with the style of the mansion. Even if an attempt is made to reproduce an Elizabethan garden, and the architect is consulted on its laying out, we shall probably find the "forthrights," *i.e.*, the principal walks, accurately set out; but there the architect's knowledge usually ceases. He can plan a flat surface, intersected at right angles by broad straight walks; but how to fill up the spaces between the intersections is generally considered out of his province. It was as if he had undertaken to erect a building, and having laid down the plans, and drawn the outlines in so far as the general masses went, and left all the detail and most delicate part of the design to the artisan to work out as best he might. It would be obvious that such a man had not half learned his profession, and had undertaken more than he was able to perform; yet few employers detect that the designer who leaves their gardens only half planned, with all the details of ornamentation shirked and omitted, is equally ignorant of his profession, and has no business to undertake the laying out of grounds. The architect feels conscious that he ought to be able to complete his work, and prepare a design for the surrounding of the house which he has built; and therefore, if appealed to, he undertakes it—though he rather despises the task—but being seldom appealed to, he neglects this part of his education, and is incompetent to do the work. It was in Elizabethan times, however, the work of the architect to plan out the gardens attached to the villa; and in old manuscript plans of houses,‡ and in early works on domestic

* Under this heading will be included Early Jacobean gardening, which it is impossible to keep distinct from Elizabethan.

† The French Renaissance style was employed at Westminster as early as 1536 (see *Privy Purse Expenses of Princess Mary*, p. 18). In 1561 we find Sir William Cecill carrying it out at Burghley (see *State Papers, Domestic*, vol. xvii., p. 46); and in 1583 Queen Elizabeth had it carried out in the Privy Garden at Hampton Court (see *Gard. Chron.*, vol. iv., p. 737).

‡ See a most interesting old collection of drawings by John Thorpe, one of the most celebrated of Elizabethan architects preserved in Sir John Soame's Museum.

architecture, there is scarcely a ground-plot not laid out as a parterre or a labyrinth. That it is otherwise now is really the fault of the employer. When a man has built a house, he thinks he has done with the architect, and sends for the landscape gardener. The landscape gardener who, for the most part, is more ignorant of architecture than the architect is of landscape gardening, has not the remotest suspicion that the garden should harmonise with the house. He has certain rules, according to the fashion of the time, and whether appropriate or not, he lays out the garden according to those rules in the prevailing taste of the day. He has no more idea of appropriateness than the milliner, to whom the prevailing fashion of the hour is the only guide, and with whom one pattern serves for all alike. Of course neither the milliner nor the gardener is to blame; "while ignorance prevails among their employers, and fashion reigns sole arbiter, they must comply with their employer's demands; for ruin would await the presumptuous heretic who dared to dispute fashions' decrees." *

We said above that it was, in Elizabethan times, the work of the architect to plan out the garden attached to the mansion, and that he always considered it strictly to be a purtenance and continuation of the house. In order, therefore, to bring the garden into harmony with the building, and make it as a part thereof, he designed a large, broad, and raised terrace,† to run along the private front of the house, and command a view of the whole design. He then built broad flights of steps,‡ so as to connect the garden with the principal walks, which diverged in straight lines, and which were intersected by similar walks parallel to the terrace. The walks formed the main lines of the design, and the intermediate parallelograms were filled up with mazes or grass plots, or with beds and curious knots. Thus, a uniform plan, harmonising and answering to every feature of the house, was presented. The "forthrights" of the garden corresponded to the ground plan of the building, and the mazes and knots to its ornamental details, its pillasters, friezes, mullions, and carved capitals. The peculiar geometric tracery which surmounted so many Elizabethan buildings very closely corresponded to the geometric beds of the Elizabethan period.

The shape of the Elizabethan garden was usually a square; "the form," says William Lawson,§ "that men like in general is a square;" and Parkinson, writing in 1629, tells us that it was chosen in preference to "an orbicular, a triangle, or an oblong, because it doth best agree with a man's dwelling." This square was generally enclosed by a high wall of brick,‖ or of stone, over which Rosemary was trained. Hentzner, who visited Hampton Court in 1598, mentions that he saw there "Rosemary so planted and nailed to the walls as to cover them entirely, which is a method," he continues, "exceeding common in England." Gerarde¶ and Parkinson also tell us that it was the custom to plant it "in noblemen's and great men's orchards against brick walls." In the North of England, according to Lawson, the garden walls were often made of "drie earthe" instead of brick or stone, and when this was the case, it was customary to plant "thereon Wallflowers and divers sweet-smelling plants." Hedges were also commonly used to enclose the Elizabethan gardens. Bacon recommends that the garden "is best to be encompassed on all four sides with a stately arched edge; the arches to rest upon pillars of carpenter's work, some 10 feet high, and 6 feet broad; and the spaces between of the same dimensions with the breadth of the arch." Quickset * was the material generally used for such hedges, but Privet, Box, Holly, and other evergreen shrubs were sometimes employed; with these, Roses, Sweetbriars, Honeysuckle, Rosemary, and other sweet-smelling plants were often interlaced.†

The "ordering of the garden within the walls was," according to Lord Bacon, "left to variety of device." There were, however, certain features which were never absent from the Elizabethan flower garden. Parkinson, writing in 1629, enumerates the principal of these. "In the garden," he says, "be squares and knots, beds, walks, a maize or wilderness, a rocke or mounte, ... great Turkee jarres, ... and arbours."

The walks which formed the main lines of the design, were "broad and longe, and covered with gravel, sand or turf."‡ When of grass, they were, it would seem from a passage in Lord Bacon's *Essay on Gardens*, sometimes planted with Burnet, wild Thyme, and Watermints,§ which, "being trodden upon and crushed, perfumed the air most delightfully." The walks were also "eyther open or closed, eyther public or private."‖ Sometimes they were planted on both sides with Cypress or fruit trees.¶ Describing the Cypress, Parkinson writes:—"For the goodly proportion this tree beareth, as also for his ever grene head, it is and hath beene of great account with all princes, both beyond and on this side of the sea, to plant them in rowes on both sides of some spatious walke, which, by reason of their highe growing, and little spreading, must be planted the thicker together, and so they give a pleasant and sweet shadow."** Sometimes the main walks were bounded with trees, which were wrought into hedges and arched over at the top. These formed the "thicke pleached alleys" or "covert alleys," which are so often mentioned in Elizabethan poetry. Shakespeare, in *Much Ado about Nothing* (act i., scene 2), tells us of Dom Pedro and Count Claudio walking in "a thick pleached †† alley" of an orchard and Lord Bacon speaks of a "covert alley upon carpenter's work about 12 feet in height, by which you may go in shade in your garden." Various kinds of shrubs were used for making these "pleached alleys." "Every man taketh what liketh him best," says Parkinson, "as either Privet alone or Sweet Bryar and Whitethorn interlaced together and Roses of one, two or more sorts placed here and there amongst them." Willows, Lime trees, Witch Elms,‡‡ Hornbeams and Cornel trees were also used. Of the latter Parkinson writes: — "Some plant Cornel trees and plash them or keep them low to form them into a hedge; and some again take a low prickly shrub that abideth always green, called in Latin *Pyracantha*."

After the "thick-pleached walks," the two most prominent features of the Elizabethan gardens were the mounts and arbours. In the larger gardens the mounts were generally raised in the centre of the square. "I wish," says Lord Bacon, "in the very middle, a fair mount, with three ascents and alleys, enough for four to walk abreast; which I would have to be perfect circles, without any bulwarks or embossments: and the whole mount to be 30 feet high surmounted by a fine banquetting-house with some chimneys neatly cast." Such a mount was to be seen at Hampton Court, Theobalds, and in many other large gardens in the early seventeenth century. In smaller gardens "little mounts" were raised, and these, according to Lawson, were surmounted by small arbours "whereabout," as he says, "the Woodbine may claspe." The Elizabethan garden was never without sundry arbours. "You may make herbers," says Thomas Hill,* "either straight running up, or else vaulted or close over the head like to the Vyne herbers now-a-dayes made." They were sometimes, as Spenser says,—

> Framed of wanton Ivy flowering fair,
> Through which the fragrant Eglantine did spread
> His prickly arms, entrailed with Roses red
> Which dainty odours round about them threw.
>
> *Faery Queen*, ii., v. 29.

Often they were made of Quicksets,† Privet,‡ or "of Roses trayled over trellis-work of Juniper wood or Willow poles," and "decked with that sweet tree or flower named Jacemine,"§ or else with Rosemary,‖ Myrtle,¶ Kidney Beans,** red Currants,†† Honeysuckle, single ‡‡ and double; §§ or with "Ladies Bowers both white, and red, and purple, single and double, which," says Parkinson, "are the fittest of all outlandish plants to set by arbours and banquetting houses, that are open both before and above to help to cover them, and to give both sight, smell and delight." (*Paradisus*, p. 10.)

Mazes and labyrinths were probably to be seen only in the gardens of the richer classes of the community. Thomas Hill, writing in 1563, gives directions for constructing a maze, and recommends that in the middle of it be made "a proper herber decked with Roses," or "else with some fayre tree of Rosemary, or other fruit, at the discretion of the gardener."‖‖ He also gives two designs for mazes, and writes:—"Here, by the way (gentle reader), I doe place two proper mazes, as proper adornments, upon pleasure to a garden, that whoso liketh, having such roome in their garden, may place the one of them that liketh them best, in that wyde place of the garden that may best be spared, for the onely purpose to sport them in at times." Lawson also gives designs and directions for making mazes, and says that when they are "well formed of a man's height, your friend may perhaps wander in gathering berries till he cannot recover himself without your help." He further adds that they were made of Quickset, or Privet, or "plashed fruit trees;" and Thomas Hill says that "there be some which set their mazes with Lavender cotton, Spike, Majoram, and such-like."

The Elizabethan flower garden often contained a fountain, sometimes several; for, as Bacon says "they are a great beauty and refreshment." They were generally made of marble, sometimes richly-gilt, and ornamented with statuary.¶¶ In some of the more stately gardens a *jet d'eau* was made—a feature which, from its name, would appear to have been introduced by the French gardeners. Hentzner describing the gardens at Whitehall as they appeared when he visited them in 1598, tells us that there was "a *jet d'eau*, with a sundial, which, while strangers are looking at it, a quantity of water forced by a wheel which the gardener turns at a distance, through a number of little pipes, plentifully sprinkles those that are standing round."*** *Percy E. Newberry.*

(To be continued.)

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* *Fraser's Magazine*, vol. lxx., p. 102.

† Of course these terraces were only to be found in the more stately mansions. The raised terrace still remains at Kirby, Northamptonshire, and many other places.

‡ As at Coombe Abbey, Warwickshire. Here the garden porch led from a gallery on to a raised terrace which had steps down to the flower garden. Most of the houses of the nobility and gentry were similarly provided.—Richardson's *Architectural Remains of the Reigns of Elizabeth and James I.*, p. 6.

§ *A New Orchard* (published in 1618).

‖ Shakespeare, *Measure for Measure*, iv. i.

¶ *Herbal* (published 1597), p. 1110.

* The price of Quicksets ranged from 1*s.* a thousand in 1583 to 2*s.* 6*d.* a thousand in 1601. Privet was sold by the burden, which averaged in price about 1*s.* See Roger's *Agricultural Prices*.

† Gerarde's *Herbal*, p. 1168.

‡ Lawson, *A new Orchard*, p. 16. Bacon says that the walks were "spacious and fair."

§ Cammomile was also sometimes used. See Shakespeare, 1 *Henry IV.*, ii., 4.

‖ Parkinson, *Paradisus, &c.*, p. 6.

¶ Bacon's *Essay on Gardens*.

** *Paradisus, &c.*, p. 602. Cypresses were thus planted at Sion, Greenwich, and at Hampstead, "in the garden of Master Warde, one of the clerks of His Majestie's Privy Counsell." See Gerarde, *Herbal*, p. 1185.

†† Compare also the "pleached bower" in the same play, act iii., scene 1.

‡‡ Used at Theobalds. See *Voyages celèbres et remarquables, par le Sieur Jean Albert Mandelso*. Amsterdam (ed. 1727), p. 738.

* *Profitable Art of Gardening* (ed. 1563), p. 12.

† Tusser's *Five Hundred Points, &c.* Late in the seventeenth century Quicksets were discarded for making arbours, for, in the year 1710, we read that "Quicksetted arbours are now out of use, as agreeing very ill with ladies' muslins."

‡ Parkinson's *Paradisus*, p. 445.

§ Hill's *Profitable Art, &c.*, p. 13. Cp. also Parkinson, p. 10.

‖ Hill's *Profitable Art, &c.*, p. 13.

¶ Barnaby Googe's *Husbandry*, p. 61 and 66.

** See *Gard. Chron.*, p. 253, and compare Gerarde, *Herbal* (ed. 1598), p. 1041, "Sown hard by arbers and banquetting places."

†† Googe writes of this: "Now a common bush used for the making of arbers."

‡‡ Shakespeare, *Much Ado About Nothing*, iii., 1.

§§ Parkinson's *Paradisus*, p. 10.

‖‖ *Profitable Art of Gardening*, p. 9.

¶¶ See Lord Bacon's *Essay*, and cp. Hentzner's description of Theobalds (*Travels*, p. 277).

*** *Fugitive Pieces*, vol. ii. (ed. 1761), p. 263.

Orchid Notes and Gleanings.

THE DELL, EGHAM.

In Baron Schroder's collection, the Dendrobes make a splendid show, and among them the old favourite, D. nobile, which has of late years been reinforced by many distinct varieties, contributes the greatest profusion of flowers. For richness of colouring D. n. nobilius is still the best, but D. n. elegans, D. n. majus, D. n. Sanderianum, and some others from imported plants, are highly coloured and distinct. Among white varieties, the beautiful D. n. Schroderianum is the best, its flowers being larger and its growths stronger than those of D. n. album, which is also in flower at the Dell. The varieties of D. Wardianum at The Dell seem to be as numerous and as varied, and in much the same way, as D. nobile. The best at present in flower is a form which takes the place among the D. Wardianum group which D. n. nobilius does among that of D. nobile. Its flowers are large, the sepals appearing almost wholly crimson, on account of the heavy colouring of the outside; the petals are purplish-crimson for about one-third of their length, and the labellum is also larger and more highly coloured than that of any other form—it is, indeed, a gorgeous flower. Also in flower were two forms of D. W. album, one having only yellow at the base of the lip, and the other an additional chocolate-brown blotch. The remarkable supposed hybrid between D. Wardianum and D. crassinode—D. Wardiano-crassinode, and the exquisite hybrid of Messrs. Jas. Veitch & Son—D. micans×, a cross between D. Wardianum and D. lituiflorum—were in flower. Of the varieties of D. macrophyllum, a fine specimen of the rose-coloured D. m. giganteum was in great beauty; also the blush-white D. m. Burkei, which is equal to it in size; and the pure white D. m. Dearei, which has smaller flowers. Also well bloomed were D. Brymerianum, D. Harveyanum, D. transparens, D. lituiflorum, D. Leechianum×, D. crepidatum, with twelve flowering pseudobulbs, and many fine D. crassinode, D. barbatulum, D. aggregatum majus, D. Findlayanum; the beautiful hybrids D. Aspasia × and D. cuosmum leucopterum ×; D. endocharis ×, D. aureum, and a new form of it, with orange-coloured flowers and the Violet fragrance of the pale-yellow form. Of the D. thyrsiflorum and D. densiflorum section, many large specimens were showing numerous spikes; and some of the plants of the old, but still far from common, D. Farmerii were showing dozens of already advanced spikes.

Of the cool-houses the great attraction was the now famous Odontoglossum crispum Stevensii. The plant this year has a branched spike of twenty-four large white flowers heavily spotted with bright cinnamon brown. It is a superb flower, and like all the other really first-class forms of the spotted crispums, there is a character about it which makes comparison difficult. In the same house were several hybrids unnamed, of great beauty—one of them with the blood-red markings, and some of the other features of O. Jacombianum; another is of a bright Cowslip yellow, with but a dozen or so small spots on the segments near the column.

A fine O. Ruckerianum had a branched spike of forty-five flowers; O. Edwardii, two spikes 3 feet to 4 feet long of violet coloured blossoms, and O. Wilckeanum had several worthy representatives; and many others were in flower. In the cool-houses were many flowered plants of Masdevallia Lindeni, of Lycaste Skinneri, and of L. plana, Trichopilias, and Burlingtonia fragrans. Of Cymbidiums several C. eburneum were in flower, a single specimen of C. Lowianum, with twenty-nine spikes and several smaller ones, and a fine plant of the rare old C. devonianum.

The collection of Cypripediums, rare and otherwise, consists of mostly large plants well grown in every way, and well cultivated.

In the Cattleya-houses we noted that the Trianæs here, as in many other places, have not been up to their usual mark this year. The fine C. T. Schroderiana holds its own as a most perfect flower, C. T. Osmani as one of the richest coloured, C. T. Leeana as one of the largest, and the other named varieties preserve their characteristics, but not in the marked degree that they do in what growers call a "Trianæ year." Cattleya Schroderæ and its white variety were in bloom, and several plants of the noble C. labiata Luddemaniana, which has flowers as large as those of C. gigas, and which are very fragrant. There is a white variety of this species in bloom, and also named C. L. Schroderiana. In the Cattleya-house was a specimen of the brilliant Lælia cinnabarina, bearing ten spikes. The large specimen of Sobralia xantholeuca promising to have scores of its large golden flowers presently, and the large collections of hybrid Lælias and Cattleyas were showing well for bloom. Numbers of plants were noticed in bloom of Calanthe Regnierii, Platyclinis, a few Phalænopsis, an Angræcum citratum, and varieties of Miltonia Roezlii arranged effectively with foliage plants and Ferns. Outdoors the Rhododendrons promise a great show of bloom, and the latest improvement; the extensive rockeries, whose beauties Mr. Ballantine more than doubles by his skilful planting, is well worthy of a garden which the Baron takes a pride in making equal to any of its size in the country.

Orchids at The Woodlands, Streatham.

A few days ago, by permission of Mr. R. H. Measures, I was allowed to inspect the Orchids at the above place, where, with Mr. Abrahams as pilot, I made the following few notes which will probably be interesting. Mr. Measures has for a long time held a good reputation for his admirable Cypripediums, and one needs only to look in at the door of the house to see that all the plants are healthy and vigorous. The house is fitted up all round with sloping stages, in the centre is also a stage of similar construction, and I may say a construction admirably adapted to the requirements of the plants. Notable amongst the plants in flower was a strong and healthy Cypripedium concolor, carrying some large well-marked flowers. Another was seen in C. Harrisianum vivicans, a very fine variety, and an improvement on the type; the dorsal sepal is rather twisted, as are also the petals, the lip is large and handsome, and in colour the flower is somewhat richer than its type. A fine plant of C. selligerum majus in flower shows to advantage the distinctness of this variety when placed against the ordinary form; the dorsal sepal is large and beautifully marked with dark brown. C. Measuresianum is a hybrid between C. villosum and C. venustum.

Several good plants of C. Sedeni porphyreum and C. S. candidulum were noticed. The collection contains a splendid plant of C. Morganiæ in excellent health, which was flowering beautifully. Mr. Abrahams told me that it is not uncommon to have as many as three flowers on a spike. A pretty form of C. insigne, named Woodlandense, was found in a cooler house. It is a handsome variety, with the dorsal sepal heavily blotched with brown on a greenish-yellow background, and with a pure white margin; the slipper is almost white, a distinction hitherto unequalled in the insigne family.

Lycaste Skinneri Jamesiana is certainly a fine variety, that compares favourably with such varieties as "Young's," or, as others call it, Armeniaca; it is pure white, save for the base of the petals, which is of a healthy rosy-blush; there is also deep colouring inside the throat at the base of the column.

Cattleya Trianæ Measuresiana, a novelty, which flowered from an importation of Messrs. Sander & Co., is a most exquisite thing in its way; the flower of a large size, the sepals and petals rich mauve colour, and very broad and shapely; the lip large and well formed, and from the base to the centre is one large blotch of the richest crimson. A picture for *Reichenbachia* has been made from this plant. *W.*

Two Grand Odontoglossums.

At present in flower in the collection of F. C. Jacomb, Esq., at Cheam Park, Cheam, noted for its fine Odontoglossums, is a form of O. crispum, which for massive flowers and fine shape excels all which have been previously bloomed. Its flowers are over 4 inches across, the petals nearly 2 inches broad, the sepals and petals white, the latter finely fringed, and the former having a large irregular brown blotch. The lip is large and crimped at the edge, yellow at the base, and with half a dozen or so brown blotches in the middle. This fine variety came in an importation of Mr. Shuttleworth's in 1888, one which has been prolific in good things, but none equal to the subject of this note.

A superb form of O. Humeanum is the other novelty at Cheam Park. Its flowers exceed the type in size; the sepals are evenly barred with lines of purplish-brown spots; the petals white at the edge, primrose in the middle, with some large purple blotches; the lip clear white, with a primrose-yellow stain at the base. O. Humeanum is a supposed hybrid between O. cordatum and O. Rossii majus, and that now in flower with Mr. Jacomb must have sprung from a very high example of O. Rossii majus, as its flowers equal the very best of that species.

Lælia flava, &c.

This, one of the most striking of Orchids, is in flower at Clare Lawn, East Sheen, at the present time. The plant has a scape of 2 feet in height, carrying twelve beautiful yellow flowers. It grows best in a pot filled to within an inch of the rim with crocks, elevating it on a small mound of peat and sphagnum moss, and affording it similar treatment to other Lælias, that is, copious supplies of water during the growing season, and gradually decreasing the supply after the growths are completed, very little being required during the resting period.

Two other Orchids of equal beauty, and worthy of cultivation in every collection, are Angræcum citratum, a native of Madagascar, and A. Leonis, from the Comoros Islands. We have several plants of the former carrying ten of its graceful pendulous racemes, some of which are 12 inches in length. The flowers are yellowish-white, and slightly fragrant.

Angræcum, or, more correctly speaking, Aëranthus Leonis, is a very distinct and handsome Orchid, with its sword-like leaves and white flowers, as many as ten being sometimes found fully expanded at the same time on a plant of eight leaves. Both of the above species are grown best in baskets, with a few crocks with charcoal for drainage, and living moss as a surfacing. They should never be allowed to get dry at the root, and especially does this hold good of A. citratum, else the leaves will turn yellow, Coming, as they do, from very hot and moist countries, they naturally require the temperature of our warmest Orchid-houses, viz., the East Indian. *W. H. P.*

Florists' Flowers.

BIRMINGHAM PRIMULAS.

Under this name may very fairly be classed two varieties of Chinese Primulas, raised by Mr. Rose, at Sparkhill Nurseries. Princess Louise is a white, with large well-formed flowers of great substance, and with distinct stout fleshy foliage and good habit, throwing up its flowers on stout foot-stalks well above the foliage. The Marquis of Lorne is similar in habit, form and size of bloom, and in foliage, but is of a bright deep rose colour fading to a paler colour. It is in colour sometimes called crimson, but we have not yet got a really crimson Chinese Primula.

A few very fine varieties have been raised from these varieties, of which one is Emperor, a bright cerise, of finest form, large size, and of good substance. Another seedling from Princess Louise is the Queen, possessing very stout Fern-leaf foliage, and pure white flowers, with large Orange-yellow centres, and also of great size and substance. A plant of this very fine variety, exhibited by Messrs. Thomson, was selected as the best specimen

Primula out of about 350 plants staged, at the last November Chrysanthemum Show, and awarded the premier prize. A seedling from the Queen, named Her Majesty, and not yet sent out, is just like the parent in every respect excepting colour, which is of a charming pale pink tinted colour.

Unfortunately, these Primulas are not free seeders, and it is with difficulty that much seed is obtained; Mr. Herbert, the foreman here, sows seed in July as soon as it is gathered, to produce plants in flower in February and March, and grows on the same plants for November and December blooming. The soil he uses is good stiff turfy loam, with leaf soil, decayed cow manure, and sand. No artificial manures are used except for exhibition purposes, and then in a very moderate way. *D. S. H.* [The flowers and leaves sent were rather wanting in refinement. Ed.]

LIQUID MANURE FOR GARDEN AND ORCHARD.

Perhaps it might have been more appropriate had this paper been headed "The Abuse of Liquid Manure," as it is nearly as often abused as used. How often does one find, when passing a farmyard, this valuable aid to the gardener running to waste from cattle-sheds, stables, &c., and perhaps polluting a stream unnecessarily. This is the abuse of liquid-manure, and the example of it may be often found close to an impoverished garden or orchard. This sort of waste goes on everywhere, although the gardener complains that he cannot get dung enough for his needs. It cannot be denied that the most successful competitors at shows with Leeks, Celery, Cauliflowers, Cabbages, &c., make great use of manure in this form, and I am acquainted with many amateurs who could beat professional gardeners in these things, and their success depends largely on liquid manures.

Some ten years ago I had under my charge a garden in the North of Scotland, which had been neglected as regarded manuring; and when the soil of a garden has once got poor, it takes a little time, even with a good supply of ordinary stable-manure, before it is got into good heart again. Fortunately there existed a large manure-tank for the sewage of the cow-houses and stables, and which at the time was overflowing into a drain, and was lost. How long this waste of manure had been going on no one seemed to know. The pump that had been put there when the tank was made was suckerless, and in bad order. I caused the pump to be put into good order, and a 40-gallon petroleum cask was fitted on to a sort of wheelbarrow frame, somewhat similar to the iron water-barrows now in use, and which answered the purpose very well. During the winter I had the liquid put on all vacant ground by means of a piece of a water-can spout flattened down so as to leave a space of about a quarter of an inch in width. Besides pouring it on all the vacant ground, as I have said, when the ground was thoroughly moist I applied it to the wall trees, small fruit bushes, Rose trees—in fact, everything came in for a share of it. The Vine and Peach borders were in poor condition, and these came in for a good share of the liquid all through the season, the outside borders having doses of it after a day's rain, and such days are common in that part of the kingdom. The inside borders were first well watered with clean water before applying the manure. The Vines ripened a fair crop the first year, and made splendid wood for the next season. The foliage had that fine dark-green hue which indicates health. Turning to vegetables, the benefit these derived from the liquid was marvellous. One instance in particular may be cited. One half of a break of Veitch's Autumn Giant Cauliflower had ordinary dung dug in, the other half had the liquid poured on after it had been dug; the latter treatment produced the best Cauliflowers by far. Celery, Leeks, Onions, Peas, came in for their share of it, and were greatly benefited.

New drainage being wanted for the stables and laundry at my present place, I suggested to my employer that the drainage should be conveyed to two tanks, one to receive the stable drainage, and the other the laundry water. This, with pumps for emptying the tanks into a water-barrow drawn by a pony, was readily granted. The water from the stables is being applied to some scores of trees of Apple and Pear on walls and in the open. Although the trees have seen a good many seasons, they are, with the exception of a very few, wonderfully free from canker. It could easily be seen by the appearance of the fruit-buds and weak terminal growths that the soil they grow in is exhausted. I feel certain that the liquid-manure which we have applied, and will continue the use of, will renew their vigour in such a way that they will yet yield some fair crops of fruit.

There is a right and a wrong way in doing everything; and to pour liquid-manure just around the stem of a tree would be the wrong way of applying it. First carefully examine the soil about the trees with a digging-fork, and ascertain where the main part of the feeding-roots lie, and apply the manure-water to the soil in that part, bearing in mind that the ground must be thoroughly soaked with rain, or artificially with clear water, and then there is no danger of injuring the tree.

The soapy water from the laundry tank is useful, and we have been applying it with the garden-engine vigorously to the wall-trees, to get rid of the larva of insects injurious to the leaves during the summer. We shall use this water during growth whenever insects make their appearance. Should the "fly" attack Turnips, or the maggot young Onions, the soapy water will be applied to these crops, and besides acting as a check on the spread of these pests, as I have no doubt it will, it will to a certain extent act as a stimulant to growth. After the trees were syringed with it, some was poured on the ground around the roots of Raspberry bushes and fruit trees, side by side with the liquid-manure from the stable tank, and I am awaiting results. *J. Jeffrey, Caversham Park.*

PREPUSA HOOKERIANA.

In Nicholson's excellent *Dictionary of Gardening* this remarkably handsome plant is said to be "probably not now in cultivation." The sketch, taken by Mr. Weathers recently in the nursery of Messrs. Sander & Co. (see fig. 62) shows that this surmise is happily incorrect. Prepusa, so called from *prepousa*, conspicuous, is a genus of Gentianads. The particular species here figured comes from Brazil, whence it was introduced to Glasgow and Kew by Gardner. It was illustrated in the *Botanical Magazine*, t. 3909. It is a perennial herb, with much of the habit of a Lychnis or Silene, with tufted linear-oblong leaves, and a loose inflorescence, bearing bell-shaped flowers on long stalks. The distended bag-like calyx is of a purplish-red colour, and from its mouth project the five or six lobes of the white corolla. Many of these Gentians, such as Lisianthus, are difficult to cultivate, and it would be of interest if some of our friends who have had experience in their culture would communicate their results.

THE APIARY.

EXPERIENCE OF THE PAST WINTER.

I have been experimenting as usual with several stocks of bees during the winter, and having examined them on Friday, March 21, am able to give some data upon which to work another season. Formerly, when I packed up bees for winter, I put some brandy-balls on the top of the frames, or the skeps, as the case might be; but I happen to live on the verge of Salisbury Plain, where the village shops, though they contain "mouse traps and other sweets," do not often contain brandy-balls. I have, therefore, been induced to try dry sugar, and have had much success with it. I take large basins, holding about 5 or 6 lb. of sugar each, and tie cheese cloth over the top of each basin, and then invert it over the bees. Many people say the bees will not eat dry sugar in winter time. Last Friday, finding the basins rather light, I looked inside, and found several basins empty; some were half empty, and some nearly full. In every case, however, the bees had not only commenced the attack, but had made considerable progress towards emptying the basins. I have no doubt that the general mildness of the winter had something to do with the empty basins, but not all, for I have tried the same in previous winters, which have been anything but mild, and the same results have taken place. If the basins are put exactly over the cluster of bees, the heat is sufficient to moisten the sugar, and the bees are able to take it. I am quite aware that the dry sugar theory is opposed by many excellent bee keepers, but theory is of no use when opposed to successful experiment, and I am prepared to show the basins exactly as I took them off the hives to any unbelieving persons. In the cases where the basins were empty, I followed up at once by giving syrup, but where they were only partially empty, I left them on a few days to finish them. Of course, I only put the basins of sugar on those stocks which were likely to run short of stores. On examination, the fact was revealed that there has been an immense demand on the stores, owing to the peculiar character of the season, and it behoves beekeepers to look at once to see that matters are right. There are many who think all is well if the bees are alive on the first day of April; when, alas, all may be wrong. Bees may run short in one night, and die in consequence. *Bee.*

THE GENUS ASARUM.

The name Asarum is, probably, unknown to many of the readers of the *Gardeners' Chronicle*, and, indeed, the etymology of the word is doubtful and variously explained by different authors. Tournefort first employed it as a generic designation for Asarum europæum, a species occasionally met with in England as an outcast or waif of cultivation, and later it was adopted by Linnæus without any explanation of its meaning. There are two or three Greek words from which it may have been derived, the most likely derivation being from *a*, negative or privative and *sairo*, I adorn, in allusion to the absence of ornamental character in the flowers of the European species.

When the first part of the third volume of Bentham and Hooker's *Genera Plantarum*, containing the order to which this genus belongs, was published ten years ago, about a dozen species were known, and these are scattered all round the temperate zone of the northern hemisphere. Since then the total number of species known has been augmented by about half-a-dozen, chiefly from the Chino-Japanese region and one from California; and among Dr. A. Henry's numerous discoveries in Central China is a very remarkable new genus, intermediate in habit, and flowers between Asarum and Aristolochia.

Not only have we received at Kew a great accession of dried specimens of this genus, but through Mr. Ford, of the Hong Kong Botanic Garden, living plants of three or four Chinese species have been introduced, and have flowered at Kew. As ornamental plants, the prettiest or best of the species do not rank high; yet as they are small, neat, and curious, and produce their flowers in a cool greenhouse, in mid-winter, they are worthy of some attention, and I propose passing in rapid review those that have been, or are, in cultivation, with descriptions of two or three new species. All the species are similar in habit to A. europæum, having creeping rhizomes, from which the stalked, usually cordate or reniform, leaves rise, almost concealing the usually very short-stalked flowers.

Asarum europæum, the only European species, is perhaps the least attractive of all, though not undeserving of a shaded nook in the rock garden. It was

formerly much cultivated as a medicinal herb, and it is now found wild in a few places in England, probably, however, only as an outcast from cultivation. In an undoubtedly wild condition, it ranges from Spain to Western Siberia. Cultivated at Kew.



Fig. 62.—Prepusa hookeriana. Calex, reddish-purple; corolla, white. (see p. 420.)

A. virginicum, a native of eastern North America, was the next earliest species cultivated, or, I should say, the earliest figured. There is a representation of it in Sweet's *Flower Garden*, plate 18 (1823), from plants cultivated by Knight, of King's Road, Chelsea. It grows naturally in shady rocky woods in Virginia and Carolina, southward to Georgia, and flowers in spring. Sweet states that it flourished in a peaty soil, that it was in full flower in the middle of April, and had then been in flower for a considerable period, although the season was a very backward one. Sweet adds, that there was a large clump of it entirely covered with bloom, "and that although the "flowers were not so splendid as some others, they were pretty and curious; and, as they continued a long time, the plant was well worthy a place in all curious collections." The flowers are of a very dark purple, with small white spots on the spreading lobes, but is otherwise much like the common one. This, and other American species, is called wild Ginger. Cultivated at Kew.

A. canadense.—A much commoner species than the last, being found throughout Canada, westward to Saskatchewan, and southward in the eastern United States to North Carolina. This was figured in Loddiges' *Botanical Cabinet*, ix. (1824), plate 889, but the figure is poor, and in the *Botanical Magazine*, plate 2769 (1827). The last was from the pencil of Sir William Hooker, and represents the flowers as crimson with black dots. This was cultivated in England by Bishop Compton before 1713, and is "deserving of a place in every collection." It flowers from April or May to July, and grows naturally in rich forests amongst leaves and dead wood. The flowers are about 1 inch across, and the spreading lobes more pointed than in either of the foregoing. In each sinus of the three-lobed perianth there is usually a small narrow appendage or reduced petal. A third figure of this species in Sweet's *Flower Garden*, plate 95, represents the flowers of a pale brown. It is in cultivation at Kew.

A. arifolium.—This was introduced about the same time as A. virginicum, and is figured in Hooker's *Exotic Flora*, plate 40 (1823) from a plant that flowered in the Glasgow Botanic Garden. The flowers are almost entirely green outside; the tube constricted below the lobes, and the lobes infolded. The leaves, however, are usually prettily figured or variegated with white, and nearly hastate in shape. A native of the South-eastern States from Carolina to Florida.

A. Thunbergii, syn. Heterotropa asaroides.—One of the larger-flowered kinds, with heart-shaped, variegated leaves, and metallic blue flowers, with markings and tinges of green, and yellow, and purple, or, as represented in the earliest figure (*Botanical Magazine*, plate 3746) in 1839, of a dirty brown, with variously coloured markings and pencillings. A later figure in the *Botanical Magazine* (plate 4933, 1856), perhaps more faithfully depicts the plant, and in this the ground colour of the flower is a blue-green. The flowers are about 1½ inch in diameter, and have an inflated, almost spherical perianth, with reflexed, deltoid lobes. This species is a native of Japan and China, and has been in cultivation under the name of Asarum japonicum. The flowers are described as having the perfume of a ripe Apple, and they are produced in a greenhouse in midwinter. It is still grown at Kew.

A. parviflorum, syn. Heterotropa parviflora, in the *Botanical Magazine* (1863), plate 5380. A native of Japan, with quite small flowers of a dull purple, almost hidden in the subtending bracts. The perianth is very narrowly constricted in the middle and the lobes are bordered with green. One of the least attractive.

A. albivenium.—Another Japanese species, similar to the last, but having white-veined leaves and longer-stalked flowers of a yellowish colour, with red spots. It is figured in Regel's *Gartenflora* for 1864, plate 440. A. leucodictyon is another name for it.

A. macranthum.—By far the most striking species yet cultivated. A native of Eastern China and the island of Formosa, originally discovered by Richard Oldham, one of my earliest associates at Kew, who collected in China and Japan for the Royal Gardens, Kew, and died from dysentery at Amoy, about five-and-twenty years ago, after a short but not unsuccessful career as a collector. Recently it was rediscovered in Formosa by Mr. Ford, of the Hong Kong Botanic Garden, and he sent living plants to Kew, where they flowered in 1888; and this species was figured in the *Botanical Magazine*, plate 7022. The largest leaves are 4 or 5 inches across, and borne well above the flowers on stout stalks. They are of a shining green above, mottled with white and paler beneath, with a prominent raised venation coloured red. The flowers are about 2 inches across, seated close to the ground, and so numerous that they cover the surface. They are of a rich purplish-brown, and the broad, much undulated, spreading lobes of the perianth are bordered with yellowish-

green. Unlike most of the members of the genus, and, indeed, of the order (Aristolochiaceæ), this species has a pleasant odour, exactly that of fenugreek, an odour exhaled by solitary members of several of the most widely separated natural orders.

A. caudigerum.—A Chinese species, originally described by the late Dr. Hance from specimens collected in the province of Kwangtung by Dr. Gerlach; since rediscovered by Mr. Ford, who sent living plants to Kew, where they have flowered this winter. It has been drawn for the *Botanical Magazine*, and the figure will shortly appear. It differs essentially from all the preceding, in the three lobes of the perianth being extended into slender tails an inch or so long, reminding one very much of some of the species of Masdevallia. The flowers are of a reddish-purple, and the plant is certainly one that the curious should acquire if possible.

The North American Asarum Hookeri, syn. A. caudatum, is a closely allied species with larger flowers, sometimes exceeding 3 inches in length. This species has a wide range in western North America, and is figured in Fielding's *Sertum Plantarum*, plate 32. From a somewhat starved specimen in the Kew Herbarium, it appears to have flowered in the Cambridge (England) Botanic Garden in 1881. It is also at the present time in cultivation at Kew.

A. geophilum, Hemsley, n. sp.*—Another of Mr. Ford's introductions from the province of Kwangtung, South China. It flowered at Kew early in December, and was drawn for the *Botanical Magazine*. The cordate-orbicular leaves are somewhat fleshy, from 2 to 4 inches across, of a shining dark green, veined with white on the upper surface, and paler beneath. The medium-sized, purple-brown, white-spotted and margined flowers appear scarcely above the surface of the ground. A very pretty species, the foliage alone being sufficiently ornamental, reminding one of some of the species of Peperomia.

A. pulchellum, Hemsley, n. sp.†—This pretty species is not yet in cultivation, but from the appearance of the foliage, even in the dried state, and Dr. A. Henry's description of the flowers, it must be one of the most ornamental of the genus. The roundish cordate leaves are clothed with long many-jointed, beautiful hairs; and the medium-sized flowers are dark red outside and pink within, and "very pretty." It is a native of Central China, and we may have long to wait before we see it alive, as Dr. Henry has left that region.

A. maximum, Hemsley, n. sp.‡—Another of Dr. A. Henry's discoveries in Central China, and, like the last, not in cultivation. It is the largest of the genus known, the leaves being as much as 8 inches across and 18 inches high. The flowers are from 2 to 2½ inches in diameter, flesh-coloured outside, dark purple and velvety within, with a white transverse stripe at the base of each of the rounded spreading lobes.

In conclusion, a few words respecting the singular new genus referred to above:—

Saruma Henryi.—Professor D. Oliver has given this name to one of Dr. Henry's discoveries in Central China, and it is mentioned here on account of its having distinct petals inserted on the calyx, and alternating with its lobes, and equalling them in size. It differs from Asarum in having a distinct stem 2 or 3 feet high, and terminal or pseudo-terminal flowers, and in the *a* being at the end instead of the beginning of the name! A figure of this plant is given in Hooker's *Icones Plantarum*, plate 1799. *W. Botting Hemsley.*

* *Asarum geophilum*, Hemsley, n. sp.—Herba perennis, rhizomate repente, foliis 2—3 poll. supra terram elevatis. Folia subcarnosa, breviter petiolata, rotundato-cordata (lobis saepius obtegentibus) usque ad 4 poll. diametro, conspicue laxeque albo-venosa, simul plus minusve bullata, ciliolata, supra atro-viridia, nitida, glabra vel pilis albis parcissime instructa, subtus pallidiora, paullo-hirsutiora: petiolus crassus, carnosus, fere teres, appresse albo-pilosulus. Flores solitarii, brevissime pedunculati, supra terram sessiles, pedunculo subito recurvo; perianthium circiter 1 poll. diametro, brevissime tubulosum, subæqualiter trilobatum (lobo antico majore), lobis rotundatis, ecaudatis 2 posticis demum arete reflexis, intus atro-viride vel brunneum, albo-maculatum, albo-marginatum, intus extusque pilis crassis plus minusve vestitum, extus purpureo-viride; andrœcium et gynœcium normales, staminibus supra pistillum conniventibus.

† *A. pulchellum*, Hemsley, n. sp.—Herba fere undique pilis elongatis multicellularibus moniliformibus pulchellis vestita, rhizomate repente, caulibus vel ramulis brevibus adscendentibus saepius 2-foliatis 1-floris. Folia papyracea, longe petiolata, ovato-cordata vel rotundato-cordata, absque petiolo 2—3 poll. diametro, obtusa vel subacuta, præcipue subtus pilosa, venis primariis paucis inconspicuis; petiolus crassus, dense pilosus, usque ad 6 poll. longus. Flores pulchelli, extus atro-rubri intus rosei (A. Henry), parvi, circiter 6—7 lineas longi, breviter graciliterque pedunculati; perianthium pilosum, subcarnosum, fere ad basin æqualiter trilobatum, medio constrictum, lobis rotundatis leviter undulatis; stamina uniformia, stylum subæquantia, filamentis brevibus crassis, antheris breviter appendiculatis omnibus extrorsis; styli ad apicem connati, stigmate disciformi.

‡ *A. maximum*, Hemsley, n. sp.—Herba robusta, fere undique glabra, rhizomate repente. Folia ampla, longe petiolata, cum petiolo crasso interdum saltem sesquipedalia, crassa, subcarnosa, late cordata, vel hastato-cordata, absque petiolo interdum usque ad 8 poll. longa, obtusa vel vix acuta, lobis latis rotundatis divergentibus, venis primariis paucis crassis; folia pauca, secundaria minora, reiniformia. Flores ut videtur erecti, breviter pedunculati (extus carnei, intus velutini, nigro-purpurei, lobis basi stria unica transversa albida instructis), 2¼—2½ poll. diametro; perianthium subæqualiter 3-lobatum, lobis latis rotundatis planis divergentibus, tubo a basi gradatim expanso intus interrupte transversim multiplicato; antheræ subsessiles, uniformes, minute appendiculatæ; styli stamina superantes, crassissimi, minute papillosi, longe bicornuti vel bifidi, stigmate dorsali brevi oblongo.

Plants and Their Culture.

Propagation of Plants to Flower in the Autumn.—Tree Carnations: Cuttings should be taken and propagated, and young shoots, if taken now, soon root in a close pit, when put into a sandy compost. The young plants should get shifted when necessary, and be kept clear of green and black fly, which if once allowed to get a foothold on the plants soon disfigure them. For a potting soil plenty of good loam, decayed manure, and a small quantity of old mortar suits them; the plants must be gradually hardened off and not overwatered. Lasiandra macrantha may be treated as advised for Begonias. It is a subject worthy of extended cultivation, and looks well when grown in small pots at the above season; if grown through the summer months in a cold frame it does much better than when grown in the stove. Cuttings may be taken now and, when rooted, potted into small 60's and finally potted into 32's, keeping them well stopped throughout the period of growth, and then transferring them to a warm house early in the autumn. Poinsettias and Plumbago rosea, Eranthemum pulchellum, Euphorbia jacquiniæflora, and Justicia speciosa, more correctly known as Peristrophe speciosa, should also be propagated. The Peristrophes require treatment similar to that given to the Begonias, and they produce much bloom in 5 or 6-inch pots. Poinsettias may be propagated if early plants are desired, but for later use the plants may remain dormant awhile longer. We have these plants in succession, and start a few pots early so as to obtain cuttings.

Eranthemum pulchellum may be increased at the earliest opportunity, so as to secure, strong plants at an early date. It succeeds with frame treatment after the final potting, and it is much better so than when grown in a stove during the summer time. Abundance of moisture and frequent damping over on warm evenings are required to promote a healthy growth. Plumbago rosea cuttings may be taken off, and when rooted these should be put near the light and the stems trained on pieces of string; it is a plant that will last in beauty for some weeks if carefully looked after. Cuttings taken with a heel and placed in peat, leaf-mould, and sand, in a temperature of 80° soon take root. The plant succeeds best under stove treatment, and should not be starved at the root when growing.

Euphorbia jacquiniæflora needs to be grown in the same way, and the cuttings should be secured soon. Put three cuttings round the side of a small 60, thereby securing a small ball with each when turning them out. Employ some good loam in the compost, as also in that for Plumbagos; as the plant increases in size, equal parts peat and loam with a dash of coarse silver sand and a few small pieces of charcoal and ½-inch bones, suits the needs of Euphorbias, manure water being given to them while growing. Cuttings of Impatiens should be taken from the old stock plants, and the young stock grown in frames in the summer. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

East Indian House.—If previous directions were acted on with regard to forward plants of Cattleya Sanderiana the flower sheaths will now begin to show themselves, and as soon as these are seen the plants should be well supplied with water at the root, and the atmosphere saturated with moisture, to assist growth and keep down thrips. Where several of these plants are in a collection, it is better to get a few in flower in succession, rather than to have them all flowering together.

Lælia majalis that has been resting in a cool dry house will now begin to grow, and should be brought into this house; and as soon as the roots get active, it should be plentifully supplied with water. If the plants made strong growths last year, the new growths will, in most cases, send up flower spikes, and in that case the plants should be hung up to the roof. Phaius tuberculosus is, undoubtedly, one of the most beautiful of Orchids, and no amateur should rest satisfied until he has a plant of it. It is a free grower, though thrips are its deadly enemies; but these may be cleared off by brushing the plants two or three times a week with a camel's-hair pencil, wet with saliva.

Phalænopsis which may not have been rebasketed, as advised in a previous calendar, should have that operation done at once, as the longer it is delayed the greater will be the danger of the young tender roots getting broken off. The plants should receive a good sponging of their leaves before being placed again in the house. A well-known grower of Phalænopsis attributed a great part of his success to the frequent use of the sponge, and, I believe, there was some reason in what he said. The temperature may now be increased to 68° at night, and an increase of the day warmth of 10° to 15° by sunheat will be beneficial to the plants. *A. G. Catt, Parkfield, Worcester.*

Fruits Under Glass.

Vines Fruiting in Pots.—The Grapes on the above will now be colouring fast, and should not be hurried, time being highly requisite for perfect finish. Black Grapes always colour the best when under the shade of their own foliage, but white or yellow ones require exposure to sun-light to bring out their proper tints. In the vinery where colouring is taking place, avoid a parched atmosphere, on the one hand, and a close one on the other, and steer a middle course, endeavouring to preserve the clean and healthy foliage to the last; and remember that liquid manures given now are inimical to perfection in the colour of the Grapes.

The Early Vinery.—These Vines, when planted in inside borders, will require assistance in the form of mulchings of spent Mushroom dung or farmyard manure, and occasionally of manure-water, judiciously employed. Carefully ventilate the house before and during bright sunshine, or scorching of the foliage will certainly take place; shut up early, and give a little front air at night. The protecting coverings of outside borders may be reduced gradually in thickness after the middle of April until entirely removed. Train in shoots to cover the trellis, preserve as much of the earliest foliage as is consistent with due space being left for growth, and remove superfluous laterals as fast as they push forth, leaving one here and there to prevent back buds from breaking. Thinning of the berries gives at this season plenty of employment for the gardeners. Seeing that various kinds require different methods of thinning, object lessons are the best teachers, but it may here be stated that Hamburgh and other long foot-stalked kinds require less thinning than those having short stalks of the Lady Downes type; and in all cases the end in view should be realised as much as possible. Begin operations on a bunch by removing all deformed and seedless berries, as soon as these can be discerned; having done this, the shape the bunch will assume will be made plainer. The young fruits are very delicate, and if rubbed by the hand, the hair, or by the scissors, injury is caused that cannot be removed. Rust is frequently caused by want of care in this matter, as well as by cold draughts, or old sulphur left on the heating apparatus. Muscats in flower will enjoy a temperature of 70° to 75° at night, 80° to 85° by day, and the rods should be rapped a few times daily. The syringe may also be used for the distribution of pollen, but by experienced hands only; and when crystal globules are present on the flowers, the

dry hand may be drawn down the bunch to remove them.

Later Vines.—See to the timely disbudding of the bunches on these Vines. Increase the temperature at night to 55°; houses of late Black Hamburghs to be kept open day and night till the Vines start of themselves, when they must have generous treatment. Vines cut back for fruiting next year in pots, should be trained to stakes or wires, and the house thoroughly ventilated so as to secure short jointed canes. The leaders may be stopped at 6 feet, and the laterals at the first joint. Encourage stocky growth in Vines struck from eyes this season, and repot them before the roots get pot bound.

Peaches and Nectarines.—The early trees should have pieces of lath placed under the branches near the fruit so as to bring the proper top of the fruit towards the sun, and training the shoots of the current year aside. Use the syringe daily, and, if well-drained, the borders should receive abundance of water and sometimes liquid manure. Borders may be mulched with spent Mushroom dung. Avoid hard forcing at night. Attend to the regular disbudding of shoots and the thinning of fruit in later houses. I consider it to be unwise to allow, in thinning, for a large percentage of fruit to drop off at the stoning period; for whenever this mishap takes place the cause, like that of shanking in Grapes, may be traced to defective root action, bad state of the borders, or previous overcropping. Very gross shoots springing from the middle of the tree should be removed altogether, these being a prolific source of gumming if left; and shoots retained to draw the sap to the fruit should be stopped at one joint, they having previously been stopped at the second or third leaf.

Trees in the late house will be in flower, and the fertilisation of the bloom may safely be left to Nature. A fumigation given the house before the blooms open is a wise precaution.

Strawberries, which may now be cropped more heavily, should now be obtainable in large quantities, and because of this I grow the later successions in 7-inch, midseason in 6-inch, and earlies in 5-inch pots; and always layer direct into the fruiting-pots. Attend to the thinning of the flowers, and place forked sticks to the fruits to prevent injury to the stems, and their contact with the water.

Early Melons which have set, should have the young fruits supported by pieces of sound herring-net of 1 foot square, looped up to the trellis; give a light topdressing of turfy loam, and a dash of some kind of artificial manure; preserve every old leaf, but remove laterals, at the first joint. Plant out successionals—beware of thick planting; sow seeds. Keep the stems, when syringing the plants, dry. The temperature at night 70°, closing early, running up to 90°. Melons are benefited by the ammonia arising from sweet fermenting materials, and by being kept free from red-spider.

Cucumbers.—Spring-sown plants should now be covering their trellises, and being rapid growers, topdressings of loam and horse-droppings, little and often, must be afforded them.

Figs should be kept quiet during the formation of their seeds; but pot trees and others early started will soon be ripening their fruits. Stop shoots if more are wanted, and remove crowded growths; but I favour moderate extension. Expose the fruits to the sun, and give liquid manure, or mulch lightly with rich manure. Now is a good time to secure a season's supply of good packing moss, which has no equal for packing, to be got in readiness for the packing of Pines, Grapes, Melons, Peaches, Nectarines, or Figs. In my exhibiting days this material secured for me the Fruiterer's Company's special prize for packing on two successive occasions. *W. Crump, Madresfield Court, Malvern.*

The Flower Garden.

Bedding-out Plants.—These plants when transferred to frames, as the hardier of them now should be, should be carefully ventilated, and also shaded during bright sunshine for a week after taking them out of the warm houses. In stormy weather or during heavy showers of rain, the sashes should be kept close, or at least with the sashes over the plants.

Verbenas, Ageratums, &c., are better when planted out in frames in loam and leaf-mould resting on 2 inches of leaf-mould, which again should lay on a hard bottom. As the cuttings become rooted and hardened off sufficiently, they may be placed in the frames at 6 inches apart each way, where they will grow away more freely than in pots, and at planting time may be taken up with good balls.

Propagation of bedding stuff should be forwarded as much as possible, and an estimate taken of the number struck and out of those that are still required for the beds, &c.

Out-of-doors operations.—Lily of the Valley beds should receive dressings of well decayed manure or leaf mould, and on the top of that put a slight covering of sifted potting bench refuse. In forming new beds, use the small roots left after making a selection of the best for forcing. Prepare the ground for the reception of young brood, by manuring and deep digging, planting out the roots 3 inches apart in the row, and 9 inches from row to row, and afterwards topdress them.

Violets, which as is well known, give the best blooms on young plants, should, when bloom is over, be increased by planting the stronger young growths which have roots. These may be put into beds or lines at 1 foot apart, the soil being previously enriched with well-decayed leaf-mould or manure. The plants grow best in half shade, and are then not infested by red spider.

Hollyhocks, which are seldom seen now in perfection, should be planted out if the plants raised from slips have been properly hardened off. The preparation of the ground for the plants should consist of trenching it deeply after liberally manuring it.

The Herbaceous Border.—In herbaceous borders, most kinds of plants have begun to grow, and it is a favourable time to give the borders a dressing of manure, and lightly prick it in with a fork. Never use a spade for this purpose, for fear of injury to bulbs and other roots.

Flower Beds, which are to be planted with hardy annuals for an early display of bloom, should be got in readiness, sowing the seeds early in April. For late summer flowering three weeks hence will be soon enough. So great is the variety in hardy annuals that very effective groups and masses may be obtained at small expense, and the display of bloom is equal to anything made with ordinary bedding plants. *D. C. Powell, Powderham, Exeter.*

The Hardy Fruit Garden.

Watering Trees.—Fruit Trees against walls should be carefully examined as to their condition at the root, the soil in many districts being dry owing to the deficient rainfall. Apricots, Peaches, Nectarines, Plums, and Cherries should have a thorough soaking. This of course must be done judiciously, bearing in mind that soils, which are light with an open subsoil, require a far larger quantity of water than those that consist of loam, or that rest on a clay subsoil. Where the borders have not been mulched, the surface should be pricked over round each tree previous to applying the water. To allow the roots of wall-trees to become dry is a fruitful source of bud-dropping. After watering lay on a mulch of half rotten manure to the depth of 2 inches, and this should extend to a distance of 4 feet from the wall. Borders thus treated will save much future labour in watering, if the season should prove to be a dry and rainless one.

The Fruit-room should be looked over, and all decaying fruit cleared out of it, and what remains placed at the coolest and darkest part. Apples of the following varieties are keeping well with me:—Court Pendu Plat, Boston Russet, Lord Burghley, and Earle's Pippin, Tower of Glamis, Norfolk Beaufin, and are as fresh as possible. When the fruit-room becomes empty, whitewash the walls and ceilings, scrub the shelves, and wash the floor.

Grafting.—The grafting of Apples and Pears should now be pushed forward, and those not having had much practice must bear in mind, that the secret of success lies in getting a perfect union between the inner barks of stock and scion. In the case of large branches, if one side only of scion and stock coincide, it will be enough. Select for scions well-ripened and short-jointed shoots, and let the scion have from three to five buds. Whip-grafting does for ordinary purposes, but for large trees and branches, cleft-grafting is better. Carefully bind the graft, but not tightly, with matting. Clay is generally used to keep the scion moist; but grafting-wax is sometimes used. A useful receipt for the purpose, and one that has not the inconvenience of having to be applied warm, is:—Yellow wax, 1 lb.; turpentine, 1 lb.; Burgundy pitch, 8 oz.; Mutton suet, 4 oz.; melt altogether, mix thoroughly, and, when cool, form the mass into small balls for use. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

Seed Sowing.—The work here will rapidly increase in volume, and strenuous efforts must be made to keep pace with it. Peas sown in February will now be up, and if strong growing varieties are very thick in the rows, thinning out may be practised, leaving an inch or more from plant to plant. Draw earth up to the rows, put in the Pea sticks, and in doing so leave a space of about 1 foot between the tops of these, if the Peas are tall sorts. Two more sowings may be made this month of wrinkled Peas, the seed being more sparingly sown than hitherto. Champion of England and Ne plus Ultra are trustworthy varieties for summer use.

Potatos.—The season has arrived for planting the main crop, and if the ground is in good order planting need not be delayed. Plant no Potatos on land heavily manured, as this would be at the expense of the crop; and land should be chosen, by preference, that has not carried Potatoes for two or three years. For strong growers, a distance of 2½ feet between the rows is not too much, 1 foot being the space between the tubers. Heavy land should have a liberal dressing of burnt refuse or road scrapings, and planting is best done in a shallow way, not using a dibber, always a bad way of planting in heavy land. In very light soil, on the contrary, a dibber may be used, and it is in some cases preferable to any other implement.

Broccoli and Borecole of the following varieties may be sown in beds well prepared, Snow's Winter White, Walcheren, Veitch's Self Protecting, also Autumn Giant Cauliflower; Savoys, especially Early Ulm, for autumn use; Cabbages, Chou de Burghley, Asparagus, and Scotch Kales. Before sowing, the soil should be made moderately firm, and if mice are troublesome, the seed may be damped and rolled in dry red lead. Sow broadcast in drills, and cover with fine soil, smoothing all over with a bright spade. The late varieties of Broccolis, Savoys, Kales, &c., should remain in their packets for at least two weeks later.

Asparagus roots may now be planted, the growth being forwarder than is usual in April. These must not be exposed before being planted, and should be lifted carefully with a fork from the seed lines. A covering of 3 inches of fine soil should be spread over the roots when they are placed in position in the trench, and made firm about them without injuring the stem. A mulching of short dung may be put over the beds when dry weather sets in.

Ridge Cucumbers.—Seeds of these plants may be sown for planting in May, three seeds being put into a small pot, re-potting the potful of plants as a whole when requiring it. Vegetable Marrow seeds may also be sown in warmth; remove the plants to a cool frame after they acquire strength. *H. Markham, Mereworth Castle, Maidstone.*

Plant Portraits.

Odontoglossum Duvivierianum is, in the opinion of M. Linden, a hybrid between O. maculatum and O. nebulosum. The flowers are in racemes, each flat, star-shaped with lanceolate segments, yellowish, spotted with red; the anterior blade of the lip is lozenge-shaped, retuse white with chocolate blotches. *Lindenia*, t. 218.

Renanthera Lowii, *Revue de l'Horticulture Belge*, March.

Ribston Pippin.—This is figured in the February number of the *Bulletin d'Arboriculture*, but the figure suggests rather the Blenheim Orange than the true Ribston.

Sonerila Madame H. Gruson. *Illustration Horticole*, t. 92.—Leaves green, thickly spotted and marbled with white.

Vriesea Gravisiana ×, *Revue de l'Horticulture Belge*, March. The result of a cross between V. psittacina and V. Barilleti, the latter being the pollen-parent.

Zephyranthes candida, *Garden*, February 15.

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

TUESDAY, April 8 — Royal Horticultural Society: Committees and Lecture, at Westminster.

SHOW.

TUESDAY, April 8 — Liverpool Horticultural Association (two days).

SALES.

WEDNESDAY, April 9 — Roses, Fruit Trees, Shrubs, Border Plants, and Bulbs, at Stevens' Rooms.
Lilies, Stove and Greenhouse Plants, at Protheroe & Morris' Rooms.

FRIDAY, April 11 — Imported and Established Orchids, at Protheroe & Morris' Rooms.
Roses, Greenhouse Plants, &c., at the City Auction Rooms, by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—47°.2.

Anemone hortensis.

THE Anemone is so general a favourite, that we are sure any remarks on its cultivation from so experienced a practitioner as Mr. WOLLEY DOD will be read with interest. Purity of atmosphere and intensity of light, other things being equal, seem specially necessary for the development of the glowing colour in these flowers. At any rate, our own blooms, grown in a suburban garden in a richly manured soil, and fully exposed to the mid-day sun, are dull and "brick-dust"-coloured in comparison with those sent by Mr. DOD, whilst those from Ireland are even more brilliant than those from Cheshire. We append Mr. DOD's letter:—

"The flowering of the scarlet Anemone from the south of France, commonly called A. fulgens, but properly A. hortensis var. fulgens, has this year been so early and so abundant as to deserve record. Many flowers were open by the middle of January, and a month later the flowering was general, and though a good deal damaged by the hard frosts of the first week in March, they have now, at the vernal equinox, nearly recovered the effects, and are flowering more densely than I have ever before seen. They are grown here in masses all over the garden, from a square foot to a square yard or more in extent; and from twenty to thirty flowers to each square foot are open at a time. The flowering wanes towards the middle of April, and is quite over by the middle of May. As I frequently hear complaints about the deterioration and failure of this Anemone in cultivation, a few notes on the subject may be useful. The source from which my stock is derived is a vineyard halfway between Bayonne and Pau. Formerly the proprietor of this allowed the roots to be collected by all comers, but since the prevalence of Phylloxera, he has become better aware of their value, and supplies many thousands every year to English nurserymen. They are in fullest flower in this vineyard from the end of February to the end of March. The ground between the Vines is ploughed twice annually in the summer and early autumn, and the roots of the Anemones alternately buried and brought to the surface. They seem to flower equally well under either condition. They are collected for sale in summer, and the imported roots are an inch long, more or less, and of the thickness, at most, of an ordinary drawing-pencil. In English cultivation they grow to much larger dimensions, but never produce as many flowers in proportion to their size or of so good a colour as in the first spring after their importation. Still it is now three years since I imported any, and I find that, by attention to a few rules, which I will give, they may be grown for several years, if not permanently, without much deterioration in quality.

"In the first place, sunshine is life to them, and a sunny place a necessity to their welfare. The soil cannot be too rich, and should be moderately strong. There is no right and wrong side to the tubers, which may be laid in the ground two or three inches apart, four or six or more inches deep, in August or September, or later, according to the time at which they are wished to flower. About the end of May, when they have done flowering, they may be dug up and left on the surface to bake in the sun for a few days or weeks, according to the sun's power. I sometimes spread them under a south wall, and when thoroughly dried and shrivelled remove them to a dry shed, where they lie in a heap till planting time. Others I leave, lying on the surface, the whole summer through. Before planting, the tubers should be broken into small pieces, and if they are planted again, in the same place, the soil must be renewed and enriched. There are few more exhausting crops than Anemones; if left alone they become matted together in two or three years, and die of absolute starvation. Where the soil is good, and they are thinly planted at first, they may be left alone for two or at most three years, but they are seldom so good the second or third year as the first.

"As I have imported 2 or 3 lb. of tubers once in two or three years for twenty years, and as they increase fast, the total quantity in my garden has become very large. Abundance causes carelessness; clumps get neglected till they seem past recovery, and in a year or two some have quite disappeared, and I often label them, though rather casually, with the date of importation, and am sure that I have many lots in full flowering condition which have been ten years in my garden. A hot summer has great recuperative influence, and two or three sunless years together produce a marked deterioration; but I believe that in more sunny counties than Cheshire there need be no limit to the duration of their flowering qualities, if they are properly treated. I attribute the remarkable abundance of flowers this season to the very sunny June of last year, and their earliness to the wet summer and autumn, which started all spring bulbs prematurely. Those flowers which are produced during January are deficient in colour, tending towards brick red; and when grown under glass, this deficiency is still more marked. They never attain in Cheshire to the dazzling scarlet they display in their native vineyard. Ten degrees of frost spoils all the flowers which are open; and fifteen degrees, when they are in flower, withers and turns the leaves brown to an extent from which they do not entirely recover, the subsequent flowering being somewhat stunted. The only disease to which I have observed them to be liable is one which causes the leaf stalks to rot through at the base, leaving them loose in the ground. I believe this occurs when they are beginning to feel starved, as I have never noticed it in newly-planted ground. This variety is the only one of the species which I have cultivated with success. Other forms of A. hortensis have often been sent to me from the Riviera, but fail for want of sufficient warmth, and the deep rich scarlet variety known as græca hardly survives a cold season.

"I have made enquiries about the cultivation of A. hortensis var. fulgens in the Scilly Isles, where the climate might be thought well suited for so early a flower, but I find that it has been tried with very indifferent success; though I believe the annual drying has not yet been adopted there. These bright flowers are highly appreciated in the season of Crocuses, wherever I send them."

Mr. MARKHAM furnishes us with the following cultural directions:—

"The tubers are usually planted in October if required to bloom the following April, and sometimes many of their dazzling blooms open in March. The quickest way of getting up a good stock of tubers is to raise them from healthy seed. If the seeds are sown now they will make nice plants that will bloom next spring. The seed may be sown on well prepared beds outside; but owing to the slowness of germination and the risk of damage in keeping the beds free from weeds before the plants are up, it is well to sow in boxes or cold frames, and to transplant the seedlings when large enough into rich soil. If the seed is to be sown outside, the soil should be well worked. The seed should be sown in drills, and covered with fine sandy soil. When the plants are well up they should be thinned to 2 inches apart or more if required. The seed is somewhat difficult to separate, owing to its being woolly, so that it should be well rubbed together with dry sand. If sown in boxes or pans they should not be placed in heat, a cold frame being a more suitable position to bring forward the seedling plant till well up, and large enough to put out."

LYCASTE SKINNERI ALBA (SEE SUPPLEMENT).—The plant, of which we now place before our readers a representation, is one in the well-grown collection of REGINALD YOUNG, Esq., Linnet Lane, Aigburth, Liverpool, and was the subject of a few remarks in our issue for November 9 last, p. 528. Mr. YOUNG informs us that when photographed the specimen bore sixteen fully expanded flowers, one bud, and that about ten other flower-spikes were starting. It is truly a very showy plant, and this pure white form is one of the most attractive of the numerous variations of Lycaste Skinneri.

HORTICULTURAL CLUB.—A house-dinner of the Club took place on the 25th ult., when Mons. HENRI DE VILMORIN was the guest of the evening. There was a very full attendance of members, representing all classes of horticulture, to do honour to their distinguished guest. The chair, in the absence of Mr. John Lee, was occupied by Dr. HOGG. There were present besides, the Rev. W. Wilks, the Rev. P. H. Gale, Messrs. Shirley Hibberd, Bunyard, Walker, Jefferies, Lyert White, Arnold Moss, Northrup from Minneapolis, Minnesota, U.S.A.; J. H. Veitch, Herbert J. Veitch, Morris, Crowley, A. F. Barron, Wheeler, Herbst, Prince, Cousens, Turner, &c. The health of the guest was proposed by the Chairman, and responded to in graceful terms by M. H. de Vilmorin. The toasts were given also of the other visitors, to which Mr. Northrup replied.

THE GARDENERS' ORPHAN FUND. — The monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, on the 28th ult., Mr. GEORGE DEAL presiding. It was announced that the



LYCASTE SKINNERI VAR. ALBA.

balance at the bank was £367 13*s.* 9*d.* The following special receipts were announced by the Secretary:—From Mr. English, as the result of smoking concerts at the "Windsor Castle," Holborn, £5; from Mr. Lewis Castle, for the part proceeds of the sale of the *Chrysanthemum Annual*, £5; from Mr. W. Roupell, as the proceeds of a lecture on Fruit Culture by himself at Brixton, £6; also £2 1*s.*, from Mr. Roupell, as annual subscriptions collected by him; from Mr. A. Pears, Isleworth, a donation of £5 5*s.*; from Mr. J. S. Foljambe, Osberton Manor, Worksop, a donation of £5; and from the recent benefit at Covent Garden Theatre, the sum of £10 19*s.* 6*d.* Communications were received from several local secretaries. At a later hour there was a meeting of the joint committee for the Floral Fête to be held in the Flower Market, Covent Garden, on May 21 next. It was announced that the Lady Mayoress had kindly consented to open the *fête*, that the tickets of admission will be 5*s.* each, as last year, and the number will be limited to 2000.

National Auricula Society.—A committee meeting will be held of the above Society, at 3 P.M., on Tuesday, April 8, at the Hotel "Windsor," Victoria Street, Westminster.

"Handy-book for the Young General Servant (Procurable from the Author, Kew Green, London, price threepence). Mrs. J. G. Baker has published a little brochure, intended to assist both mistress and servant. Nothing is more wearisome to the former (and it must be equally so to the latter), than the repetition of directions with regard to the simplest duties to be performed in a small household, yet every new "help" needs these directions. This little book, which contains a few common-sense rules for spreading a table properly and other household duties, should be of use to the maid, and lessen the work of the "house-mother" likewise.

Torquay Horticultural Society.—The spring exhibition of this Society was held, as usual, in the Bath Saloons on March 27, and was very successful, being an improvement on late years. Perhaps the most noticeable features were the two groups of Orchids, staged by Mr. G. Lee, gr. to W. Lavers, Esq., and Mr. G. Wedland, gr. to Moreton Sparks, Esq., who were awarded equal 1st. Messrs. J. Sloman, J. Alder, T. Ferris, S. Hunt, H. Danverell, A. Satterly were among the chief prize-takers. Messrs. R. J. Veitch & Son, Exeter, offered prizes for Hyacinths, Mr. Ferris showing the best lot. Of nurserymen's exhibits there were several. Messrs. R. J. Veitch & Son, of Exeter, staged a fine collection of Narcissus in great variety, Cyclamens with very fine blooms, and a number of Orchids. Messrs. Curtis & Sandford, Torquay, had a display of over 100 feet of decorative flowering and foliage plants, including cut blooms of Roses. Mr. W. B. Smale had decorative foliage and flowering plants, and other nurserymen exhibiting were Messrs. Philips & Co., Messrs. Horn & Sons, and Messrs. T. Allwood & Son.

Floral Photography.—The representation of floral arrangements by means of photography has derived much benefit from the introduction of what are known as the isochromatic plates. As is well known, certain colours, yellow for instance, are represented by dark spots on the ordinary photographic picture, and in this way many delicate flowers, having yellow in them, as have several Orchids and others, are falsely reproduced, and the balance of colour completely thrown out. These vagaries of the camera are due to the varying chemical powers of the different coloured rays of light. The isochromatic plates correct this to a certain extent, and so give a more truthful representation of the shades of the original. Visitors to the Crystal Palace Flower Show last Saturday might have seen a demonstration of these remarks at Messrs. Edwards' stand, where a graceful composition of Lily of the Valley, Daffodil, and Hyacinth, in a vase, was shown photographed by both the methods referred to; in the case where an ordinary plate had been employed, the Daffodils were represented by very dark shadows, but when the isochromatic plate had been used, the Daffodil showed up as being slightly more shaded than the white Lily of the Valley. For landscapes, in which there is much foliage, these plates are also to be recommended.

Brighton and Hove Chrysanthemum Society.—We are requested to announce that the date of the next exhibition of this Society has been altered from November 4 and 5 to November 11 and 12. Thus it falls on the same days as the National Chrysanthemum Society's London show, which is unfortunate; but the circumstances are unavoidable, as the building in which the show is to be held has been engaged for the whole of the previous week.

February Weather at Grahamstown.—Apropos of the note "Snow in the Riviera," p. 391, we insert an extract from the letter of a Grahamstown, South Africa, correspondent, dated March 1. "Old England does not stand alone in the matter of rough weather, for we have had a taste of the most inclement during the past few months. After the heavy rains, I mentioned in my last, it got rather dry again (it soon gets dry here), but it began to rain again on February 1, and has continued raining nearly every day since. On Tuesday, the 18th of February, we had a hailstorm that destroyed everything in my garden—nothing but the roots left. At the Botanic Gardens the houses are protected by wire netting, and that saved them; but the garden is wrecked for the time being, and perhaps a thousand squares of glass broken in the frames. Gowie's useful and interesting nursery escaped almost entirely. You may judge of the size of the hailstones, and the force with which they fell, when I tell you that a farm-house, at the Fish River, had all the galvanized iron roof perforated with the hailstones as badly as if it had been fired on with grape-shot at a short range."

Ware and District Horticultural Mutual Improvement Society.—This Society has held two meetings during the past month. One on the 11th inst., Mr. A. King in the chair, when a paper was submitted to the meeting on "Vine Culture," by Mr. J. C. Parker, and which evoked a capital discussion. The other meeting was on the 25th inst., the Rev. E. E. W. Kirkby in the chair, when a practical paper on "Mushroom Culture" was read by Mr. E. Wallis. Mushrooms were exhibited by Messrs. Bray and Gillians. A lengthy discussion followed. The committee are more than satisfied with the progress the Society has made since its birth, but they trust that more of the gardeners and under-gardeners of the locality will attend the meetings. Information will be gladly forwarded. The Honorary Secretary is Mr. J. B. Riding, Ware.

Show Fixtures.—Richmond (Surrey), June 25; Wimbledon, July 9; Leicester, August 5; Clay Cross, August 12; and Bolton Chrysanthemum Society, November 14 and 15; Rugby, November 19 and 20. The ancient Society, of York Florists' shows are announced for April 23, May 28, July 9, August 6, September 10, and a Chrisanthemum show will be held on November 19, 20 and 21.

"The Garden."—Messrs. Putnam's Sons have published under this title a charming little volume, elegantly got up as befits the subject. It treats of "the garden as considered in literature by certain polite writers," and is prefaced by a critical essay by Walter Howe. The "polite writers," from whom extracts have been made, are Pliny the elder, and the younger, Lord Bacon, Sir William Temple, Addison, Pope, Parnell, Lady Mary Wortley Montague, Thomas Whately, Oliver Goldsmith, Horace Walpole, and John Evelyn. It is delightful to read these essays once more, and to have them presented to us within one cover. In former times as now, the garden was considered either from an æsthetic or a material point of view. Sir William Temple and Evelyn are severely practical; Bacon does not scorn "Genitings" and Codlins, but he lays it down as an axiom in the royal ordering of gardens, "that there ought to be gardens for all the months of the year, in which severally things of beauty may be then in season;" he has an eye for beauty, and does not forget the "breath of flowers" as a source of pleasure. Walpole's essay in particular is specially worth reading again and again, and his sketch of the works and career of Kent should be read by all concerned in landscape art, and by all who are interested in the career of a very remarkable man. The book is so dainty, that it is hard to avoid quoting at length, but the exigencies of space preclude our doing more than recommend this very elegant production to all who are interested in polite literature.

Lilium longiflorum for Forcing.—Two houses full of plants in pots of this fine white Japanese Lily are now in bloom in the Fulwell Nurseries of Mr. Wm. Gordon, of Twickenham. They were potted up as soon as imported, and brought on gradually. So managed they equal the variety of the same species, known as L. Harrisii, or the Bermuda Lily.

"Bulletin de l'Association pour la protection des plantes."—The Presidential address read on January 29, contains a record of progress of a satisfactory character on account of the inauguration of the alpine garden on the route to the great St. Bernard, at a height of 1690 metres, and of which we have already spoken. In addition there are numerous articles interesting to the lovers of plants, wild or cultivated, or both. We trust that a Society with so much power for good in promoting the knowledge of plants, and in securing them from wanton or thoughtless destruction, will receive generous encouragement.

Chiswick Gardeners' Association. — The Annual Dinner of this body took place on the evening of the 28th ult., when about forty members and friends attended. Mr. G. Gordon presided, and presented the prizes, to the value of £10 10*s.*, which Mrs. S. A. Lee had again kindly offered, to the successful competitors. The prize-winners were Messrs. Addison, Barry, Belcher, Bones, Booker, Miller, Smith, and Wright.

Agricultural Produce.—The statistics relating to the area under cultivation in Britain, and the yield of the principal crops for 1889, have been published by Eyre & Spottiswoode, West Harding Street, Fleet Street, at a cost of fourpence.

Bath and West of England Society.—The *Journal* of the Society for 1889-90 has just been issued. Mainly it is taken up with purely agricultural matters, and with details relating to the show at Exeter. There are, however, other articles interesting to the gardener and the fruit-grower. Dr. Fream's paper on the composition of the hay of water meadows is an excellent paper of its kind. Mr. Garland's paper on Apple Culture is likewise full of excellent practical hints; whilst Sir Thomas Acland's summaries of scientific literature are valuable to those whose leisure is small, or whose capacity to grasp the details of scientific statement is small.

Dr. Charles C. Parry.—Horticulture, says *Orchard and Garden*, suffers another great loss in the death of this celebrated botanist and explorer who died on February 20, at his home in Davenport, Iowa, from pneumonia, at the age of sixty-six years. Dr. Parry is not known to horticulturists as an author, indeed he published very little, but his real work was as an explorer, and in that capacity he has discovered hundreds of new plants, afterwards described by Gray and Engelmann. Among the better known of them may be mentioned: Picea pungens, P.

Engelmanni, Pinus Torreyana, P. aristata, P. Parryana, &c. His life work as a botanical explorer has been rich in its results, and he has given freely to the world the rich treasures he has discovered.

"The American Garden."—This monthly periodical is well edited and well got up. The matter is varied and interesting. We notice that some of the American growers are open to the same charge of slip-shod packing for market as our own people; and that, as with us, the salesman on the other side of the Atlantic has to bear some at least of the blame which properly belongs to the producer himself.

Landscape Gardening.—In the last number of *Garden and Forest*, a list is given of all the principal works on landscape gardening that have been published, beginning with Francis Bacon in 1625, and ending with Walter Howe in 1890, the latter writer, by a coincidence, repeating Bacon's Essay. The article, "The English Flower Garden," attributed to an anonymous writer, was written by the late H. A. Bright, whose "Year in a Lancashire Garden," published in these columns, has had so many successors and imitators.

"Thomson on the Vine."—The tenth edition (Blackwood & Sons) of a book tells its own tale, and might be thought to serve as an excuse for an author not revising so successful a treatise, or as exonerating the critic from any notice of a work so well known and so deservedly appreciated. Nevertheless, such popularity imposes upon the author the duty of maintaining his well-earned reputation, and hence we trust that the eleventh edition may experience some further revision in the nomenclature and choice of varieties, and in the physiological explanations offered of growth and of diseased conditions. Some further account of the remarkable success at Clovenfords would also be desirable. In the matter of soils Mr. Thomson's remarks are worthy of careful perusal, and form perhaps the most valuable part of his book, though not many of his readers can hope to have access to the Deer Park, which he recommends. Failing this, 'Thomson's Vine manure is recommended in the body of the work in a manner rather too suggestive of the notices of a patent medicine. This is the more unfortunate, as tending to lessen confidence in a manure that is excellent in its way, and which is highly spoken of by numbers who have tried it. As a practical treatise, though not so complete as some more recent books, it may be strongly recommended.

Pastures, Temporary and Permanent.—Dr. Fream has prepared a very useful summary of the experiments conducted by Mr. Martin J. Sutton at Kidmore, near Reading, with a view to determine the value, from a practical point of view, of certain manures when applied to grass land. The general results agree with those obtained at Rothamsted, but there are points of difference in detail owing to the character of the soil. Nitrate of soda proved to be deleterious to pastures. The difference between pasture and meadow (hay field) is appropriately insisted on, for the vegetation differs materially, and the action of manures also. The present series of experiments is terminated, owing to the removal of Mr. Sutton to a larger holding in the same parish, where there is greater scope for agricultural experiments of all kinds.

Process of Removing Insects from Plants.—A novel process, by Edwin P. Fowler, of National City, California, consists in dislodging the vermin and mealy-bug by means of a sand-blast, which destroy yearly entire groves of Lemon and Orange trees in Florida, South California, and other tropical States. In carrying out the invention, a fan blower of any suitable construction, or any other apparatus capable of creating an artificial current of air, is employed. The artificial current of air thus created is directed against the tree or other plant, and in its transit from the fan blower to the plant, the current of air is charged with sand. Of course the force of the artificial air current must be carefully gauged, so that the sand which is projected by the same against the trees or plants will not destroy the plants together with the vermin or scale, and the sand must be sifted, so that no coarse particles or stones remain mixed with it. If the force of the air current is properly limited, according to the nature of the plants under treatment, the scale or vermin can be removed without injuring the trees or plants. In some cases it is desirable that the artificial current of air shall be heated, and for this purpose there is combined with the fan blower or other apparatus a suitable heater. It may also be desirable in certain contingencies that the sand which is used for charging the artificial air current shall be hot, and for the purpose of heating the sand before introducing it into the air current, any suitable heating apparatus may be used. *British Mail.*

The Meteorological Stations in the North of Scotland.—The Council of the Scottish Meteorological Society, in their report, submitted at their annual meeting on Monday, March 31, state that a station has been founded at Boyndie, Banffshire. The observer, the Rev. William Anderson, has furnished the instruments. A number of stations have been inspected during the year. Weekly observations of temperature, rainfall, and sunshine were forwarded regularly to the Meteorological Council of London, from the Society's stations at Glencarron, Lairg, Fort Augustus, Braemar, Glenlee, Ochterlyne, and Marchmont. Ben Nevis and Fort-William observations have been prepared and brought down to date. In a week or two the buildings of the low level observatory will be completed, and immediately thereafter the Council will erect the self-registering instruments, which were originally at Armagh, and otherwise supply a complete set of instruments for a first-class meteorological observatory. The directorate of Ben Nevis observatory expect soon to be in a position to put scientific men in possession of two sets of hourly observations of the most complete description, one from the summit, and the other from the foot of the mountain. By these observations the changes in the condition of the weather may be followed, particularly those great changes so essential to the advancement of knowledge of the approach of storms.

Biographical Index of British and Irish Botanists.—From the list of these published in the *Journal of Botany* for March, we extract the following:—

"Neill, Patrick (1776—1851): b. Edinburgh, 1776; d. Canonmills, Edinburgh, September 3, 1851; bur. Warriston Cemetery, Edinburgh. LL.D., Edinb. A.L.S., 1807. F.L.S. 1813. F.R.S. Ed. First Vice-Pres. Bot. Soc., Ed., 1836. Printer. Correspondent of Cuvier. Article, 'Fuci,' in Edinb. Encyclop. Friend of George Don. Collected Scotch plants. Secretary, Wernerian Society. Gard. Chron., 1851, 567, 663; Cott. Gard., vii., 121; Greville, 'Algæ Brit.,' iv.; Proc. Linn. Soc., ii., 191; Banksian Corresp., xii. (Mar. 12, 1801). *Neillia* D. Don.

"Nelson, David (d. 1789): d. Timor, July 20, 1789. Kew gardener. Assistant on Cook's third voyage, 1776—1780. On H.M.S. 'Bounty,' 1787. Australian, Cape, and Timor plants, in Herb. Mus. Brit. Fl. Tasmania, cxiii.; Gard. Chron., 1881, ii., 267; Brown, Prodr., 481. *Nelsonia*, Br.

"Niven, James (1774?—1826): b. Pennicuik, Edinburgh, 1774?; d. same place, January 9, 1826. Grandfather of the following. Gardener in Edinb. Bot. Gard., at Syon, 1796, to Hibbert, 1798. Collected in S. Africa for Hibbert, 1798—1803; and again for Lee and others, 1803—1812. Gard. Mag., ii., 255; Bot. Rep., t. 193; Trans. Linn. Soc., x., 46, 134; Lasègue, 447; Trans. Hort. Soc., i. 262. Plants in Herb. Mus. Brit. *Nivenia* Br. = *Paranomus* Salisb.

"Niven, James Craig (1828—1881): b. Dublin, 1828; d. Hull, October 16, 1881. Son of the following. Asst. Curator at Kew, 1852. Curator, Hull Bot. Gard., 1853. Lectured on Bot. at Hull. 'Cat. Herbaceous Plants at Kew,' 1853. Edited Maund's 'Bot. Garden,' 1878. Jacks., 412; Journ. Bot., 1881, 352; Gard. Chron., 1881, ii., p. 541, with portr. on p. 589; Life and portr., 'Garden,' xx. (1881).

"Niven, Ninian (1799—1879): b. 1799; d. Dublin, February 18, 1879. F.B.S. Ed., 1836. Curator, Glasnevin Bot. Gard., Dublin, 1834—1838. 'Companion to the Bot. Gard., Glasnevin, 1838. Pritz., 233; Jacks., 411; Gard. Chron. (1879), xi., 277; R. S. C., iv., 627.

"Noehden, George Henry (1770—1826): b. Gottingen, Jan. 23, 1770; d. London, March 14, 1826. LL.D., 1796. F.L.S., 1800. Vice-Secretary, Hort. Soc. Librarian, Brit. Mus., 1820. Contrib. to Eng. Bot., 738, 858. 'Varieties of Citrus,' Trans. Hort. Soc. III. Appx. R. S. C. iv., 631; Rose; Hoefer.

"North, Richard (fl. 1759). Nurseryman, of Lambeth. 'Treatise on Grasses' and 'Gardeners' Catalogue,' 1759. Johnson, Hist. Gard., 215; Pritz. ed. i., 213.

"Nuttall, Thomas (1786—1859): b. Long Preston, Settle, Yorksh., Jan. 5, 1786; d. St. Helens, Lanc., Sept. 10, 1859. Printer. F.L.S., 1813. Emigrated to Philadelphia, 1807; Upper Missouri, 1811; Arkansas, 1818; Snake River, 1834; Sandwich Isles and Monterey, 1836. Prof. Bot., Harvard, 1834. Returned to England, 1842. 'Genera of N. American Pl.,' 1818. Study-set bought by Brit. Mus.: sets also at Kew, Harvard, and Philadelphia. Pritz. 235; Jacks. 587; R. S. C., iv., 650; Whittle, 'Blackburn as it is,' 1853, 194; Cott. Gard., xxiii., 7, 349; Proc. Linn. Soc., 1860, xxvi.; Journ. Bot., 1841, 108. *Nuttallia*, Torr. & Gray.

"Oldham, Richard (1837—1864): b. 1837; d. and bur. Amoy, Nov. 13, 1864. Botanical collector in Eastern Asia. Plants at Kew, Brit. Mus., &c. Journ. Linn. Soc., ix., 163; Journ. Bot., 1866, 239. *Desmodium Oldhami*, Oliv.

Book Notice.

History of Botany (1530—1860). By Julius von Sachs, authorised translation by H. E. F. Garnsey, M.A., revised by Isaac Bayley Balfour, Oxford. Clarendon Press.

This is a very pleasantly written treatise on the history of Botany, showing how the great principles of the science have been gradually evolved, and whose were the master minds concerned in the process. Those who desire to know what are the great principles, apart from the overwhelming mass of detail by which workers are necessarily encumbered, and with which the ordinary text-books are overburdened, may turn to these pages and be sure that, with certain important exceptions, they may obtain from them a general view otherwise most difficult to obtain. Some portions, however, are treated more fully than others. Classification, in the modern sense of the word, hardly receives sufficient attention, and the English reader will be no little astonished to find that neither of the Hookers, nor Berkeley, nor Bentham, nor Asa Gray, receive even casual mention. Dean Herbert, however, we are glad to find, receives recognition as a hybridist.

Among Frenchmen A. de St. Hilaire, Moquin Tandon, Dunal, the two Richards, and others, are similarly not mentioned. Heer and Humboldt are in like case, which is tantamount to saying that neither geology nor botanical geography find a place in Professor Sachs' pages. The omissions we have alluded to are hardly to be explained by the author's principle of selection, which was to "single out as the true heroes of our story [those men] who not only established new facts, but gave birth to fruitful thoughts, and made a speculative use of empirical material."

But withal, the book is a valuable contribution to the literature of botany, and the Clarendon Press has done good service in publishing it. The translation is well done, and the work is produced with the care and neatness characteristic of the Oxford Press.

Plant Notes.

PEPEROMIA RESEDIFLORA.

As its specific name implies, the flower resembles somewhat those of the Mignonette, departing from the majority of plants comprising this large genus, which are more generally valued horticulturally for their foliage than flowers. The latter are white, produced on erect pyramidal terminal panicles; the leaves small, entire, of a dark green colour. At the time of flowering, the plants attain a foot or 18 inches in height, and flowers useful for cutting. They are of easy growth, and any piece of the stem with a node attached, as well as the leaves, may be used for propagation. Pans are suitable in which to grow Peperomias, and a compost of loam, leaf-mould, and sand.

Amorphophallus Rivieri.

These plants will hardly ever become general favourites unless it be their foliage which recommends them; for who can admire a flower while emitting a most noisome odour. The same kind of cultivation as that which is applied to the Caladiums is suitable for Amorphophallus, keeping them warm during the period of rest, or rotting may occur. Water at the roots or bulbs is not of so much consequence as keeping them in a warm temperature.

The scape appears before the leaves, and upon showing signs of growth, which will be during the beginning of the year, they should be repotted into good fibrous loam, leaf-soil, and sand, giving very little, if any water until they commence to make leaf-growth. The scape is thick and speckled, the spadix rising in a tapering manner out of the spathe, being of reddish-brown colour. They attain a yard or more in height, which depends upon the age and strength of the bulb. The leaves are solitary, decompound, and spreading 3 or 4 feet or more in diameter, with marbled petioles. It is a native of Cochin-China. The plant is effective for subtropical gardening. Some fine examples have been in flower in one of the houses here lately.

Alpinia mutica.

This plant requires a large house and much warmth. It has recently been flowering freely in the palm house of the Cambridge Botanic Gardens. The flowers are produced in terminal, drooping racemes, on the stems, which are of about annual duration; the buds are glossy, the lip of which is of a rosy hue; the large lower lip is yellow and crimson in colour, and resembles the feathers of a peacock in its venation. To have these plants in full beauty, they should be grown either in large pots or tubs, so as to get a good mass of its canna-like stems; and when the new growths have advanced somewhat, the old flowering growths may be cut away and re-potting attended to, if the rhizomes have become thickly crowded. It is a good plan to divide them into halves with a spade, reversing the pieces so that the outsides may occupy the inside or centre of the pot or tub, and employing as potting compost good fibrous loam, two-third peat and leaf mould, with a liberal addition of sand. When in full growth the plant can scarcely be overwatered, and it is benefited with an occasional application of liquid manure or dry artificial manure applied to the surface of the soil. Introduced from Borneo, 1882.

A. albo-lineata,

Is a dwarfer growing species from New Guinea.

A. nutans.

A very tall growing species is suitable for planting out-of-doors in well drained positions.

A. vittata,

Is a very pretty variegated form, introduced from the South Sea Islands. *W. Harrow, Botanic Garden, Cambridge.*

Jacaranda mimosifolia.

The foliage of the above is graceful and good to use in large vases in the place of Fern fronds. Though not so hardy as Grevillea, it can be properly made use of when flower vases are required for a short time only, such as in dinner table decoration, or the like. When used for long periods, the plants should be placed in a cool temperature after their growth is finished. Propagation is by cuttings, a few inches long, taken off with a heel and placed in sandy compost in heat. Young plants themselves are good subjects for decorative work, their light graceful foliage being always telling. *G. Wythes, Syon Gardens.*

Begonia manicata.

This fine old species of Begonias is invaluable for enlivening the stove at this period of the year; and its graceful panicles of rosy flowers are equal in beauty to many Orchids. A few plants of it should be found in every garden having a stove. Not that it is essentially a stove plant; as it succeeds perfectly in a lower temperature, and with very simple treatment during the greater part of the year. I have one specimen in bloom just now, in a 9-inch pot, that is 3 feet in height, and which is carrying twenty-seven panicles of flowers, its large and characteristic foliage reaching down to the bottom of, and concealing the pot. As soon as it has flowered, any growths which may have taken the lead are cut back, to give the plant a balanced head, and the plant removed to the late vinery, when growth soon commences. It is then repotted if that be required, but over potting is avoided, the soil consisting of good loam, plenty of leaf-mould, with a liberal addition of sand. During the summer months it is removed to a cold unshaded frame, and abundance of air is afforded it to ripen the new growths, weak manure-water being afforded occasionally. The foliage must not be wetted when the sun is powerful, or scalding will ensue. In autumn it is removed to the greenhouse and watered sparingly, until it shows for bloom, when it is removed to the stove; for if allowed to remain in a low temperature at this stage, the buds fall prematurely. The tops which were taken off after flowering, make, when struck, nice little plants for dinner-table decoration. But as this variety in common with others of the Rex type has a tendency to grow with the foliage on one side, or with "a face," two cuttings should be inserted in one pot, which will quickly root if placed in bottom-heat, being afterwards treated like the larger ones; they will bear two or more panicles each, and be very effective. *W. H. Stephens, Prescot House, Stourbridge.*

CARRON HOUSE.

This ancient seat in Stirlingshire, now so favourably known for the fine gardens and extensive grounds which have of late years been formed, was a place of some note more than half a century ago, but for many years it remained in a state of decay, almost ceasing to represent any of the features of a county residence.

The roofless old mansion mantled with Ivy, gives indication of grandeur long past, and might now be turned into an object of interest for the growth of Ferns and rock plants. The fine shelter given to the grounds by the gigantic trees of Beech, Willows, Planes, Birch, and Oaks, show that in the first planning of the place, the work had been done with consummate care, and this has doubtless been perceived by the present spirited proprietor, T. D. Brodie, Esq., of Gairdoch and Idvies, whose refined taste and liberality have prompted him to restore this fine old property to its former beauty and usefulness. For this purpose, the services of Mr. M. Temple were secured about seven years ago, and he has performed his duties with marked energy and skill, working a complete transformation in the whole scene. Old and useless orchards, decaying shrubs, &c., have been swept away, and in their stead extensive lawns beautifully kept have been formed; large breadths of choice shrubs, Conifers, and other trees extensively planted in the garden and park, and always in desirable positions, securing embellishment and shelter, whilst every view and desirable object in the landscape has been taken advantage of. Roads, drives, and walks have been renovated, and other service-walks are being formed, but in every case these are concealed from view as much as circumstances will allow. Passing to the gardens, of which little that is old remains—with the exception of some fruit trees which have been reduced in size and replanted or root pruned—their appearance has been completely changed. We noticed in passing through a reserve garden, numbers of plants in pots, arranged in order for decorative purposes, and for supplying cut flowers during the winter. These consisted of Deutzias, Cytisus, Rhododendrons, Sparmania africana, Roses, Acacias, Spiræas, and others, all of them healthy and vigorous. In low glass-houses and pits were numbers of Epacris, Ericas, Camellias, Daphnes, and other greenhouse plants.

Azaleas, to give flower from November to June, were healthy, and consisted of well-formed plants, of from 2 feet to 5 feet in height. The principal range of span-roofed plant-houses is 300 feet in length, substantially built, conveniently arranged, and handsome in appearance. A broad gravel-walk is in front, and some hundreds, mostly in 12-inch pots, of vigorous Chrysanthemums growing, ran the whole length of this range. A show-house was entered that was 45 feet long and 24 feet wide, lofty, and of octagon form. This house was filled with Hydrangeas, Calceolarias, Pelargoniums, especially of the French decorative class; double Petunias, Lilium Harrisi, and L. auratum, in fine form; Fuchsias, Dracænas, Lapageria rosea, and L. alba, and many others, with a band of Harrison's Musk running along each side of the path, which runs down the centre of the house. The rafters are well clothed with Cobœa scandens variegata, planted at equal distances apart; Roses, Lapagerias, Clematis in variety, all falling thickly, and yet gracefully, and affording slight shade to the plants beneath. A large rain-water tank lies under the floor, which is an arrangement that is carried out all along the divisions of this range. A cool Orchid-house adjoins, which is arranged on the most modern principle, and filled with a vigorous collection of Odontoglossums, Cypripediums, Colegynes, &c. Some fine spikes of Odontoglossum Alexandræ were in flower, and others were throwing up flower-spikes. Ferns, small Palms, Lycopodiums and other interesting plants, were interspersed amongst the Orchids, and gave clothed appearance to the whole. The next house entered was a stove for flowering plants, which were in fine order. Gardenias, Stephanotis, Tabernæmontana, Anthuriums, Begonias (of the finer sorts), Cliveas, and Pancratiums. Lines of fine Gloxinias were a mass of flower, and consisted of almost every shade of colour. From this house a stove was entered, in which fine foliage plants were grown. There were finely-coloured Crotons, Dracænas, Pandanus Veitchii, Cyperus, &c., all thoroughly clean and vigorous. These are a class of plants much in request by the family during the winter months, and the proprietor derives special pleasure in aiding his neighbours (who cannot command the use of stoves) to decorate their halls and churches, and other places, thus rendering it necessary for the gardener to have plenty of such plants.

An Orchid-house contained a collection of choice Dendrobium nobile, Wardianum, Devonianum, &c., which had made good growth last season. Cattleyas and Calanthes are also largely grown. The next house we entered was one set apart for Begonias, Pelargoniums, and Coleus, which was at the time of our visit the most brilliant in the whole range. The last division of the range is a structure similar in form to the one at west end, and is called the Camellia and Orange-house. The Camellias, of pyramidal form, were well studded with flower-buds, and in fine healthy condition, and of an average height of 7 feet. Standard Orange trees with clean straight stems were about 8 feet in height. There were fine healthy Palms mixed among the Camellias to add to

the effect, also variegated Phormiums, Tree Ferns, Cordylines, Heaths in variety, and dense masses of Hydrangea paniculata grandiflora. This range of glass bounds the kitchen garden on the south. A range of fruit houses forms the northern boundary of this garden, and is about the same length as the plant range. The divisions of the range are 17 feet in height and 18 feet wide, and are three-quarter spans. Judging from the excellent crops of Grapes and Peaches produced every season, it would appear that they are thoroughly adapted for fruit growing. Black Hamburgh, Muscat, Hamburgh, and Duke of Buccleuch, with bunches of from 2 lb. to 5 lb. weight, large in berry, were being cut. Later houses were filled with Muscats (black and white), and others; the bunches of the two kinds named averaged from 2 lb. to 5 lb. Lady Downes and Gros Colmar were also very fine. In the Peach and Nectarine houses the fruits were of great merit; the trees are faultlessly trained, and in good health. In another house for giving late supplies of Peaches, there were fine crops of Barrington, Sea Eagle, Violette Hâtive. The pineries consist of four divisions, and in these were numbers of first-rate Queens, swelling and ripening. In these houses on the back shelves were great quantities of Melons, Blenheim Hybrid and Beechwood being among the best. Ranges of sheds, Mushroom-house, fruit-houses, &c., have been built on the most approved principles.

Passing under a number of fine old Thorn trees, the excellence of the crops in the kitchen garden was noted, and which Mr. Temple stated were about the best he had ever had. The walls are covered with finely trained trees, all forms being represented, but fan-training is held in the highest favour. We passed outward through a very pretty flower garden, formed a few years ago, which was remarkably gay. At the further end of this garden two lines of terraces have been formed, and fine specimens of Golden Hollies, Cupressus, Retinosporas, and Rhododendrons planted at the back to mask old buildings, a job which has been very well accomplished. Long lines of Roses and herbaceous plants are tended with the same care as every kind of plant grown. Much is yet to be undertaken in extending, and improving, this fine old place. *John Downie.*

TRUFFLES—TRUE AND FALSE.

An erroneous idea is very prevalent that Truffles are rare, and that there is only one kind of Truffle; another but more correct idea is, that Continental Truffles are far better than British examples. The fact is, one native species only, and that a comparatively inferior one, is usually consumed in Britain, whilst upon the Continent several species of various degrees of gastronomic merit are prepared for the table. It is true that our British species, named Tuber æstivum, is sold in continental markets with other Truffles, but it is held in poor esteem as compared with better varieties. The different species of Truffle are not always equally common, so that sometimes inferior species are used upon the Continent because the choicer varieties cannot be procured. It is, indeed, possible to preserve the different species for several years, but at times the stock of the best varieties will run short. In periods of great scarcity, fungi that are not Truffles at all are used for stuffing turkeys, &c. The best makers of "Perigord pie," or *pâté de foie gras*, are very particular as to the Truffles they use, but the inferior makers are much less particular. The black pieces of Truffle as seen in stuffed fowls *poulard truffé*, Perigord pie, &c., are considerably alike in general appearance; but a resort to the microscope generally shows what species of Truffle has been used, or whether the black masses are fragments of Truffles at all. It is a notable fact that the spores of Truffles are not altered in form or marking in the process of cooking.

The late Mr. C. E. Broome, F.L.S., of Batheaston, was a great collector of, and authority upon Truffles of all kinds, and for a great number of years in succession I accompanied Mr. Broome in his mycological rambles; we were each provided with a short-handled rake, a garden trowel, and vasculum or basket. As a beginner, I thought Truffle finding must be very difficult, the fungi being to a great extent subterranean, but after a few excursions with Mr. Broome, I soon found many of the difficulties removed. Whilst going through plantations, Mr. Broome would suddenly stop and say, "This looks exactly like a place for Tuber macrosporum," or, "We ought to find Tuber rufum here," and so on. Probable Truffle localities were known to Mr. Broome by the nature and condition of the soil, and by the presence of certain trees. On using the rake and trowel, the species sought for would be more often found than not, and the mycelium in the earth would show in which direction other examples should be looked for. When found the odour, or mere external appearance, was often sufficient for naming the species. If the Truffles did not happen to be found, Mr. Broome would say, "Ah, you come here in December" (or July, as the case might be), "and I believe you will find them."

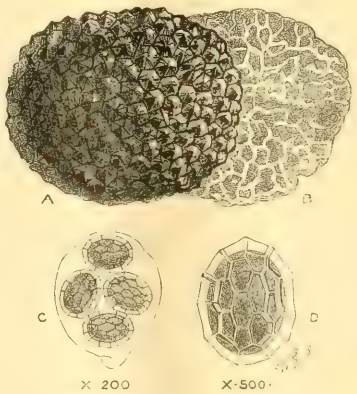


Fig. 63.—British Truffle—Tuber æstivum.

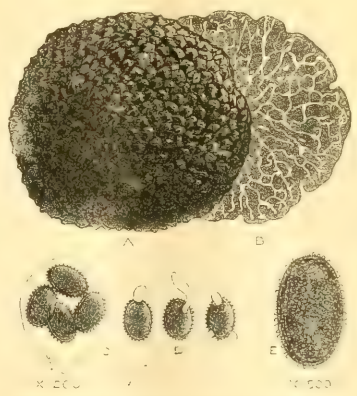


Fig. 64.—French Truffle—Tuber melanosporum.

Truffles, in a popular sense, belong to two great families of fungi, one the Gasteromycetes (to which Puff-balls, &c., belong), and in which the spores are naked, *i.e.*, borne on simple spicules, or supports, within the substance of the Puff-ball, or Truffle. In the other instance, to the family Ascomycetes, in which the spores (or sporidia) are borne within the substance of the Truffle in small transparent *asci*, bladders, sacs, or bags. These different methods of spore growth are shown in the accompanying illustrations.

The chief Truffles of European markets belong to the family Ascomycetes, and to the order Tuberacei, and to this order the first references will be made. There are various genera belonging to the order, and the most important genus is Tuber. All the species, in all the genera are (or should be) subterranean or partially so. The British Truffle, Tuber æstivum (fig. 63), is well known, and much more common than is generally supposed. It is a northern species, and is usually about the size shown in the illustration, often half as large again or nearly twice the size, whilst sometimes a single example may weigh nearly 2 lb. It is stated in the *Gardeners' Chronicle* for 1871, p. 1044, that Truffles sometimes weigh 3 or 4 lb. each, and measure a foot round. T. æstivum is black and polygonally warted outside, and beautifully mottled with white and yellowish-brown inside—see section B, fig. 63. It may be found in perfection as early as July, whilst its period of maturity lasts well into the late autumn. It grows in copses, hedgerows, and open places in plantations gregariously with other species of Tuber, and generally prefers plantations of Beech, Oak, or Birch (rarely Pine), on argillaceous or calcareous soil. The odour of T. æstivum is exceedingly potent, and to some persons very agreeable. The odour is easily detected in plantations where Truffles grow, the scent attracts certain flies, popularly termed "Truffle flies;" but the flies are probably not peculiar to the Truffle, although some writers have asserted that flies "cause" Truffles. In England till lately this species of Truffle was sold at 2*s.* and 3*s.* (rarely 5*s.*) per pound, but of recent years it seldom appears in the markets. The trade of Truffle-finding is said to have been ruined in this country by the taxation of the Truffle-dogs. In past times Truffle-finders in England employed trained mongrel terrier dogs to "point" localities for Truffles by scent. The French use a kind of French poodle. Squirrels also find it by scent, and scratch out and eat it. Rats and mice, and pigs are also exceedingly fond of it, and some dogs will eat it. This Truffle is frequently seen half exposed above-ground, at other times it is met with some 3 or 4 inches beneath the surface, never deeper as far as my experience goes, although it is said to be sometimes found a foot or two deep. I have seen in some places calcareous ground rough and broken up by the growth of these fungi, many of the examples being half exposed. Tuber æstivum is often badly attacked by a microscopic fungus belonging to the genus Pythium. A beetle, named the Truffle beetle, Anisotoma cinnamomea, with its larva, is described and illustrated by Professor Westwood in the *Gardeners' Chronicle* for February 21, 1885, p. 248; this beetle is not uncommon (fig. 66, p. 429). Tuber æstivum is best used when mixed with other materials in stuffing; it gives a strong and peculiar flavour, but the individual particles of Truffle always remain hard, and are no doubt very indigestible. Some persons greatly relish the water in which chopped-up Truffles have been boiled.

Our illustration (fig. 63) shows Tuber æstivum the natural size at A, with section, B. The spores are borne generally in fours, in minute transparent *asci*, or bags, as shown at C, enlarged 200 diameters, the yellowish-brown honeycombed spores are interesting objects for the microscope; one is shown at D, enlarged 500 diameters.

The true French Truffle is Tuber melanosporum (fig. 64). The species, however, grows in Italy and other places in Europe, and probably in Britain, although, as far as I know, it has not yet been recorded. In France and Italy this fungus grows gregariously with the last, and with T. brumale, a British species; the latter is sometimes confounded with the plant now before us. T. melanosporum is a winter species, found from

October to January, usually in plantations of Beech or Oak; it is globose, bright brown or black in colour, and covered with rufescent black, obscurely polygonal warts, A; the interior, B, is at first dirty-white, then blackish-grey, and violet-black, or dark reddish, marbled with white. The brown spores are borne in groups of from one to six in colourless bags or *asci*, as shown enlarged 200 diameters at C. Each spore, as may be seen at E, enlarged 500 diameters, is covered with minute tubercular projections. When a single spore only occurs in an *ascus*, it is usually a very large one; when six occur, they are usually small. This Truffle, although a winter species, is often found in July and August growing with T. æstivum, but it is then manifestly immature. It is not ripe till December, when it is fully coloured, and possesses a strong Strawberry odour. After gathering, the odour greatly increases in potency and sharpness, and in the process of drying for the herbarium the scent becomes almost unbearable, but never entirely unpleasant. This is the Truffle used in the best *pâté de foie gras* and *poulard truffé*, and an examination of these preparations with the microscope will soon show whether the true Truffle has been used or not, as the spores are distinct in shape. The approved method of preparing Truffled turkey on the Continent is to pluck the bird directly it is killed, and whilst still warm to entirely stuff it with Truffles; the turkey is then hung till in a fit state for cooking. Sometimes Chestnuts are mixed with the Truffles, and some epicures say this mixture gives a better flavour to the turkey than Truffles alone. Sometimes the French Truffle is, after cleaning, simply plunged into boiling water, and quickly boiled for a short time. It is then eaten hot, or cut up and eaten with oil. The entire Truffle trade of France is said to be worth, to the original producers, £400,000. In Tuber melanosporum, as in all other Truffles, it is common to see spores in the process of germination whilst still within the parent Truffle; three germinating spores are shown at D. This Truffle sometimes sells for 15 francs per pound in France and Italy.

Tuber brumale is an autumn and winter Truffle, and a British species. In Britain it is generally much smaller than the two last, its average size being about that of a hazel nut, black, and polygonally warted outside; and ashy-black, marbled with a few white veins inside. It sometimes grows 2 or 3 inches beneath the ground surface, but I have seen it in abundance entirely superficial under Cedars. The odour is very strong, like the wood of Cornus sanguinea, according to Vittadini. This Truffle generally grows under Oaks and Abele in grassy places, and is mature in October, November, and December; it is said to be a good edible species, with an agreeable taste. It is often used in *pâté de foie gras*, where it is somewhat difficult to distinguish from T. melanosporum, as the spores, though not identical, are somewhat similar both in size, colour, form, and echinulation. This species is said to be more highly esteemed in France than T. æstivum. Personally, I disapprove of T. brumale for the table.

The Italian Truffle is Tuber magnatum (fig. 65); this has not been recorded as a British species. It is an autumn or early winter Truffle, and does not usually grow in a gregarious manner as in the three species already described, but generally in isolated examples.

Externally, T. magnatum is smoothish, or very slightly rough or papillose, often lobed and cracked, and pallid-ochreous—sometimes shaded with reddish or greenish in colour. The flesh is at first white, then brownish or blackish-red, marbled with yellow veins, B. The *asci* and spores somewhat resemble those of the English Truffle, but the yellowish spores are smaller and are borne from one to four in each *ascus*. T. magnatum grows in clayey soils, in plantations or open fields, under Willows, Poplars, and Oaks. As in many other Truffles, the odour of this plant is most potent; it has been compared with decaying cheese and Onions, or Garlic. This Truffle is very different from those already described in its colour, in its almost smooth external surface, and in its Garlic odour. It is sold in Italian markets for about 4 francs per pound.

The following notes of the habits of the other British species of Tuberacei as observed in this country have not, as far as I know, been hitherto published:—

Tuber macrosporum.—In clayey places under Oaks and Beeches, rarely Willows and Poplars. Some times rather near the surface, at other times deep underground.

T. bituminatum, B. & Br. (this is the T. mesentericum of Vittadini).—In sandy ground, calcareous soils and calcareous clays, deep beneath the surface.



Fig. 65.—Italian Truffle: Tuber magnatum.

T. scleroneuron, B. & Br. (this is the T. rufum of Vittadini).—Like the last, deep in sand or sandy ground.

T. excavatum.—Generally quite superficial, under dead leaves. Not edible.

T. brumale.—Commonly 2 or 3 inches deep. When under Cedars quite superficial.



Fig. 66.—Truffle beetle.

T. rufum.—Two or 3 inches deep.

T. nitidum. Vitt.—This is merely the young condition of the last. Habitat the same.

T. puberulum.—In loose sand or leaf-mould, 2 or 3 inches deep.

T. dryophilum.—Same as last.

T. maculatum.—Loose leaf-mould, 3 or 4 inches deep.

Pachyphlœus melanoxanthus, Tul.—In loose soil and leaf-mould, 2 or 3 inches deep.

P. citrinus.—Same as last.

P. conglomeratus.—Superficial, on dead sticks under leaves, &c.

Stevensia bombycina.—On lawns, &c., almost superficial, sometimes an inch or two deep.

Hydnotria Tulasni.—Generally 6 or 8 inches deep in sand.

Hydnobolites cerebriformis.—Superficial, under dead leaves.

Sphærosoma ostiolatum.—Same as last.

Balsamia platispora.—Almost superficial, but immersed in fallen Fir leaves.

B. vulgaris.—Same as last.

B. fragiformis.—Superficial, covered with dead leaves.

Genea verrucosa.—Same as last.

G. Klotschii.—Same as last.

G. hispidula.—Sometimes superficial, often just beneath the surface, involved in grass roots.

Elaphomyces.—Four or 5 inches beneath the soil.

Endogene.—These fungi, doubtfully belonging to the Tuberacei, occur near the surface, but sometimes 3 or 4 inches below it. *Worthington G. Smith, Dunstable.*

(To be continued.)

DOUBLE DAFFODILS FROM SEED.

In 1884 we were just entering upon the Daffodil campaign which has led to such good results. Our knowledge of Daffodils was then hazy, and there were many matters in doubt at that time which have since been cleared up. Amongst these was the origin of the double Daffodil. Our valued friend, Mr. Wolley Dod, was busy with his investigations to prove that singles could not become double by cultivation—a theory which then had general acceptation; and he was beset with assertions that singles had become doubles in all quarters. He conclusively proved that all these were not facts, and up to the present time I believe that no single instance of a single becoming a double Daffodil has been proved.

Mr. Barr had sent him double Daffodils which had come from the banks of the Arno in Tuscany, and he went so far as to suggest that they might have been introduced from England. (*Gardeners' Chronicle*, March 1, 1884, p. 272.)

To this I replied the following week (p. 309):—"Is it possible that these double Daffodils have been introduced from England. It is certainly possible, but it is improbable. I gave it as my opinion that doubles come as seedlings, and may happen any year from a single form, and that in such a simple flower as a Daffodil the double would always be similar wherever they arose; that princeps would produce the bicolor mixture of petals; and obvallaris, the self yellow doubles, and so forth." I then went on to say:—"Is it possible that the double Daffodil is a species, having the power of perpetuating its quality by seeds? To this paragraph the Editor put a [?]. This query led me to investigate the question carefully, and to endeavour to prove the truth of my theory. This proof was forthcoming shortly afterwards at the Daffodil Conference, and the Linnean Society. I was able to show that the popular idea that a double Daffodil had no stamens and pistils, was erroneous—and I produced flowers in every stage of doubling, and with the ovaries containing seeds. Up to that time even experienced growers, such as Mr. Krelage and Mr. Barr, had never seen ripe seed from a double Daffodil. The Editor of the *Gardeners' Chronicle* also stated, p. 587, that he had never seen seeds, although he had examined a large number of double flowers with ovaries.

On June 24, the same year, I gathered a ripe batch of seed from a double flower, and on November 22, I reported that the seeds had produced plants. Since that time I have frequently observed the same seeding, and I believe a good many others have a like experience. We have here a bed of seedlings all from doubles—and on looking over it to-day I find there are three flowers all doubles. This, therefore, completes the proof, as we have double flowers from seed gathered from a double flower. *W. Brockbank, Brockhurst, Didsbury, March* 30.

Home Correspondence.

HOME-GROWN LILY OF THE VALLEY.—There can be no doubt that, if we were to confine ourselves to forcing such examples of Lily of the Valley as are commonly found in old-established gardens and in our woods, as we used to do in our early days, the robust crowns of Continental growth would leave us very far behind; therefore, those who wish to grow their own Lily of the Valley roots for forcing, should cultivate one or other of the Continental types. Our entire stock is the produce of a few imported clumps of the Berlin variety; even for out-of-door beds this kind is far superior to the common kinds of our gardens. As for some years Lily of the Valley has been here in constant request from early December until the finishing of the out-of-door supply, we have, therefore, had to pay considerable attention to its regular production. Our system has been to make new plantations every year, and to allow these to stand two or three years before lifting the roots for forcing, the three-year-old beds being mostly best. Lifting the roots generally commences early in November, and for forcing up to March; we always use single crowns, sufficient roots being lifted at one time to afford two or three batches of crowns. Before separating the clumps they are allowed to dry a little; the crowns then separate more readily, and appear to force all the better than when lifted and put into heat at once. Separating or picking out the flowering crowns requires experience; when this is attained, a good hand rarely fails in his judgment. The flower-spikes are formed in the base of the crowns before the time of lifting, and renders them stout and rigid to the pressure of the finger and thumb, and their presence is in this way detected. We force the crowns planted thickly in moss, and covered with it, the moss resting on slates over a chamber heated by hot-water pipes. The moss is kept constantly moist, and when the spikes of flower are well up, the roots are potted into 48-size pots, putting seven to nine plants in a pot; these are used for room decoration in vases, &c. For cutting the plants are either left until the flowers are cut, or they are planted in pans or pots of larger size. At the time of picking out the crowns for forcing, the next strongest are put on one side for making new plantations; the planting of these is usually done early in the year, the plants being planted in rows 8 or 10 inches apart, and 3 or 4 inches apart in the rows. Our plants have been grown in borders of different aspects, but the roots have usually turned out best from a border with a western aspect. In preparing the borders, a good dressing of leaf-mould is dug in, and the crowns are mulched with leaf-mould, and receive a fresh covering in spring each year till lifted. Grown in this way, the plantations rarely require water in hot or dry weather, which, after full development of the leaves, tends to ripen the crowns. I should also mention that our practice is to take care of any single crown that develops an extra fine flower-spike, and to grow it on for future plantations, as we find such crowns and their increase usually retain extra strength. *John Wallis, Orwell Park.*

ORCHID NOMENCLATURE.—The long deferred settlement of this question upon Orchid nomenclature has led many to doubt its accomplishment during the lives of the present generation of Orchidologists. Five years ago much was expected to result from the Orchid Conference, unhappily frustrated by the absence of one whose assistance would have been weighty on the subject. Now, after a considerable lapse of time, a committee appointed by the Royal Horticultural Society is carefully deliberating and considering a report upon the subject. As we must presume this committee was selected for its individual capability, why were the private suggestions, published the other day in the *Orchidophile*, made to the committee at all? Would it not have been better to have left them to furnish their own well-discussed suggestions to the Council of the Royal Horticultural Society without interference of any kind? There is no doubt that suggestions expressing the unanimous deliberations of this qualified body of gentlemen will be eagerly looked for and accepted, and we may venture to hope that it will not be long delayed. Whilst deliberating on this subject, there appears a phase which has not attained sufficient attention, I mean amongst the more learned in orchidology—the adoption of some means of giving publicity and promulgating the name at present in use in the Orchid world to those who lack books of reference other than trade catalogues. To note a case in point, Bifrenaria Harrisoni, as reported at p. 358, March 22, 1890, would appear to be quite a new plant. Catalogues being of no use to find out the name of this old Orchid, specimens of which at Messrs. Veitch & Sons are bearing two or three dozen flowers on each plant. To those initiated, the plant is Bifrenaria Harrisoniæ, originally called Dendrobium Harrisoniæ, Hooker, *Exotic Fl.*, ii., t. 120, there figured from a drawing made by Mrs. Harrison, of Aigburth, Liverpool, in whose honour the plant was named. Hooker also figured it in the *Bot. Mag.*, vol. lvi., t. 2927, and Lindl., in Paxt. *Fl. Gard.*, iii., Xylo., 277, as Maxillaria Harrisoniæ. Don mentions it in the Appendix to *Hortus Cantabridgensis* as Lycaste Harrisoniæ, and Lindley, *Bot. Reg.*, 897, Colax Harrisoniæ. It was introduced in 1820, and is one of the ten species referred to in Hooker and Bentham, *Gen. Plantarum, Nator. Orchideæ to Gen.*, 116; Bifrenaria, Lindl. Another plant referred to in your columns, p. 288, March 8, placed accidentally amongst "New or Noteworthy Plants," instead of "Orchid Notes and Gleanings," Xylobium Colleyi, Rolfe, cultivated with the aforesaid by Rollissons of Tooting, Don of Cambridge, &c., as Lycaste Colleyi, Lindl. Maxillaria Colleyi, Bateman, referred to in Don's *Hortus Cantabridgensis* was the first in the list of sixteen Lindleyan Maxillarias of the section racemosa (Xylobia) referred in Hooker's and Bentham's *Gen. Plant. Nator. Orchideæ*, to the Lindleyan untenable genus, Xylobium. A note of the plant, taken many years ago, is not encouraging: a brown-flowered Orchid, with sessile racemes of few flowers, Hort. Rollisson; it was introduced from Demerara in 1836. Another instance will suffice for the present. Dendrochilum glumaceum, mentioned in *Gardeners' Chronicle*, March 15, p. 336, is more correctly stated Platyclinis glumacea, *Gardeners' Chronicle*, March 22, p. 358. Ipsea speciosa, referred to at p. 336, is now referred to the genus Pachystoma, &c. *W. Etherington Dixon, Edinburgh.* [The list of garden Orchids in course of publication in our columns is the most authoritative and complete of its kind. Ed.]

CLIANTHUS PUNICEUS.—This fine old greenhouse plant is rarely seen in such perfection as it may now in the conservatory at Umberslade Hall, Warwickshire, the seat of G. F. Muntz, Esq. It is planted out, and covers a considerable amount of space up the side and under the roof of the conservatory, and is a sheet of flower. An ordinary flat stage is over the hot-water pipes, and at the back of these is the Clianthus, which was planted a few years since in loam and leaf-soil and a little rotten manure. *W. D.*

THE FLOWERING ASH.—We have two large specimens of this beautiful tree growing here and flowering every year, from about the middle of May till early in June. They never set seed, and are grafted about 1 foot above the ground. *The Hon. Mrs. Hope, Belmont, Midlothian.*

PARSLEY.—I have found Parsley which has stood through the winter rot away at the heart, and the leafage dead or dying. The result, according to my experience, does not differ from what it has been during harder or moister winters, that I had begun to attribute the mischief to some new fungus; but turning to a quantity of plants which had, for convenience, been lifted in early winter, and dibbled out into rows, and which, whilst having lost their outer leaves, had made small clusters of new ones, I found not one of these plants to be injured in any way, and therefore came to the conclusion that the rot was induced by the settling of moisture about exposed crowns or centres, which had plenty of outer leafage, but no cluster of young leaves to protect them, as the transplanted plants had; and the frosts had finished what the moisture began. It is worthy of remark that some plants of the Moss-curled Parsley not transplanted have stood unharmed. The experience of the winter—and we should always take note of the warnings the various seasons give—will induce me to lift and transplant all the Parsley roots I want to save not later than October, so that time will be given for the crowns to produce those tufts of new leafage which have proved to be so protective to the crowns during the past winter. We will not hastily rush to a conclusion that some new disease is attacking our Parsley, or that the stocks are becoming too tender. Evidently the cause of this unlooked-for decay is of a tentative kind, and may not occur again soon; still it is well to be prepared, and I think early transplanting will meet the evil fully henceforth. *A. D.*

CABBAGE LETTUCE.—The perusal of your very interesting article in last week's issue of the *Gardeners' Chronicle*, induces me to send plants for your inspection of Golden Queen, grown, as you see, in 60-pots. A salad all the year round is comparatively an easy matter where the Cos and Endive varieties are permitted, but here Cabbage Lettuce only is consumed. Until we hit upon this plan of culture, we were often perplexed to keep up the supply of these. The plants sent are just eight weeks from the day of sowing the seed, and the varieties are Chelsea Gem and Golden Queen, which gives us at all times a good supply. *T. W. Bond, Elstead House, Godalming.* [Excellent stocky Cabbage Lettuces, being tender and sweet, and fit for use. Ed.]

THE HEATHER IN AMERICA.—Where did you get the idea that Professor Goodale believes the Heather will not grow in America? (p. 303). [From *Garden and Forest*, as stated at p. 265.] We have Erica vagans, E. stricta, and the real Heather, Calluna vulgaris, growing in our nurseries in the ordinary soil in which all other nursery stock is grown, and they grow as thriftily as if they were in peat. Our soil is brick clay on a sub-stratum of easily decomposable gneiss rock. It would be called a sandy loam. There is a considerable amount of peroxide of iron in it, which gives it a rusty colour. I enclose a few twigs from bushes that have been out all the winter. Our winter has, however, been a dull and cloudy one, when evergreens suffer little. Bright light during frosty weather is more injurious than frost itself. I suppose, however, that this is well known to your gardeners. In my time, now half a century ago, should a house or pit of plants get frosted, the stereotyped and successful remedy was to shade the glass, and let the plants thaw in the dark. In our nursery practice we throw stalks of Indian corn over those things which might suffer, to shade them from bright light. This is all the special treatment the Heather gets. Then, as you see, it will "grow in America." *Thomas Meehan, Godmantown Nurseries, Philadelphia, United States.* [The specimens sent confirmed this statement. Ed.]

TRILIUM DISCOLOR ATRATUM.—A reference to the volume of the *Botanical Magazine*, vol. 2, tab. 40, will, I think, show that the species exhibited at the meeting of the Royal Horticultural Society on the 25th ult., by Messrs. James Veitch & Sons, and named as above, and which received an award of merit, is really T. sessile. When it came on the table, I stated that I thought it to be identical with T. sessile, and in opposing the granting of the award, I maintained that a very old plant was being exhibited under another name as a new form. It was said that the fact of the green leaves being blotched with white constituted a new departure from the old types, and justified an award; and this representation largely determined the bestowal of it. But if any one will turn to the volume of the *Botanical Magazine* I have named, they will perceive that the leaves of T. sessile are much blotched with white, reminding one, by the character of the marking of the leaves, of some of the Pulmonarias. I think that the excellent condition in which the plant was presented to view was highly creditable to Messrs. Veitch & Sons, but it does appear to me inadvisable to manufacture a new species out of an old one, however unwittingly and innocently it may be done, as of the *bona fides* of Messrs. Veitch & Sons there can be no doubt. *R. D.*

CAMPANULA ISOPHYLLA.—This is a charming plant to adorn a rockery, and in its simple requirements, its masses of bright blue flowers, and perfect hardiness it is unrivalled; and while we may regard it as being one of the best rock plants to flower in the summer, it is not without merit in other respects, it being one of the best basket plants that we possess. For window-boxes, too, or for draping the sides of stages in the greenhouse, and in other ways, this plant is useful. It is a most profuse flowerer, and the flowers, when fully expanded, are nearly flat, and about 2 inches across. Equally free-flowered is the white form of C. isophylla, and as valuable, from the purity of the white. The white-flowered variety is a comparatively scarce plant. These Campanulas are increased by seeds and division, the latter being the quicker if the following

plan is followed. At the present time put an established plant into the greenhouse; it will quickly push new shoots, and when these are 3 inches long, remove some of the surface-soil, and replace it with finely sifted sandy soil, burying the base of the shoots about 1 inch. Keep this fresh soil moist by frequent sprinklings of water, and roots will speedily form, and in a month the now well-rooted growths may be separated from the crown and planted out. This method of increasing the plant has advantages over division in the ordinary way. Six of these young growths may be planted round a 6-inch pot, and, with liberal treatment, they will soon form a potful for transferring to a basket or any other purpose. In a similar way, and with the same results, C. fragilis, a companion plant to the above, may be increased and grown. *J.*

DAFFODIL SIR WATKIN.—I will not intrude into the small controversy concerning the history of this fine plant, on which subject I will only suggest that some very large variety of N. incomparabilis appears to have been known to the early writers upon Narcissi, otherwise they would hardly have applied to it such names as "Incomparable," "Nonpareil," and "Omnium maximus." But it may interest Messrs. Dickson and others to be assured that Sir Watkin is capable of producing seed, and is not a permanently sterile plant, such as N. biflorus, N. Johnstoni, and some other Narcissi. I have at present thirty young seedling plants from Sir Watkin, besides which I had last summer the great misfortune to mislay or drop, and so lose, a small packet of seed. Sir Watkin is, however, extremely difficult to obtain good seed from. With regard to Mr. James Walker's red-cupped variety of Sir Watkin, I am rather of opinion that it is a seedling, probably from a chance seed which dropped among old clumps of the parent, and grew up amongst them unnoticed. There is no antecedent improbability that Narcissi should sport like Hyacinths; but during the years in which I studied Narcissi, I have never obtained evidence of a fixed sport, though the orange-crowned kinds vary much from year to year in intensity of colouring. I may add that my own seedlings show that it is not uncommon for the yellow-crowned incomparabilis flowers to produce seedlings which have more red in the crown. *G. H. Engleheart, Appleshaw, Andover.*

FALSE MUSHROOMS GROWING ON BEDS.—I send you samples of fungus growing on some Mushroom beds here, and having somewhere read that poisonous fungi running in a bed with the true Mushroom will poison the whole, I am desirous of knowing the cause of their coming, which species it is, and if it is poisonous? as we are fearful of eating any of the produce of the bed. *W. Edwards.* [We have never heard it asserted that poisonous fungi running in a bed with Mushrooms will poison all; it is not true. Sometimes other fungi than Mushrooms will grow in such abundance that the Mushrooms themselves will be ousted. The plant growing on your beds in company with the Mushrooms is Agaricus dealbatus, an inoffensive production of Nature. *W. G. S.*]

"WATERLOO" STRAWBERRY.—The foliage of this excellent late Strawberry has suffered very much with me, and I am curious to know if it has been generally found to be more delicate than other varieties. The plants in young and old plantations look extremely wretched, the foliage being as brown as possible, much more so than Noble, La Grosse Sucrée, President, Sir Joseph Paxton, Pauline, Oxonian, and others growing alongside, and equally exposed; although all of those named show injurious effects due to the frost blast of March 4, when 20° of frost were registered. Vegetation generally suffered considerably. *W. Crump, Madresfield Court.*

MONTBRETIA POTTSII. — At page 301, your correspondent, "Mr. F. W. Burbidge," asks for the experience of any cultivator of this plant. I am not able to go so far back in my experience as he requires — namely, ten or twelve years, still from what I have known of the plant during the past five years I have grown it, I am enabled to form a better opinion of it than your correspondent. We have two clumps of it in beds of mixed herbaceous plants, and which were planted five years ago in the positions that they now occupy. The plants have been allowed to extend, not being interfered with in any way, and the only cultural attention which they have received has been a slight forking of the soil amongst the growths, and a liberal dressing of short dung and ashes when the beds are dug. We have always had a good proportion of flower-spikes; and last year they were finer and more numerous than ever, the blooms in the centre of the clumps being as good as those at the outside or younger portions. The plant is much admired here, and is cut largely by the lady of the house for furnishing large vases. I am inclined to attribute our success with this plant in a great measure to a hint I got from a nursery foreman that "If you want it to do well you must leave it alone," and I shaped my course accordingly. *J. U., Mid-Sussex.*

FUNKIAS.—These are, in a general way, only used in the herbaceous border, where during the spring and summer they are very ornamental; but valuable as they are there, they are doubly so in pots, and may then be employed as indoor or greenhouse decoration. The best perhaps among them is F. Sieboldii which sends up by broad foliage, supported on tall stout footstalks, the green being of a very deep tint and the surface glaucescent. To have plants in pots, clumps should be taken up and cut through, so as to get several crowns in each piece, and be potted in rich soil. A gentle heat may be employed to hasten the flowering of these. *J. S.*

SOCIETIES.

ROYAL HORTICULTURAL.

The following were the awards made by the various committees on the occasion of the meeting on March 25:—

By the Orchid Committee.

First-class Certificates.

To Lælio-cattleya Hippolyta from Messrs. J. Veitch & Sons.

To Dendrobium Wardianum Schröderi var., from Baron Schroder.

Award of Merit.

To Cattleya Triane Tautziana, from F. G. Tautz, Esq.

Cultural Commendations.

To Angræcum citratum var. × from W. F. Darnell, Esq.

To Oncidium sarcodes, from W. C. Walter, Esq.

To Cyrtopodium Saintlegerianum, from A. H. Smee, Esq.

By the Floral Committee.

Awards of Merit.

To Iris Sindjarensis, from Messrs. Barr & Son.

To Trillium discolor atratum, from Messrs. J. Veitch & Son.

To Deutzia candidissima fl.-pl., from Mr. W. C. Leach.

To Philadelphus inodorus, from Mr. W. C. Leach.

To Lily of the Valley Fortin's var., from Mr. E. Morse.

Medals.

Silver-gilt Banksian, to Messrs. B. S. Williams, for group of plants.

Silver-gilt Banksian, to Messrs. J. James & Son, for group of Cinerarias.

Silver-gilt Banksian, to Messrs. Paul & Son, for group of Roses.

Bronze Banksian, to Messrs. Barr & Son, for cut flowers and Daffodils.

Bronze Banksian, to Messrs. W. Cutbush & Son, for group of Epacris.

Bronze Banksian, to Messrs. H. Cannell & Son, for cut blooms, double Cinerarias, and zonal Pelargoniums.

Scientific Committee.

March 25.—Present: D. Morris, Esq., in the chair; M. Henry De Vilmorin, ex-President Botanical Society of France; Messrs. Blandford, MacLachlan, Wilson, Rev. W. Wilks, and Dr. Masters.

Figs.—Branches were exhibited covered with a brown scale, which the sender said had proved very injurious. The remedy suggested was to scrub the branches with a hard brush and soap suds. The specimens were further referred to Mr. MacLachlan for examination and report. Other branches of Fig in a dying condition were apparently free from parasites, and their condition betokened some mischief at the root.

Iris Sindjarensis.—A plant of this was exhibited by Messrs. Barr & Son, and received a botanical certificate. M. de Vilmorin pointed out its resemblance to Iris orchidacea.

St. Helena Ebony.—Mr. Morris alluded to the peculiar vegetation of St. Helena, now confined, for the most part, to a small area in the central and higher part of the island. Many of the trees formerly native to the island are now all but, or quite, extinct. Among them is a species of Trochetia, or Melhania. The trunks of this tree are embedded in the cliffs of the island, and are dug out by the inhabitants for the sake of manufacturing ornaments. The following quotation from Melliss' exhaustive work on St. Helena refers to this plant:—"The native Ebony of St. Helena.—This plant, I believe, to be now extinct. It formerly grew on the outer portions of the island, near the coast, at altitudes of 2 to 4, where the weather-beaten stems are still found deeply embedded in the surface-soil. The last plant I saw was a small one growing in the garden at Oakbank, about twenty-five years ago, but it is not there now, and I have searched the whole island over for another, but in vain. The leaves were dark green, and the flowers white; the wood is very hard, heavy, black in colour, and extremely brittle. It is still collected and turned into ornaments, which are much prized on account of its rarity. That this tree once formed a considerable portion of the vegetation clothing the island on those parts that are now quite barren, is strongly evidenced by the many references to it in the local records. Pl. 29. It is the Dombeya erythroxylon of Andr. *Bot. Repos.*, vi., t. 389, not of Willdenow."

It is interesting to know that the plant is still in existence under cultivation at Kew (and perhaps elsewhere), under the name of Dombeya erythroxylon. At the present time the plant, which was obtained from the gardens at Herrenhausen, is in flower at Kew.

Mr. MacLachlan called attention to the interesting remark on the rare plants of St. Helena, contained in Mr. Wollaston's book on the Coleoptera of the Atlantic islands.

Fingered Citrons.—Dr. Masters showed a drawing of a fruit that had ripened in the garden of Mr. Hanbury, at La Mortola, near Ventimiglia, and made some comments on the peculiarities of its structure. M. de Vilmorin said that similar malformations occurred in other Oranges, especially in the Bitter Orange, the flowers of which were used in perfumery, and in which the carpels might be seen occasionally in all stages of dissociation.

Sport of Narcissus.—From Mr. Walker came one bulb producing two distinct flowers, viz., Silver Phœnix and N. incomparabilis fl.-pl. The specimen was referred to Dr. Masters for further examination.

Florida Pine.—From Mr. Divers came a cone of Pinus cubensis (Elliotti), and one of P. inops var. clausa, just brought home from Florida. Mr. Morris spoke of the wood of the Cuban Pine, as being very hard, and said that many colonies were now importing soft wood, not that their own forests were destroyed, but because the timber yielded by them was too hard to be used profitably. M. de Vilmorin pointed out the difference between the typical Pinus inops and the specimen exhibited.

ROYAL BOTANIC.

The following is a list of the plants which received Certificates at the meeting on March 26:—

Botanical.

To Lælio-cattleya Hippolyta, from Messrs. J. Veitch & Son (see Royal Horticultural Society's report).

To Angræcum citratum var., from Mr. W. F. Darnell (see Royal Horticultural Society's report.)

To Oncidium Larkinianum, from Mr. Larkin.

To Tulipa Kaufmanniana, from Messrs. Paul & Son.

Floricultural.

To Amaryllis, The Champion, from Messrs. J. Veitch & Son.

To Amaryllis Olivette, deep intense scarlet, from Messrs. J. Veitch & Son.

To Amaryllis John Heal, dull crimson with white tips.

To Cineraria Gem, from Mr. J. James.

To Clivea Stansted Beauty, from Messrs. J. Laing & Sons.

To Clivea Meteor, and Epiphyllum Russellianum var. Gaertreri, from Messrs. B. S. Williams & Sons.

To Cyclamen, Duke of Fife, from the St. George's Nursery Co.

CRYSTAL PALACE.

The first of this season's flower shows was held last Saturday, when, doubtless owing to the fact that the date is late for this season, the display was not of the usual quality, and competition was small. Messrs. J. Laing & Sons, Forest Hill, S.E., were 1st for a group arranged for effect, and had a good selection of plants; Mr. James, Castle Nursery, Norwood, was a good 2nd, showing an arrangement which was an improvement on his former methods.

Messrs. H. Williams & Sons, Fortis Green, Finchley, were awarded 1st prizes for deserving exhibits of Hyacinths, Tulips, Narcissi, and Lily of the Valley. A group of Azalea indica, in medium-sized and fairly well-flowered specimens came from Mr. R. Wells, Longton Nursery, Sydenham; and the St. George's Nursery Company, Hanwell, showed a nicely grown lot of Cyclamens, and in the competition was awarded the 1st prize.

Amateurs made a fair display. Mr. W. Clark, gr. to W. Sopper, Esq., Eversley, Herne Hill, led for Tulips in a close competition. Mr. Shoesmith, gr. to M. Hodgson, Esq., Shirley Cottage, Croydon, was 1st for Narcissi, with good potfuls. Mr. J. Lambert, Elfindale Lodge Gardens, Herne Hill, led for Lily of the Valley; while Mr. J. Ford, gr. to Sir C. Pigott, Bart., Hexham Park, Slough, was the most successful exhibitor of Cinerarias here, and also in the open class, having large well-flowered plants; Mignonette was well represented by the lot sent by Mr. A. Carter, gr. to Alderman Evans, Ewell.

Noncompetitive groups were sent by Messrs. B. S. Williams & Son, Upper Holloway, who had Cliveas, Hyacinths, Lilac, &c.; Messrs. Paul & Son, Old Nurseries, Cheshunt, an interesting collection of alpines, also pot-Roses and Amaryllis; Messrs. Barr & Son, Covent Garden, showing a collection of Daffodils.

BATH FLORAL FÊTE SPRING SHOW.

Of the five exhibitions held by the committee of the Bath Floral Fête, one of the pleasantest is the spring show, which took place in the Assembly Rooms on the 19th inst. It was extensive, thoroughly representative, and delightful; and stove, greenhouse, and foliaged plants as well as Orchids alternated with Hyacinths, Tulips, Crocus, &c.

Hyacinths.—There were four classes for these, the best thirty-six came from Messrs. R. T. Veitch & Sons, of Exeter. Mr. George Garraway, Bailbrook, was 2nd. Mr. G. Garraway had the best twelve shown in six pairs.

In the Amateurs' class for twelve, Dr. Budd was 1st with a very good lot indeed; and he was also 1st with six varieties.

Tulips in pots were a bright feature; the best twelve pots came from Messrs. R. T. Veitch & Son; Mr. Marsh, gr. to J. M. Dunlop, Esq., Bristol, was 2nd.

There were two classes for six pots of Tulips, one of singles and one of doubles, Messrs. Marsh and Budd taking the chief honours.

Narcissus.—The Polyanthus varieties, shown in sixes, were good, but they did not win the admiration aroused by the single Daffodils in pots. An excellent collection of twelve was shown by the Rev. E. Handley, of Bath; Dr. Budd being a good 2nd. Such fine forms as Golden Spur, Countess of Annesley, Sir Watkin, Emperor, Empress, and Horsfieldi were seen in excellent form.

Amaryllis.—Some well-grown and bloomed specimens were shown by Mr. Hawkins, gr. to Mr. Jolly, Bath, and Mr. C. H. Gabriel.

Azaleas.—Some good specimens of these for the season of the year were staged by Mr. C. W. Mackillop; the second prize was taken by Mr. H. Jones, of Bath. The finest specimen was Duc de Nassau.

Orchids.—Since the Rev. E. Handley has taken to exhibiting Orchids, they are always seen in good condition at the Bath shows. His gardener, Mr. E. Kerslake, was placed 1st on this occasion with six specimens, having Dendrobium nobile, D. nobile pendulum, Cymbidium Lowianum, Odontoglossum triumphans, O. Edwardsii, and Cattleya Trianæ Leeana, he being the only exhibitor. Mr. R. B. Cator, Bath, had the best three specimens, having good examples of Cypripedium villosum, Dendrobium Wardianum, and Cattleya Trianæ; Mr. C. W. Mackillop was 2nd. The Rev. E. Handley had the best specimen, having a fine piece of C. Trianæ; Mr. J. T. Holmes coming 2nd with a good piece of Cœlogyne cristata.

Roses in pots, shown in collections of six specimens, were remarkably well shown by the Rev. E. Handley and Dr. Budd.

Cinerarias.—These were represented by good plants. Cyclamens were fairly good; Chinese Primroses were numerous. Table plants were good, but Violets limited in quantity.

Collections of plants, arranged for effect, were a good feature. Ornamental foliaged plants in sixes, the best coming from Mr. W. C. Drummond, of Bath. There was a class for four specimen stove and greenhouse plants, and for six exotic Ferns and mosses.

A special feature of interest was a class for a group of Daffodils shown in pots or boxes, tastefully arranged with moss, the prizes being offered by the Rev. E. Handley. The donor of the prizes had the best collection, Messrs. R. T. Veitch & Son, being 2nd.

Fruit was represented by Apples and Pears. A dish of excellent Cornish Gillyflower best represented the first, and well preserved Beurré Reine the second.

Of miscellaneous collections, a most interesting group of Orchids, intermixed with foliage plants, came from Mr. J. Cypher, Cheltenham. Messrs. G. Cooling & Sons, Bath; A. A. Walters, Bath; and R. T. Veitch & Sons also had collections of plants; and Mr. R. B. Cator a basket of pretty Primroses.

VEGETABLE PRODUCTS IN THE DRUG MARKET.

A study of the trade reports in the various commercial journals is both interesting and instructive, and none more so perhaps than those which are classified under the head of drugs. Thus, in reference to Cloves, we quote the following from a report of a Rotterdam firm, which appeared in a contemporary recently: —"Zanzibar reports under date February 2 last, state that the total crop this season is by far the largest on record, and is estimated at 800,000 frazileh, or about double the yield of former abundant crops. A frazileh equals 35 lb., and the total yield, therefore, will be about 28,000,000 lb., while the average requirements of the whole world are estimated at only just over 11,000,000 lb. Prior to 1871, the price of fair Zanzibar Cloves in London averaged from 3½*d.* to 3¾*d.* per lb.; and although, since then, an export duty of 15 per cent. of the value has been established, the difference between the prices mentioned and the actual quotations of say, 4¾*d.* to 4½*d.*, is much larger. The large yield is undoubtedly a consequence of the replanting which has been going on in Zanzibar after the hurricane in 1872, the trees having now attained their full growth. The fact that the tree bears fruit every second year only, leads to the supposition that the next crop will be a small one; but it is said that a much larger number of trees has been planted since the hurricane than ever existed before. At any rate the current crop is much in excess of the requirements, and concurrently with this exceptional Zanzibar crop the yield of Cloves in the island of Ambonia (Netherlands Indies), though of much less importance commercially than Zanzibar, has also been greatly in excess of the average."

Commenting on this, our contemporary makes the following remarks:—"In reply to these alarming statements, it is said that no European house can possibly have any means of correctly estimating the crop of Zanzibar Cloves, as the bulk of this article is produced on the small island of Pemba, north of Zanzibar, which is entirely in the hands of the natives, who do not allow any foreign traders to obtain accurate news of the crop, but the estimate given by the Dutch firm is thought to be much exaggerated. Meanwhile it is a fact that our market continues to decline, and Zanzibar Cloves on the spot have fallen from 4½d. to 4½d. per lb."

Cubebs.

Genuine Cubebs, it is well known, are the fruits of Piper cubeba, but these small berries are liable to much adulteration, and the berries of some other species of Piper, as well as of plants not botanically allied, are sometimes offered for sale, or are even mixed with them. At the drug sales recently nineteen bags, described as partly doubtful, mixed, slightly stalky berries, were bought in at £22 to £23 per cwt. It is also stated that a telegram from Java, received at Amsterdam on the 19th inst., announced that the last crop would turn out to be a small one, that prices in Java were held very high, and that the shipment of cultivated berries had probably ended, so that there is reason to suppose that the whole of the last crop of cultivated Cubebs has already been received in Europe.

Musk Seed.

This seed, the produce of Hibiscus abelmoschus, was some years ago used in perfumery in this country, as a substitute for animal musk; it, however, never found much favour with the perfumers, and was chiefly utilised in the composition of sachet powders. The seeds have recently been brought again into commerce, and are now quoted in the wholesale market at 6*d.* per pound.

Piuri.

This substance, which is also known as Indian Yellow, was the subject of an exhaustive report on its manufacture in 1883, by Mr. T. N. Mukharji, of the Art and Economic Museum, Calcutta, who was deputed by the Indian Government to visit Mirzapur, where the Piuri is almost exclusively prepared, and obtain exact information as to its manufacture. Mr. Mukharji proved that this yellow colouring matter was obtained from the urine of cows that were specially fed for the purpose on Mango leaves. More recently Prof. Graebe has worked out the chemistry of the substance, and the two reports have been re-published in the number of the *Kew Bulletin* for March. Three cases of Piuri were shown at the London drug sales on the 20th inst., the price quoted for which was 6*s.* 6*d.* per pound. The appearance of this substance in the London market is probably due to the publication of Prof. Graeb's paper, in the December number of the Geneva *Archives des Sciences Physiques et Naturelles.* It will be interesting to note whether the substance from this becomes an article of commerce in this country. [This substance was mentioned in our issue for March 22, p. 362. Ed.]

VARIORUM.

Pseudopanax Ferox, T. Kirk (the toothed Lancewood).—The remarkable changes of foliage through which it passes in its progress to maturity, and the different aspects which it presents, are of great interest, and must be briefly described. The cotyledons, the first leaves developed on the germination of the seed, are oval, flat, and membranous; they are quickly succeeded by narrow-linear leaves, one-eighth of an inch broad, toothed, and of harsh texture: as the stem increases in height the leaves retain their linear form, but increase in length, and become slightly expanded at the apex. At first they are given off at a right angle with the unbranched stem, but ultimately become deflexed, the lower surface of the leaf forming an acute angle with the stem. As they attain a length of 18 inches, with a breadth of half an inch, these thick, rigid, linear leaves pointing to the ground present a strange appearance, which has only a single parallel in the New Zealand flora. In this stage their texture is extremely coriaceous and rigid; the stout midrib is conspicuous along the entire length of the leaf, the surface is blotched and mottled, and the margins are furnished with large lobulate-hooked teeth, capable of inflicting a severe wound if incautiously handled. The exact duration of this stage is unknown, but plants have been observed to exhibit no change for thirty years or more; some of the leaves are persistent for twenty years. On approaching the period of maturity the simple stem branches at or near the apex, the new leaves are shorter, and gradually assume an erect position, the texture becomes thicker and more rigid, but the spinous teeth entirely dis-

appear; new branches are developed, and the plant forms a round-headed tree, with the lower parts of the branches naked, but exhibits absolutely no trace of the remarkable form of leaf which characterised its intermediate stage. Male and female flowers are now produced on separate trees, and the latter are succeeded by ovoid fruits, at first covered with a delicate glaucous bloom, which gradually disappears, when they shrink and become wrinkled.

DACRYDIUM BIDWILLII (the Mountain Pine) is a small species forming a handsome conical or dome-shaped shrub, from 2 feet to 12 feet high, with a very short trunk rarely exceeding 1 foot in diameter, and usually only a few inches, with spreading, often horizontal, branches. The Mountain Pine is remarkable for the great difference exhibited by its leaves at different periods of growth. In the young state they are linear, flat, crowded, and spreading, one-third of an inch long, but in the mature state they resemble minute, close-set green scales, keeled on the back, and overlapping each other like the scales of a fish. There is no resemblance between the leaves of the early and mature states, so that while the first resemble those of the Mountain Totara, the second might easily be mistaken for those of a Cypress. *T. Kirk, in "Forest Flora of New Zealand."*

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending March 29.	Temperature. Accumulated. Above 42° for the Week.	Temperature. Accumulated. Below 42° for the Week.	Temperature. Accumulated. Above 42°, difference from Mean since Jan. 1, 1890.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths (inch.		In.		
1	3 +	27	12	+ 48 —	75	1 —	67	15.3	33	18
2	4 +	34	13	+ 39 —	79	1	54	8.1	35	23
3	6 +	38	1	+ 32 —	107	3 +	48	5.3	23	21
4	6 +	48	2	+ 15 —	50	0 av.	52	5.7	24	27
5	5 +	42	3	+ 18	47	1 +	46	5.3	19	23
6	3 +	39	0	+ 21 —	58	1 +	46	5.8	18	25
7	3 +	31	6	+ 32 —	73	1 +	60	13.6	23	20
8	2 +	29	1	+ 28 —	76	7 +	56	8.5	18	22
9	3 +	40	0	+ 10 +	13	0 av.	53	9.0	32	29
10	3 +	33	2	+ 6 —	41	1 +	62	8.7	27	24
11	3 +	42	0	+ 6	5	3 +	59	12.7	31	28
12	3 +	50	0	+ 79 —	18	1 +	54	8.2	28	34

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending March 29th, is furnished from the Meteorological Office:—

"The *weather* during this period has varied considerably. The greater part of the week was cloudy or dull, with rain almost daily in the west and north, and frequently in the south and east; occasionally fine bright intervals were experienced in all districts, and in most parts of England the conditions improved materially towards the end of the week, while in the Channel and on our south-western coasts thick fog prevailed.

"The *temperature* has been above the mean in all districts, the excess having ranged from 3° in most parts of the kingdom to 5° in the 'Midland Counties,' and 6° in the north-east and east of England. The highest of the maxima which were recorded on the 27th at most of the Irish and Scotch stations and on the 21st over England, varied from 54° in 'Scotland, N.,' to 64° in 'England, E.,' and the 'Midland Counties,' and to 66° in 'England, S.,' The lowest of the minima were registered on the 24th, and ranged from 24° in 'Scotland, E.,' and 25° in 'Scotland, W.,' to 37° in 'England, N.E.,' and to 43° in the 'Channel Islands.'

"The *rainfall* has exceeded the mean over Ireland, the 'West of Scotland,' and southern, central, and north-eastern England, and has just equalled it in 'England, S.W.,' and 'England, E.;' elsewhere it has been rather less than the normal.

"*Bright sunshine* has been less prevalent, as a whole than it was last week. The percentage of the possible amount varied from 18 in 'England, S.,' and 'England, N.W., to 34 in 'Ireland, S., and to 35 in 'Scotland, E.'"

MARKETS.

COVENT GARDEN, April 2.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

THE holidays are now making our business very dull, especially with forced goods. A few samples of new Grapes to hand. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0
Arum Lilies, per doz.	9 0	18 0
Aspidistria, doz.	...18 0	42 0
— specn. plants, each	7 6	10 6
Azaleas, various, each	2 0	3 0
Cineraria, per doz.	6 0	10 0
Cyclamen, dozen	9 0	24 0
Cyperus, per dozen	4 0	12 0
Daffodils, doz. pots	8 0	12 0
Dielytra, per doz.	9 0	12 0
Dracæna terminalis, per dozen	...30 0	60 0
— viridis, per doz.	12 0	24 0
Erica Cavendishii, per dozen	...18 0	48 0
— ventricosa, doz.	15 0	24 0
Euonymus, in var., per dozen	6 0	18 0
Evergreens, in var., per dozen	6 0	24 0

"*" Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0
Acacia (French) bun.	0 9	1 6
Azaleas, doz. sprays	0 6	1 0
Bouvardias, per bun.	0 8	1 0
Callanthopsis, 12 bl.	3 0	5 0
Camellias, white, doz.	2 0	4 0
— various, per doz.	1 0	2 0
Carnations, 12 blms.	1 0	2 0
Crocuses, 12 bun.	1 0	2 0
Cyclamens., 12 blms.	0 4	0 6
Daffodils, 12 bunches	0 3	0 9
Eucharis, per dozen	4 0	8 0
Gardenias, 12 blooms	4 0	8 0
Heliotropes, 12 spr.	0 6	1 0
Hyacinths (French), per bunch	1 0	2 0
— (Dutch), in boxes, white, per box	2 0	4 0
— (Dutch), in boxes, various, per box	1 6	3 0
Lilac, white, Fr., bun.	4 0	6 0
Lilium, var., 12 bl.	2 0	6 0
Lily of the Valley, doz. sprays	0 6	1 0
Maiden Hair Fern, 12 bun.	4 0	9 0
Mignonette, 12 bun.	2 0	4 0
— French, per bun.	1 6	2 0
Marguerites, 12 bun.	3 0	6 0
Narcissus, various, doz. bun.	1 6	6 0
Pelargoniums, scarlet, 12 spr.	0 6	0 9
— dozen sprays	1 0	1 6
Primroses, 12 bun.	0 8	1 0
Primulas, double, 12 sprays	1 0	1 6
Roses, Tea, per doz.	1 0	3 0
— coloured, dozen	2 0	4 0
— French, dozen	1 0	2 0
— red, per dozen	3 0	5 0
— Safrano, dozen	1 6	2 6
Spirea, doz. sprays	0 6	1 0
Stephanotis, 12 spr.	9 0	12 0
Tuberoses, 12 bms.	1 6	2 0
Tulips, doz. blooms	0 6	1 0
Violets, 12 bun	1 0	2 0
— French, bunch	1 0	2 0
— Parma, bunch	3 0	4 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Apples, ½-sieve	1 6	7 0
— Nova Scotia, brl.	12 0	25 0
Cobs, per 100 lb.	...140 0	...
Grapes, per lb.	2 0	5 0
— New, per lb.	5 0	9
Lemons, per case	12 0	20 0
Pine-apples, Eng., lb.	1 0	1 6
— St. Michael, each	2 0	6 0
Strawberries, lb.	4 0	6 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.
Asparagus, English, per 100	...12 0	...
Beans, French, lb.	2 0	...
Beet, red, per dozen	1 0	2 0
Carrots, per bunch	0 6	...
Cauliflowers, each	0 3	...
Celery, per bundle	1 6	2 0
Cucumbers, each	1 0	1 6
Endive, per dozen	2 0	...
Herbs, per bunch	0 4	...
Leeks, per bunch	0 3	...
Lettuces, per dozen	1 6	...
Mushrooms, punnet	1 6	...
Mustard and Cress, punnet	0 4	...
Onions, per bunch	0 5	...
Parsley, per bunch	0 6	...
Rhubarb, per bundle	0 6	...
Seakale, punnet	2 0	...
Shallots, per lb.	0 6	...
Spinach, per bushel	6 0	...
Sprue, per bundle	1 6	...
Brussel Sprouts, per lb.	0 3	...
Tomatos, per lb.	1 0	...
Turnips, per bunch, new	0 4	...

POTATOS:—Old Potatos have been selling freely at the late low prices. Tendency for New ones; much lower price. Heavy arrivals are due this week. *J. B. Thomas.*

SEEDS.

LONDON: *April 2.*—Messrs. John Shaw & Sons seed merchants, of 37, Mark Lane, London, write that the recent favourable weather naturally increases the sowing demand. As farm seeds are now wanted for immediate sowing, and prices all round are abnormally low, open orders for prompt execution come to hand. For red and white Cloverseeds also for Trefoils and Rye grasses remarkably low rates still prevail. Alsike is firm at the late advance. There is rather more doing in Tares. Mustard and Rapeseed keep steady. Birdseeds are without change. Choice Blue Peas have become scarce. Fine new Scarlet Runner Beans are obtainable on moderate terms. Feeding Linseed dull.

CORN.

Averages.—Official statement showing the average price of British corn, imperial measure, for the week ending March 29:—Wheat, 29*s.* 9*d.*; Barley, 29*s.* 10*d.*; Oats, 18*s.* 6*d.* For the corresponding period in 1889:—Wheat, 30*s.* 2*d.*; Barley, 29*s.* 7*d.*; Oats, 16*s.* 11*d.*

POTATOS.

BOROUGH AND SPITALFIELDS: *April 1.*—Quotations:—Regents, 40*s.* to 85*s.*; Hebrons, 30*s.* to 80*s.*; Magnums, black, 35*s.* to 45*s.*; Bedfords, 40*s.* to 50*s.*; Lincolns, 40*s.* to 55*s.*; Yorks, 45*s.* to 75*s.*; Scotch, 47*s.* 6*d.* to 95*s.*; Imperators, 40*s.* to 70*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 75*s.* to 92*s.*; inferior do., 40*s.* to 75*s.*; hay, best, 60*s.* to 87*s.*; inferior do., 26*s.* to 50*s.*; and straw, 24*s.* to 38*s.* per load.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

BUILDING A PROPAGATING-HOUSE. — "Young Florist" being desirous of building a span-roof forcing and propagating-house, would be glad if some of our readers would kindly inform him the simplest kind of house most in use by the leading market growers; the height, width, mode of heating, and construction, and what is the thickness of the walls. Besides these particulars, he wishes to be informed if houses are constructed of sufficient width for central bed to be built; if such bed would be suitable to grow other plants upon while Cucumbers are growing on the side-beds. He thinks that, perhaps, the close atmosphere necessary for the Cucumbers would be unsuitable for other plants.

NOTICES TO CORRESPONDENTS.

*** Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.

A NICE POINT: *B. W.* The point is too nice for us to discuss. Your letter should be sent to the writer.

CAMELLIAS: *Alba Plena.* The blooms sent were very

good, and if next season's blooms should equal them in size, they will certainly be fit for exhibition.

Cinerarias: *J. Price & Son.* The Cineraria blooms sent by you show some rich and bright colours, and they are large, too, some being quite 3⅔ inches in diameter; there is, however, a want of substance and solidity about the flowers.

Cypripediums for a Greenhouse Unheated in the Summer Time: *B. A.* C. insigne, C. venustum, and C. Fairieanum. The out-of-doors species, C. Calceolus and C. spectabile, would also do well.

Fungus on Smyrnium: *F. W. B.* The early or Æcidium condition of Puccinia Smyrnii. Not very common. *W. G. S.*

Grapes: *A Constant Reader.* Injured, probably, by the immediate neighbourhood of the sulphur-coated hot-water pipes. Wash off the sulphur. Sulphur should not be used alone, but mixed with an equal weight of whiting or lime.

Hyacinths: *R. S.* You cannot do better than read the articles by MM. Baarnart and Kersten in *Journal of the Royal Horticultural Society*, vol. xi., part 2 (July, 1889). The numbers of the *Gardeners' Chronicle* named by you do contain particulars of the matters you require, but are out of print.

Names of Plants: *P. & S.* From the specimens sent, we judge the Camellias to be—1, Altheæflora; 2, Prince Albert; 3, Delicatissima; 4, Double striped; 5, L'Insubria; 6, Candidissima; 7, Adelina Benvenuti; 8, Lavinia Maggi.—*Label.* 2, Herniaria glabra; 3, Sedum glaucum; 10, alternanthera; other specimens insufficient. What wretched scraps! think what they must be when we received them; and next time please send better specimens more carefully packed. Not more than six should be sent at a time.—*W. M.* 1, Acer rubrum; 2, Abies pinsapo; 3, Peperomia arifolia.—*K. A.* 1, Boronia heterophylla; 2, Abutilon vexillarium; 3, Cacalia ficoides; 4, Aloe variegata.

Rosika and Vaporiser: *F. S. & Co.* A useful instrument for spraying pot plants, Roses, &c., with insecticides. Used with diluted petroleum it kills fly, but not mealy bug, or scale, excepting in the case of the last named, just as the young are escaping from beneath the parent insect. We will try the Rosika later and report.

CATALOGUES RECEIVED.

Agricultural and Horticultural Association (Limited), 3, Agar Street, Strand, W.C.—Farm Seeds.

John Perkins & Sons, 52, Market Square, Northampton—Agricultural Seeds.

Max Degen, Köstritz, Germany—Dahlias, Roses, Gladioli, &c.

Harlan P. Kelsey, The Highlands Nursery, Linville, N.C., U.S.A.—Plants of the Southern Alleghany Mountains.

W. P. Laird & Sinclair, 73, Nethergate, Dundee—Farm Seeds.

Charles Sharpe & Co., Sleaford, Lincolnshire—Farm Seeds and Seed Corn.

V. Lemoine et Fils, Rue de Montet, Nancy—Trees and Shrubs, and Novelties.

William Paul & Co., Barngill Nursery, Bridge-of-Weir, N.B.—Pansies, Pinks, &c.

J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex—Dahlias, &c.

Rawlings Bros., Old Church, Romford, Essex—Dahlias.

L. Jacob-Makoy & Co, Liège, Belgium—New Plants.

Paul & Son, Old Nurseries, Cheshunt—Hardy Herbaceous and Alpine Plants.

Germain Fruit Company, Los Angeles, California, U.S.A.—Seeds, Plants, &c.

Communications Received.—J. Watts (was delayed for want of space.)—J. K. B.—H. H. D'O.—W. & V.—Baron v. Mueller, Melbourne.—P. W., Tschernigowski.—M. M., Melbourne.—J. R.—E. B.—B. F.—G. H., Malta.—J. S.—L. L., Brussels.—M. B., Middelburgh.—W. H. D.—E. C.—N. E. B. A. F. B.—G. W.—A. D.—A. L. K.—W. H. Y.—L. Wittmack, Berlin.—R. C., Ireland.—J. B.—J.

DIED, on March 25, at Stanley Villa, Turnham Green, William John Coleman, late of Covent Garden Market, aged seventy-three. Interred at Brompton Cemetery on Monday last.

SEEDS.—100 packets, 1*s.* 2*d.* post-free, genuine fresh; other choice Seeds half price. Catalogues free. GREENHOUSES and GARDEN FRAMES, 4*d.* per foot; LIGHTS from 5*s.*; FRAMES from 10*s.* GREENHOUSES, 200 feet. 4-foot FRAMES, 8 by 6, 29*s.* All painted, glazed, and put on rail.—Write, GARDNER and CO., Tansley, Matlock; and 62, Strand, London, W.C.

ORCHID PEAT, best quality; BROWN FIBROUS PEAT for Stove and Greenhouse use. RHODODENDRON and AZALEA PEAT. Samples and Prices to WALKER and CO., Farnborough, Hants.

TO MARKET GARDENERS, &c.—To Grow Fine VEGETABLES and FLOWERS, Gardeners should use SULPHATE of AMMONIA. One trial will prove the great value of this Manure, and ensure its constant use hereafter.

It can be applied either separately or mixed with ordinary Stable or Farm-yard Manure. Rose Trees and Garden Plants are much benefited by being watered with a weak solution once or twice a week. Instructions on application, post-free.

Price free on rail, at Sheffield, 13*s.* per cwt., or 7*s.* per 56 lb.

P.O. Orders payable to the Manager, Sheffield Gas Company, Sheffield.

NATIVE GUANO; Best and Cheapest Manure for Garden use, NATIVE GUANO. Price £3 10*s.* per ton, in bags. Lots under 10 cwt., 4*s.* per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5*s.*

Extracts from Thirteenth Annual Collection of Reports:—

NATIVE GUANO for POTATOS, VEGETABLES, FRUIT, &c.—C. Fidler, Reading, used it for Potatoes, and says:—"I found your Manure gave very satisfactory results."

C. J. Waite, Gr. to Col. the Hon. W. P. Talbot, says:—"I can strongly recommend your Native Guano as a first-rate Manure for any fruits or kitchen garden crops, also grass. In the 5 years during which I have freely used it, I have gained over 500 prizes."

NATIVE GUANO for ROSES, TOMATOS, &c.—W. G. Bailey, Nurseries, Bexley, used it for Roses, Tomatos, and Cucumbers, and says:—"I find it a good and cheap article."

A. F. Barron, Royal Horticultural Society, says:—"Without doubt a very valuable Manure, and easy of application."

Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials, &c., may be obtained. Agents wanted.

NORMAL FERTILISER

For GREENHOUSE or GARDEN.

Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
	2*s.*	3*s.* 6*d.*	5*s.* 6*d.*	9*s.*	14*s.*

And in 6*d.* and 1*s.* packets.

To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST and SON, 152, Houndsditch, London

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*; sacks, 4*d.* each.

BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks, 22*s.*; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton; 26*s.* per ton, in 2-bushel bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s.* 6*d.* per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

BENTLEY'S WEED DESTROYER.

Mr. E. Molyneux, Swanmore Park Gardens, writes:—"I am much pleased with the Weed Killer. In addition to killing the Weed effectually, the gravel on our paths is rendered particularly bright by its use."

For further testimony, prices, and full particulars, apply to the sole maker, JOSEPH BENTLEY, Chemical Works, Barrow-on-Humber, HULL.

FOR SALE, a good PLANT VAN, for Road or Rail, at a very low price.

E. TUDGEY, Home Farm, Ryden's Road, Walton-on-Thames, Surrey.

OFFERS WANTED for a superior range of PLANT HOUSES, the property of the late John Lye, Esq., of Hawkhead, and erected three years ago by Boyd, Paisley. There are four Houses in all, and covering an area of about 3000 super. feet. Further particulars may be had, and plans seen by applying to—

J. and R. THYNE, 83, St. Vincent Street, Glasgow.

CARSON'S PAINT

Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations.

Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C. BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

To Nurserymen and Gardeners.

PEAT FOR SALE.—Good Brown Fibrous Peat, Black Fibrous ditto, Light Sandy ditto for Orchids, Azaleas, Rhododendrons, Heaths, &c., or for general purposes. Also good yellow gravel for drives, concrete, gravel, screenings, yellow sand, &c.—For particulars apply to Mr. J. ASTRIDGE, Brackendale Lodge, Camberley, Surrey.

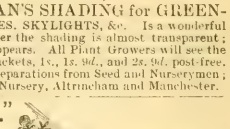
LEMON OIL INSECTICIDE Kills all Insects; cheap, harmless, easily used. Sales rising by leaps and bounds, owing to its merit. Pints, 1*s.* 6*d.*; quarts, 2*s.* 9*d.*; half gallons, 5*s.*; gallons, 9*s.*

EUCHARIS MITE KILLER. During the year it has been before the public it has saved thousands of Bulbs, *vide* Testimonials. Doubters, Try it! Half-pints, 1*s.* 6*d.*; pints, 2*s.* 6*d.*; quarts, 4*s.* 6*d.*; half gallons, 7*s.* 6*d.*; gallons, 12*s.* 6*d.*

CLIBRAN'S SHADING for GREENHOUSES, SKYLIGHTS, &c. Is a wonderful novelty. In wet weather the shading is almost transparent; as the glass dries it reappears. All Plant Growers will see the great advantage. In packets, 1*s.*, 1*s.* 9*d.*, and 2*s.* 9*d.* post-free.

N.B.—Above three preparations from Seed and Nurserymen; or, CLIBRAN, Oldfield Nursery, Altrincham and Manchester.

"ROSIKA"



Trade Mark Registered.

Effective, Harmless.

Promptly clears Roses and all plants from green fly, caterpillars, spiders, and other insect pests. It recommends itself to all who have tried it for its efficiency, pleasant odour, the facility with which it is applied, and its cleanliness in application; so that anyone, however particular, can use it, and it is always ready for use. Price 1*s.* Sold at all Chemists and Seedsmen, or direct from the manufacturers,

F. SCHUTZE & CO., 38A, Aldersgate Street, London, E.C.

Apparatus for use of Rosika, 3 sizes, 1*s.* 9*d.*, 3*s.*, and 4*s.* 6*d.*



GARDEN REQUISITES.



Two Prize Medals.

Quality, THE BEST in the Market. (All sacks included.)

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1*s.* 4*d.* each; 10 sacks, 12*s.* 6*d.*; 15 sacks, 17*s.* 6*d.*, 20 sacks, 20*s.*; 25 sacks, 24*s.*; 30 sacks, 27*s.*; 40 sacks, 35*s.*; 50 sacks, 40*s.*; Truck-load, loose, free on rail, 30*s.* Limited quantities of G., special quality, granulated in sacks only, 2*s.* 6*d.* each.

GENUINE ORCHID PEAT, 8*s.* 6*d.* per sack; 5 sacks, 40*s.*; BEST BROWN FIBROUS PEAT, 5*s.* per sack; 5 for 22*s.* 6*d.* BLACK FIBROUS PEAT, 4*s.* 6*d.* per sack; 5 for 20*s.* COARSE SILVER SAND, 1*s.* 6*d.* per bushel; 14*s.* half ton; 24*s.* per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1*s.* per bushel. Tobacco Cloth or Paper, 1*s.* per lb. Special Manures, Peat Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.

Terms strictly Cash with order.

CHUBB, ROUND & CO., West Ferry Road, Millwall, London, E. *Bankers—Smith, Payne, & Smiths.*

S.C. CLAY'S INVIGORATOR

TRADE MARK.

FOR PLANTS.

QUICK. LASTING. ECONOMICAL.

This is a Plant Food of great excellence, carefully prepared with the view of supplying a manure which shall contain all the elements necessary for the Perfection of Plant Life, and at the same time be QUICK IN ACTION, LASTING, AND ECONOMICAL.

The ingredients have been so arranged that, whilst accelerating luxurious growth, permanent benefit is secured by a continuance of nourishment to the plant.

It is safe in use, and suitable for every purpose where a manure is required.

Sold by Seedsmen, Florists, and Nurserymen, in 6*d.* *and* 1*s. Packets, and SEALED BAGS:*—

7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2*s.* 6*d.*	4*s.* 6*d.*	7*s.* 6*d.*	12*s.* 6*d.*	20*s.*

The above Trade Mark is printed on every Packet and Bag, and also impressed on the Lead Seal attached to the mouth of each Bag.

A Sample Packet will be sent post-free, on receipt of 1*s.* by the Manufacturer—

S. C. CLAY,

MARSH ISLAND, STRATFORD NEW TOWN, LONDON, E.

NO CONNECTION WITH ANY OTHER FIRM.

Complete Satisfaction Guaranteed

To all many preparations bearing our Trade Mark in accordance with our directions. *Refuse Imitations.*

THE "SWIFT & SURE" INSECTICIDE.
Bottles, 1 & 2/6; gall., 10/6; 4 gals., 40/

"PERFECT" WEED KILLER.—Gallon, 2/; 5 gal., 1/9, 10 gal., 1/8, 40 gal., 1/4 p. gal.

"PERFECT" WORM DESTROYER.—
Bottles, 1, 2 & 3/6; gal., 7/6; 5 gal., 6 p. gal.

"PERFECT" MILDEW DESTROYER.—
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"PERFECT" HORTICULTURAL SUMMER SHADING.—
Tins—1 lb., 1/; 2 lbs., 2/; 6 lbs., 5/.

WITHOUT WHICH NONE ARE GENUINE.

Are absolutely Unsurpassed for Cheapness and Efficiency Combined.

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Horticultural & Agricultural Chemical Co.
Works: 97, Milton Street, Glasgow.
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NOTICE.—*We originally had our Works at Tunbridge, Kent, but removed them to* GLASGOW *in January, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.

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SELECTED specially for Orchids, Choice Plants, Ferns, and Rhododendrons. PEAT-MOULD, LEAF-MOULD, LOAM, Coarse and Fine SILVER SAND, SPHAGNUM, COCOA FIBRE REFUSE, CHARCOAL, &c. A First-class Stock of FOREST, FRUIT, and ROSE TREES, CONIFERS, RHODODENDRONS, &c. PEAT MOSS LITTER. Special railway rates. **EPPS & CO.**, The Old-established Peat Depot, Ringwood, Hants.

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WEED KILLER.
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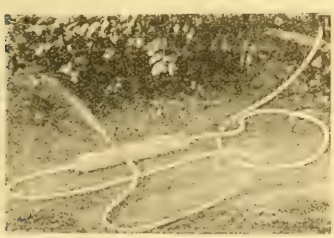
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PROTECT YOUR PLANTS AND GLASS
From Damp, Frost, and Cold Winds.

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Are used by the leading Horticulturists and largest Nurseries in the World, and acknowledged by all to be the lightest, strongest, best coloured, most perfect shaped and finished pots ever manufactured.

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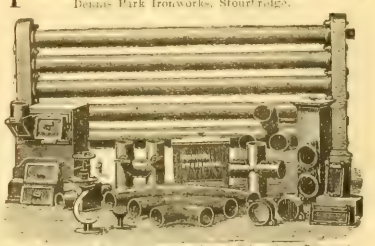
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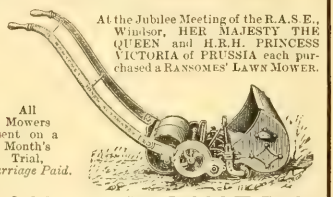
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New Pattern Tree Guard, "THE PORCUPINE."



Made in Halves to Bolt together.

The maximum of utility and the minimum of cost. Constructed of strong Iron Uprights and Galvanised Barbed Steel Wire.

Price, 10s. 6d. each.

TESTIMONIALS.

The Gardens, The Whittern, Kingston, Feb. 9, 1888.

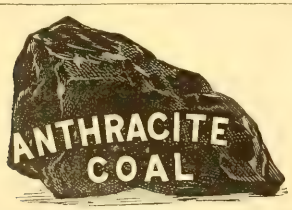
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Yours faithfully,

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To Nurserymen, Seed Merchants, and Florists.

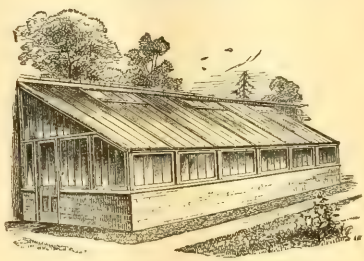
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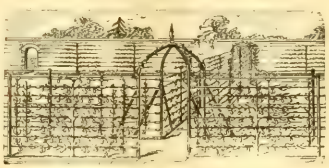
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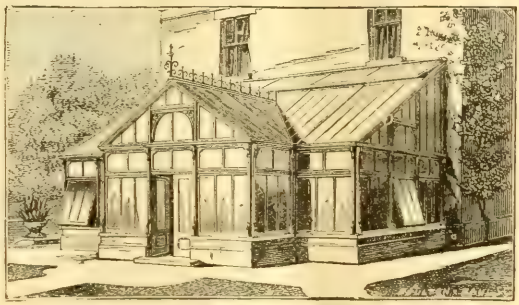
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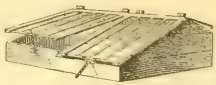


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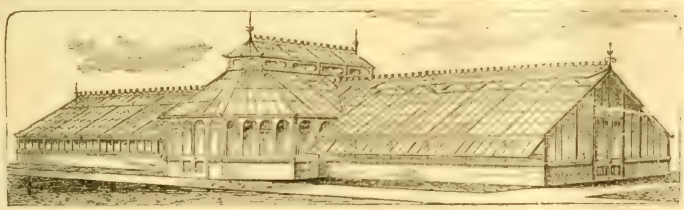
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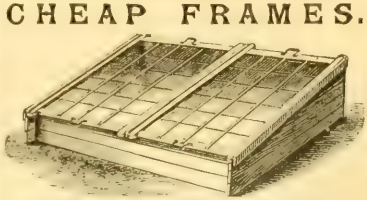
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6	,,	..	0	4	0	17 ,,	..	0	9	6
7	,,	..	0	4	6	18 ,,	..	0	10	0
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12	,,	..	0	7	0	23 ,,	..	0	12	6
13	,,	..	0	7	6	24 ,,	..	0	13	0
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To cut 18 inches, do. man and boy...	7 10 0
To cut 20 inches, do. do. ...	8 0 0
*To cut 22 inches, can be worked by two men	£8 10 0
*To cut 24 inches, do. do. ...	9 0 0

* If made stronger, suitable for Donkey, 30s. extra.

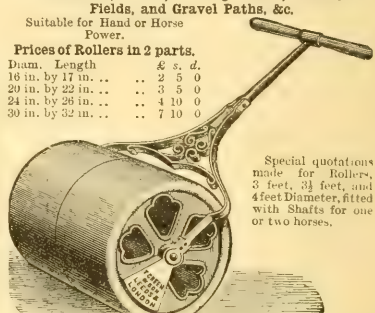
These Mowers are the "Ne Plus Ultra" and "Acme" of perfection of all Lawn Mowers extant.

For PRICES of DONKEY, PONY, and HORSE MACHINES, see LIST.

REDUCED PRICES OF
GREEN'S Patent ROLLERS,
For Lawns, Drives, Bowling Greens, Cricket Fields, and Gravel Paths, &c.
Suitable for Hand or Horse Power.

Prices of Rollers in 2 parts.

Diam. Length	£ s. d.
16 in. by 17 in.	2 5 0
20 in. by 22 in.	3 5 0
24 in. by 26 in.	4 10 0
30 in. by 32 in.	7 10 0



Special quotations made for Rollers, 3 feet, 3½ feet, and 4 feet Diameter, fitted with Shafts for one or two horses.

SPECIAL.—A FEW TESTIMONIALS OUT OF THOUSANDS RECEIVED.

Bathersden, Ashford, Kent, June 14, 1878.
Gentlemen,—Your "Silens Messor" Mower, 20-inch, works splendidly. It is a most perfect machine, and beats the old 20-inch one that for so many years did my work without repairs. I recommend your machines, and never see any doing such good work and with so little power. You may refer anyone to me, and I will then show them the S. M. at work, and I shall show it to all I can. I am, yours truly,
Messrs. Green & Son. W. H. MOLD.

Kintbury, Hungerford, April 20, 1883.
Sirs,—I shall be glad of a list of your Lawn Mowing Machines priced. I am glad to mention that I bought one of your 14-inch machines 22 years ago. It has had hard and rough usage *every year since*, and only on Monday was it put quite out of use by the snapping in two of the driving wheel under the hammer. It is surprising to think of the work it has done, and done well. Yours faithfully,
Messrs. Green, Leeds. ALFRED T. BAZETT.

Ivy Bank, Broadway, Worcester, April 13, 1884.
Gentlemen,—Some fifteen or sixteen years ago, I had from you one of your 12-inch Lawn Mowers which, I may say, has from that day to the present time given perfect satisfaction, and goes as easily, and does its work as well now as it did at first. I have recommended yours as the best machine ever since. I am, yours faithfully,
Messrs. Green & Son, Leeds. C. FRENCH HARTLEY.

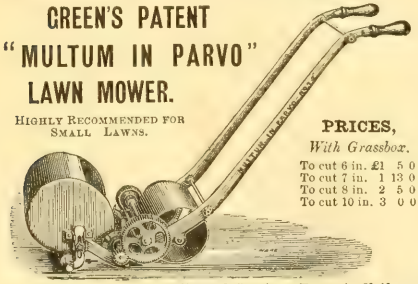
☞ **ROYAL GARDENS, WINDSOR,** January 28, 1890.
To Messrs. Green & Son, Limited.
Dear Sirs,—In sending you the enclosed order for Lawn Mowers, I think it may be interesting to you to know that I am still using the Horse Machine you supplied in the year 1856; it is in perfect order even now, which is a proof that the workmanship is first-class, and speaks for itself.
As to your "Hand Silens Messor," no Lawn Mowers could give greater satisfaction either to myself or to the men who work them, they are unequalled.
During the season I have them in daily use in the Royal Gardens here, and never have the slightest trouble with them.
Your machines are also the only ones I have in use at the Private Gardens, Hampton Court Palace; the Royal Lodge, Windsor Great Park; Cumberland Lodge, and the Royal Pavilion Grounds, Aldershot.
I shall feel a great pleasure in recommending them to all my friends. I remain, dear sirs, Yours very truly,
THOMAS JONES.

Wellingborough, February 4, 1890.
To Messrs. Green & Son, Leeds.
Gentlemen,—I have sent you our Lawn Mower for repairs, which please have done to it. I have used your machines for 25 years, and I find them more durable and do their work better than any other machines I have seen.
I am, gentlemen, yours truly,
DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).

Cottingham, Hull, February 13, 1890.
To Messrs. Green & Son, Limited, Leeds.
I am instructed by Arthur Harrison, Esq., of Northgate House, Cottingham, near Hull, who has had one of your 36-inch Horse Mowers in use over 20 years, and ask whether you think it advisable to send it for repair or have a new one, for it is as you may suppose now getting worse for wear. Kindly say per return, and enclose Price List.
I am, gentlemen, yours truly,
JOHN BAYNTON.

☞ **Mr. J. R. STIRLING,** of the **ROYAL GARDENS, BUCKINGHAM PALACE,** writing under date February 21, 1890, says:—
"As regards the work your 42-inch Horse Machine does (which two years ago took the place of the one you supplied in '63), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your Hand Silens Messors' also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.
HIGHLY RECOMMENDED FOR SMALL LAWNS.

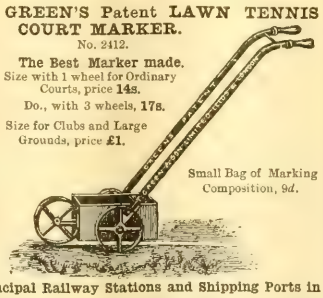


PRICES,
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To cut 7 in.	1 13 0
To cut 8 in.	2 5 0
To cut 10 in.	3 0 0

GREEN'S Patent LAWN TENNIS COURT MARKER.
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The Best Marker made.
Size with 1 wheel for Ordinary Courts, price **14s.**
Do., with 3 wheels, **17s.**
Size for Clubs and Large Grounds, price **£1.**



Small Bag of Marking Composition, 9*d*.

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Size and Price, 7 inches wide, 7 ins. diam., **£1 16s.** Packing Case, 3*s*.
Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.
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Delivered Carriage Free at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

The largest stock of Mowers kept by any manufacturer is to be found at our London Establishment, SURREY WORKS, BLACKFRIARS ROAD, where Purchasers can make selection out of several hundred Machines of Hand, Pony, and Horse Power, and have their Orders supplied the same day as they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, Free of Cost to the Purchaser.
N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

GARDEN SEATS AND CHAIRS, AND HORTICULTURAL IMPLEMENTS OF EVERY DESCRIPTION, WIRE NETTING, &c., &c.

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THOMAS GREEN & SON, LIMITED, SMITHFIELD IRONWORKS, LEEDS; AND SURREY WORKS, BLACKFRIARS ROAD, LONDON;
or they can also be had of any Ironmonger, Seedsman, Merchant, or Factor in the United Kingdom.

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

Now ready, in cloth, 11s. 6d.

THE GARDENERS' CHRONICLE,
Vol. VI., Third Series, JULY to DEC., 1889.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE GARDENERS' CHRONICLE
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Apply, T. SMITH, Florist, Broadway, Tooting.

ROSES NIPHETOS, for Sale, in large 24-sized pots, clean and healthy. Apply to WILLIAM BAGLEY, Millshot Farm, Crabtree Lane, Fulham.

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WANTED, ASPARAGUS ROOTS. Strong three years.
Apply to J. C. WHEELER AND SON, Kingsholm Nursery, Gloucester.

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Wholesale Price Current, Spring, 1890.
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SALES BY AUCTION.

Wednesday Next.

3000 LILIUM MACRANTHUM, ALBUM KRŒTZERI, and RUBRUM, received direct for Unreserved Sale; also large quantity of various Japanese LILIES, comprising Virginale, Melpomene, Rubrum cruentum, Album Krœtzeri, Cordifolium, 1000 L. Krameri, L. Humboldti, Batemanniæ, Leichtlini, American Pearl TUBEROSES, GLADIOLI, BEGONIAS, VALLOTAS, some fine Bulbs of LILIUM AURATUM, 200 AZALEA MOLLIS, RHODODENDRONS, 25 Large PALMS, various; AZALEA INDICA, PALMS, and other PLANTS from Belgium; 100,000 PALM SEEDS, comprising Phœnix rupicola, Cocos Glaziova, Cocos Weddelliana, and Geonoma gracilis; HERBACEOUS PLANTS, Hardy PERENNIALS, GREENHOUSE PLANTS, &c.

Also a quantity of fancy POTTERY, VASES, and several lengths of INDIARUBBER HOSE.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 16, at half past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Wednesday Next.

190,000 PALM SEEDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE by AUCTION on WEDNESDAY NEXT at their Central Sale Rooms, 67 and 68, Cheapside, E.C., the above quantity of PALM SEEDS, comprising Phœnix rupicola, Cocos Glaziova, Cocos Weddelliana and Geonoma gracilis.

On view morning of Sale, and Catalogues had.

Friday Next.

DENDROBIUMS from Upper Burmah.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, April 18, at half-past 12 o'Clock, by order of Messrs. Hugh Low & Co., a grand lot of the finest DENDROBIUMS, from Upper Burmah, comprising D. Brymerianum, D. aggregatum, D. albo sanguineum, D. crassinode Barberianum, D. Devonianum, D. Falconeri, D. formosum giganteum, D. thyrsiflorum, D. Wardianum, best variety; CATTLEYAS, and CYPRIPEDIUM BOXALLI.

On view morning of Sale, and Catalogues had.

Friday Next.

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on FRIDAY NEXT, 250 ODONTOGLOSSUMS, principally Odontoglossum Alexandræ and O. hystrix, from a Private Collection, about 100 lots of various ESTABLISHED ORCHIDS, including a few special Cypripediums, amongst them Stamense, amabile, Kirchhoffianum, &c.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA BLUNTII with six Flowers.

MESSRS. PROTHEROE AND MORRIS will include the above PLANT in their SALE on FRIDAY NEXT.

On view morning of Sale, and Catalogues had.

Special Sale, Tuesday, April 29.

ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER, will take place as above for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Exeter.—Preliminary Notice.

HIGHLY IMPORTANT SALE of the whole of the STOVE and GREENHOUSE PLANTS, &c., by order of Messrs. Lucombe, Pince & Co., who are relinquishing the business.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Exeter Nurseries, Exeter, on TUESDAY, May 6, and following days, the whole of the extensive COLLECTION of GREENHOUSE PLANTS, ORCHIDS, and HERBACEOUS PLANTS.

N.B.—The NURSERY to be LET or SOLD on very advantageous terms. Particulars forwarded on application to the Auctioneers.

Fuller particulars will appear in future advertisements.

Wednesday Next.

1500 Dwarf ROSES, from one of the most successful French Growers, including many of the best show varieties, choice named Hybrid RHODODENDRONS, Hardy ornamental SHRUBS and CONIFERS, a fine collection of BORDER PLANTS, STOVE and GREENHOUSE PLANTS, CLIMBERS, LILIUM AURATUM, and other LILIES, GLADIOLI, and many other BULBS and ROOTS, GARDEN ENGINE, &c.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 16, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Thursday Next.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 17, at half-past 12 o'Clock precisely, a fine collection of ORCHIDS in FLOWER and BUD, comprising Odontoglossum Alexandræ, O. Pescatorei, Cypripedium Druryi, C. caudatum, Dendrobes, Cattleya Mendeli, superb form, and other Cattleyas, choice Masdevallias, and many other choice varieties and specimens; also LILIUM AURATUM and other LILIES from Japan, &c.

On view morning of Sale, and Catalogues had.

Mount View, Sheffield.

SALE of the THIRD PORTION of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS formed by the late David Ward, Esq., J.P. The Collection is in the best possible condition, is one of the finest in the district, and includes specimens from several well known collections. The Sale will include Cattleya Lawrenceana, a fine lot of Odontoglossum Roezlii, O. Alexandræ, O. Cervantes, O. Hallii, a nice lot of Cypripedium Lawrenceana, C. Godfroyæ, fine Dendrobium thyrsiflorum, D. densiflorum, D. sauvissimum, D. Devonianum, D. Parishi, &c.; also a choice lot of Camellias (best varieties), trained on walls and edges of vineries.

MESSRS. WILLIAM BUSH AND SON respectfully give notice that they are instructed by the Executors to SELL by AUCTION, at the residence, as above, on WEDNESDAY, April 23, at 11 A.M. precisely, the Third Portion of the above valuable Collection.

Catalogues and orders to view may be had of Mr. J. KEELING, the Head Gardener, on the Premises; or, of the Auctioneers, at their Offices, 2 and 3, East Parade, Sheffield.

To Seedsmen.

WANTED, a SEED BUSINESS, in a flourishing town. Must be genuine.

E., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR SALE, NURSERYMAN & FLORIST'S BUSINESS—a most desirable property, situate in the West of England, in the suburbs of a large manufacturing town, with a commanding Shop in main thoroughfare. Everything in best working order. Will be sold very cheap—present owner in bad health.

Address, in first instance, to PURCHASER, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FLORISTS'—prominent position, large, fashionable watering place. Handsome Show Conservatory and good Stock of Plants £300, or valuation. Part can remain. Premium waived to immediate buyer. First-rate chance for practical man.

B. POMFRET, Valuer, Tunbridge Wells.

TO BE LET or SOLD, a first-class NURSERY, glass only. 6000 square feet of Glass in full working order, and now doing a good trade. Rent £45, valuation £150. A first class opportunity. Fuller particulars from F. W. HODSON, Grovehigh Retford.

To Gardeners and Others.

TO BE LET, with immediate possession, the NURSERY GROUNDS, well stocked with young Rose Trees and various Seedling Flowers, recently in great request by Mr. W. Cant, deed, lately deceased, also an Orchard of thriving young Fruit Trees adjoining, called Low Moor at Grove, 1 mile from the Town of Wantage.

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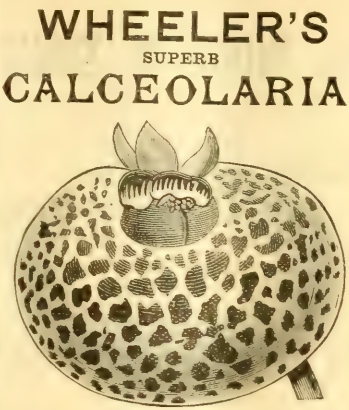
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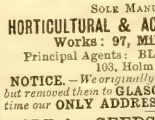

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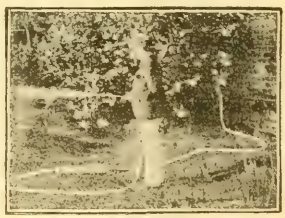
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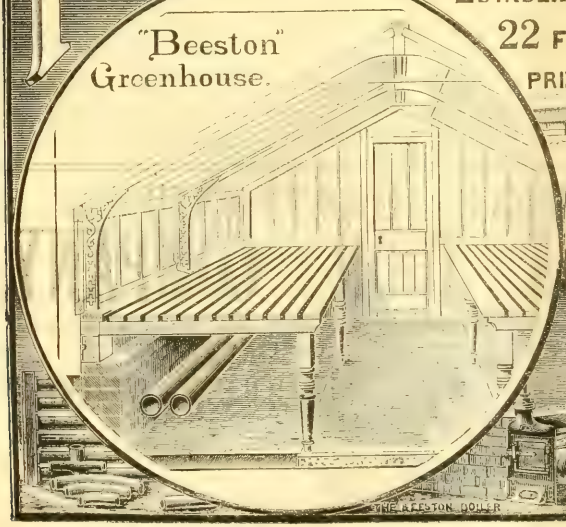
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AURICULA (Alpines).—A splendid collection. Strong plants to bloom well, most beautiful colours and sweetly scented, 25s. for 5s. 6d. Seed, 6d. and 1s. per packet. Also AURICULA, the real old Irish Dusty Miller, sweetly scented, 5 for 1s. 6d. ; 6 for 2s. 6d.

THREE WHITE GEMS, CAMPANULA PERSICIFOLIA, Single White, Double White, and CORONATA, all quite hardy and unrivalled for cut flowers, 3 of each for 2s.

THREE WHITE HARDY BEAUTIES GNAPHALIUM LANATUM, everlasting, last for years after being cut. IBERIS CORIFOLIA, evergreen, and pure white flowers ; AQUILEGIA ALBA, the largest pure white, 1 each for 1s. 6d., 2 each for 2s. 6d.

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TWO GEMS, PRIMULA CORTUSOIDES and PRIMULA CASHMERIANA.—Gardening papers say it would be difficult to find more beautiful plants for the Rockery, Borders, or Greenhouse than these, 2 each, 1s. 6d. ; 4 each, 2s. 6d. Also Penarth Strain of the Queen of Primulas, Geggie's International Prize, 3 distinct varieties named for 2s.

12 HARDY PERENNIAL BORDER PLANTS (named), distinct and useful for decoration and cutting purposes, for 2s.

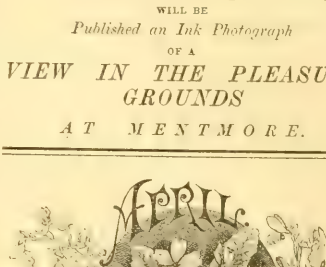
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NEW STRAWBERRY, NOBLE (Laxton's). —This is, without doubt, the earliest, handsomest, largest, and best Strawberry in cultivation ; 12 fruiting plants for 1s. 6d., 25 for 2s. 6d., 100 for 7s. 6d.

STRAWBERRY PLANTS.—Selected Crowns for fruiting this year, British Queen, Pauline, Sabreur, Vicomtesse H. de Thury, Duke of Edinburgh, King of the Earlies, Sir Harry, Dr. Hogg, President, The Captain, and other new and extra sorts, ... 100

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As a Supplement
TO THE
GARDENERS' CHRONICLE
FOR
Next Week, April 19,
WILL BE
Published an Ink Photograph
OF A
VIEW IN THE PLEASURE GROUNDS
AT MENTMORE.



THE
Gardeners' Chronicle.
SATURDAY, APRIL 12, 1890.

MALTESE GARDENS.

MALTESE gardens, like Maltese fields, are all walled in, and mostly very small Earth is a scarcity, for little of the virgin soil of Malta and Gozo, when these islands formed part of the continent, has escaped denudation. All that can be extracted from crevices and caves is utilised ; some small quantity only having been brought from Sicily and elsewhere during the reign of the Knights as ballast, the rest consists of the decomposition of the limestone rocks itself, of which the islands are entirely composed. There is an interesting example of one of the caves alluded to in a garden now belonging to Captain Price (formerly of H.M.S. *Carysfort*), which was constructed by the previous owner, Mr. Frere. When he had excavated the earth from what appeared at first to be a superficial fissure, he discovered that it was a "swallow-hole," as such is called in Derbyshire ; and when all the earth was cleared out, it was found to lead to an ancient subterranean watercourse, 63 feet deep. That being now the level of the sea, it could not be traced further, as the water came in through the fissures in the limestone. The sides are waterworn, and show clearly that it was a place where, in former days, a river plunged headlong down, and then ran underground ; just as often occurs in limestone countries, such as Derbyshire. Ferns and other plants now clothe its sides, affording a curious and interesting feature in the garden.

Mr. Harry's garden, at St. Julian's, and Capt. Price's, at Pieta, are, I believe, the largest gardens in the island, excepting, perhaps, that of the Governor's summer residence at San Antonio ; but for picturesqueness they are unsurpassed. Mr. Harry's consists of at least fifteen separate portions at different elevations, divided off by walls or terraces, the largest of which is shown in fig. 69. The Rose garden is, perhaps, the largest, being about 60 by 40 feet. One or

more of the "gardenettes," to coin a convenient term, as also in Captain Price's, are devoted to the cultivation of Mandarin, Blood, Egg, and other kinds of Oranges, Lemons, white Nectarines, Loquats, and Almonds. All the walls, ranging from some 3 to 15 or more feet in height, are covered with purple-flowering Bougainvilleas, Tritomas, Passion-flowers, the blue Plumbago, Pelargoniums, Ficus repens, and Ivy.

There are many interesting trees and shrubs in both gardens; as, for example, in Mr. Harry's there is a very old India-rubber, Ficus elastica, its many branches growing to a great height. It is situated at the end of the long terrace, which terminates in a little paved court. An ancient well stands on the opposite side, at a distance of 30 feet (fig. 67). The roots of the Ficus have, nevertheless, discovered it, for they have spread under the paving seen in the foreground, and intercalated themselves into the sides of the well into which they have then descended.

In another of the gardenettes is a large Acacia from Australia and a Casuarina (fig. 68), which was planted in 1872 as a seedling. It is now about 26 feet high, the circumference of the base of the trunk being 30 inches; and at 4½ feet, 21 inches; a fair growth for seventeen years.

In another part of the garden is a "blue Hibiscus" (H. Pattersoni) at least 30 feet high, and a handsome Wigandia, which, like the Ficus, is diving under the walks and walls, and sending up young trees in unexpected places.

One does not expect to see much bloom in the depth of winter, but the reader would be surprised to see the dense masses of blossom upon yellow Cassias, scarlet Bignonia radicans, and its yellow ally, B. stans, as well as the Trompe de Jugement, the large white double Datura. Lastly, Bougainvilleas exhibit dense masses or sheets of purple on the walls. The Rose garden, which would now have been full of blossom, had not there been a very prolonged drought in Malta last autumn, is bordered on one side by a row of great variegated Agaves, the low wall being covered with masses of Sempervivum arboreum, which now grows almost spontaneously in Malta, having been introduced probably more than sixty years ago. It bears trusses of golden-yellow flowers, nearly as large as that of the Horse Chestnut; the foliage is in terminal rosettes. Poinsettias grow 12 feet high, with a profusion of scarlet leaves, and fine varieties of Crotons and Bilbergias; B. Leopoldi being in blossom, brighten up the stone corridors and passages, where freely-growing Adiantums, Aspleniums, and other Ferns, form a perfect bower for the visitor to walk through. One corridor, the entrance to Mr. Harry's house, is at least 100 feet long, with Ferns to the right, Ferns to the left, and Ferns suspended overhead; as well as Palms and other plants. The method of growing Adiantums outside earthern vessels is a favourite one in Malta; the globular vessel is very porous, and kept full of water. On the outside are fixed lumps of clay, upon which the Fern roots are fastened; they soon clothe the whole with a luxuriant mass of foliage. We have figured one of these "chatties," as they are called, as an example (fig. 71, p. 461). At each end of the long passage mentioned, stands a fine plant of Philodendron pertusum, with its curiously perforated and slashed leaves. *Apropos* of this, on an occasion when the corridor was illuminated, and lamps were placed behind the Philodendrons, a guest *naïvely* remarked, to Mr. Harry, "What trouble it must have been to cut out all the holes in the leaves to let the light through!"

Another remarkable plant is a brick-red coloured Bougainvillea, the only specimen in the island, which Mr. Harry received from Madagascar. A fine Cycad, with its spreading foliage, around which Myrsiphyllum asparagoides (a great favourite in Malta, and used in decorations of the dinner-table), had grown, formed a pleasing combination. The borders were bright with scarlet Salvias, Lavandula spica, Polygala Chamæbuxus just coming out; while several large trees of white and rose-coloured Almonds are in full bloom at the present date (January 25).

On the limestone rocks are Cacti and Mesembryanthemums covering many square yards, including the indigenous "Ice plant," M. crystallinum. In one "wild" corner is a cluster of the tall stems of the native Arundo donax, a mass of Arum italicum, and the so-called English weed, Oxalis cernua, with its bright yellow flowers, the trifoliolate leaves carpeting the ground, while cultivated varieties of the native Narcissus tazetta, now in full bloom, were abundant. Palms are not abundant in Malta, though the dwarf Fan Palm, Chamærops humilis, is pretty frequent in gardens; while two lofty Dates furnished the name to Mr. Harry's house as "The Palms." It is not generally cultivated, as it will not furnish edible fruit in the Island.

One remarkable tree known as Zinzilla (Zizyphus), bears curiously gouty twigs to its branches, and although it bears plenty of fruit, Mr. Harry says that it invariably falls prematurely if stones be not wedged in at the forks of the branches; when this is done, the fruit ripens. He has frequently tested this curious fact, and can vouch for its truth. The only interpretation which seems feasible is, that the stones in some way impede the circulation, but it is not clear how this is effected.

Mr. Harry is not without his Fig trees, so common in Malta, but to see tall branching trees devoid of leaves, as it is midwinter, some 15 feet high, clothed below to some 8 feet with scarlet Pelargoniums in full vigour, presents a curious contrast.

I must not conclude without a tribute to the owner's great liberality, for though he delights in his flowers without, and, I may add, his extensive and valuable collection of curios within his house, his friends, and the writer included, well know how often are their drawing-rooms brightened by a floral display, which at once betray their source at St. Julian's. At this moment our own tables have upon them large sprays of white and pink Almonds, Irises, Pelargoniums, Tea and other Roses, bunches of yellow Cassia and scarlet Bignonia. Accompanying them are the following wild flowers, which I have gathered from the rocky valleys on the south side of the Island: bunches of Erica multiflora, Narcissus tazetta, Rosemary, Asphodelus ramosus, Orchis fusca and saccata; while the fields, &c., have furnished the scarlet Adonis cupaniana and purple Anemone coronaria, the pink Silene sericea, and the yellow Chrysanthemum coronaria. *George Henslow, Malta, January* 25.

(To be continued.)

New or Noteworthy Plants.

BARLERIA INVOLUCRATA, NEES, var. ELATA, *Clarke*.*

This is a fine addition to our soft-wooded stove plants, and is larger than either B. Mackenii or B. Gibsoni. The plant is a native of the Nilgherry mountains, but has, I am told, been introduced by Messrs. J. Veitch & Sons from Singapore.

Dalzell states that this plant grows to a height of 6 feet, and "when in flower has a very showy appearance." If it can be successfully cultivated so as to make a well-developed inflorescence, such as the wild specimens show it to be capable of producing, then I think it will be a grand stove decorative plant, and one that will be much admired. *N. E. Brown, Kew.*

* Barleria involucrata, Nees, var. elata, Clarke in Hooker, *Flora of British India*, vol. iv., p. 486. B. elata, Dalzell in Hooker, *Kew Journal*, vol. iii., p. 227. The stems are herbaceous and branching, with an adpressed pubescence. The leaves are 4—9 inches long, and 1½—3 inches broad, elliptic-lanceolate acuminate, and tapering into the petiole at the base, so that the upper part of the petiole appears winged; both sides have a scattered pubescence. The flowers in well developed plants grow in large terminal panicles of several flowered cymes, with linear-lanceolate bracts. The two outer calyx lobes are ovate-lanceolate or lance-olate acute, the two inner ones being much smaller. The corolla has a tube 1½ inch long, dilated in the upper part, and five broad spreading lobes rounded at their apex, the diameter of the flower being about 2½ inches, and it is of a fine deep blue colour, darker at the throat.

Paulownia Fortunei, *Hemsley, n. sp.*

Among the many interesting dried plants sent to Kew by Mr. C. Ford, the Superintendent of the Hong Kong Botanic Garden, are excellent specimens, both in flower and fruit, of what proves to be an undescribed species of Paulownia. Not that it was quite unknown, as Fortune collected flowering specimens of it without leaves. There are two such specimens in the Kew Herbarium—one from the Benthamian collection, labelled Paulownia imperialis, Fortune, China, n. 46; and the other from the Hookerian collection, from the same source, numbered 48. The latter specimen, consisting of three flowers and the otherwise naked axis of a large panicle, was described by Seemann (*Journal of Botany*, 1867, p. 373), under the name of Campsis Fortunei. In the periodical cited, Seemann revived Loureiro's genus, Campsis, for Tecoma grandiflora (syn. Bignonia grandiflora), a native of China and Japan, including in it the plant under consideration, the North American Tecoma radicans, and two or three Malayan species.

I have followed Bentham and Hooker in retaining Paulownia near the arboreous, or shrubby genera, Brookia, Wightia, and Brandisia in the Scrophularineæ; and it was not until I reached the Bignoniaceæ for the *Index Floræ Sinensis*, that I discovered a name had been given to Fortune's plant. The genera named form a connecting link between the Scrophularineæ and the Bignoniaceæ, and it is difficult to determine the natural order of imperfect specimens of this affinity; hence it is not surprising that Seemann did not recognise Fortune's specimen as a Paulownia.

In the dried state the flowers of P. Fortunei are so much like those of P. imperialis, that the late Dr. Hance, who had specimens of the former from Chefoo, confused them.

So far as I know, P. Fortunei has only been observed, or at all events collected, in the two distant provinces of Kwangtung and Shantung, the actual localities being separated by about 15° of latitude. I have seen specimens of P. imperialis from Ningpo, which is situated on the coast about mid-way between the two places where P. Fortunei has been found; and Dr. Henry collected it in the central province of Hupeh, where, he notes, he observed it wild in various mountain localities.

Paulownia Fortunei is readily distinguished from P. imperialis by its much elongated, heart-shaped, long-pointed leaves, glabrous and almost shining on the upper surface, with a very short and very dense whitish tomentum on the under surface. The flowers are longer and more curved; but I have no definite information of the colour. The seed-vessel, too, is much larger than that of P. imperialis, as figured by Siebold and Zuccarini; but I have not seen a ripe one of the latter.

It is surprising that these two species should so long have been confused, though this probably would not have been the case had the common one proved a satisfactory ornamental tree in this country, and developed its full beauty. P. Fortunei produces its flowers early in the season, before or at the same time as the leaves; therefore we cannot hope that it will prove more suitable to our climate than P. imperialis. A fuller description will appear in the next part of the *Index Floræ Sinensis*. *W. Botting Hemsley.*

Mr. Gladstone at Weybridge.—We are informed that the veteran statesman, when on a visit to Admiral Egerton last week, was taken by his host to see Mr. G. F. Wilson's garden. He evinced much interest in what he saw, admiring the flowers greatly, especially the Oakwood Blue Primrose, that attracted so much attention at Westminster on Tuesday last.

THE DAFFODIL KING.

There will be few, if any, who will be disposed to question the right of Mr. Peter Barr to this designation. Previous to his accession, Daffodils were few in number. Gerard and Parkinson and Dr. Hill [Hale's Eden] knew a few varieties. Later on Haworth entered the arena. Dean Herbert, whose merits as a botanist are better appreciated by his successors than they were by his contemporaries, experimented with them. Leeds and Backhouse and Nelson won repute as hybridists. But in spite of these labourers, those who can look back twenty or five-and-twenty years will remember that the sorts then generally known and cultivated could be counted by units, whereas scores or even hundreds would now be required. What originally induced Mr. Barr to take up the subject we do not know; certain it is that he has taken it up with the indomitable zeal of an enthusiast. Putting commercial considerations on one side, as of secondary importance, he, though a man of business, has allowed himself to be governed by his love of Daffodils, and has spared neither labour nor money in their collection. He has made long and tedious journeys in rough countries in quest of his favourite plants. On these occasions his couch has not seldom been the rock, the sky his coverlet. Nor has collection been his only aim. Study of their peculiarities has been, and is, a perfect passion with him. Observation and research are continually increasing his store of knowledge, for truly nothing relating to Daffodils is foreign to Mr. Barr.

Those who see the fields of Daffodils in the neighbourhood of London, inspect the piles in the markets or in the florists' shops, or admire the displays made at the several spring exhibitions, should remember with gratitude the name of Peter Barr. It is he who created this now vast trade, it is he who stimulated it, it is he who has added so much to our enjoyment, and at a cost which permits the masses to share the delight with their wealthier neighbours; it is he who is constantly enriching our stores with new varieties raised by himself, or obtained from other sources. Others, besides himself, are now engaged in the trade, and are worthily following in his footsteps. Far be it from us to disparage them, or to draw invidious comparisons. We simply note the fact that Barr was the first in the field, and that to his energy and zeal we owe the present vast extension of Daffodil lore, and the corresponding enhancement of love for the Daffodil. We do not know where Mr. Barr's library may be—that he has access to one is quite obvious, for he quotes Parkinson and Gerard, Haworth, Herbert, and Baker, as if he were quite familiar with what they have written on the Daffodil. But, wherever his library may be, or whatever use he may have made of literary material, it is quite certain that the plants themselves have formed the main study of his life; printer's ink and type have been useful accessories, but constant study in the field has been the chief source whence he has derived his knowledge. In spite of the now extremely numerous varieties of Daffodil and Narcissus (we may, for our present purpose, use the terms indifferently), they admit readily of being classed under some dozen groups. These groups may be called subgenera, or species, or varieties, according to the judgment of the observer. It matters comparatively little whether Mr. A. considers this group important enough to be called a subgenus, while Mr. B. estimates it at specific rank only. What is of importance, is to be able to distinguish the group, and leave fanciers or students to give precedence and rank to the several groups according to their individual judgment.

Mr. Barr works upon a plan which every botanist adopts as far as he is able—he endeavours to discover the original types—the starting points, that is, of all this variation. Keen observation and constant comparison enable him to do this with a degree of certainty that no mere casual student or amateur could hope to attain. Wanderings in Spain, the Pyrenees, and in the Riviera have enabled him in many cases to hunt his quarry in its original fastnesses, and thus to bring to light the originals of some of the garden forms, so that now in walking through his quarters he is able to say of such a form—this must be of Spanish origin, that of Italian extraction, and so on. From Bayonne to Gallicia, says Mr. Barr, all the Daffodils are sulphur-coloured. In Gallicia bicolor forms are found; then come yellow forms all round the coast as far as the Portuguese province of Estramadura. Daffodils of Italian origin may be recognised by the fact that they are apt to be thin in substance as compared with others.

Researches of this kind have interest not only for the botanist but for the historian also—a singular illustration of the fact that the student of one department of knowledge cannot afford to disregard the evidence supplied by another.

Certain varieties, for instance, have lately been found in Irish gardens. The Narcissus now known as Henry Irving, turned up unexpectedly in a Dutch garden, where it must have existed for many a generation unheeded. Golden Spur had a similar origin. Whence, and how came these varieties? They must have existed in Ireland or in Holland, as the case may be, for generations; and the natural inference is that they were introduced into those countries by means of ecclesiastical or military travellers from Spain or Italy. But, says Mr. Barr, in answer, if this suggestion were correct, we ought to find the originals still wild, or, at least, in cultivation in Spain or southern Europe, but it is not so. This, of course, opens up the question whether they may not, indeed, have had the origin supposed, but have become modified in course of time in their new location. At least, this is a plausible supposition,



Fig. 67.—Well-house, Mr. Harris's Garden, St. Julian's, Malta. (see p. 448.)

one that some people would pass by as insoluble, and others treat as a matter of indifference. Mr. Barr, however, would, we are quite sure, not consider any Daffodil problem as absolutely insoluble; still less would he treat it with indifference.

The Daffodils with their trumpet-shaped flowers and large coronas or crowns, the Narcissus with their flat flowers and shallow cups vary in stature, colour and form of the parts of the flower. There is the green ovary or young seed pod, which in some flowers is cylindric, in others obovoid with the broad end of the egg uppermost, in others angular. Surmounting this is the perianth tube, long, slender, cylindrical, or slightly dilated upwards, greenish or yellowish in all the Narcissi proper, broadly funnel-shaped, and relatively short in the true Daffodils. Then comes the limb of the perianth with its six lobes broad or narrow, blunt or pointed, white or of various shades of yellow, spreading or directed forwards. In the centre is the cup or corona, short and shallow like a saucer in the true Narcissi, yellow or orange—especially at the edge, often more or less folded, while in the Daffodils or Trumpet Narcissi the corona is as long as the segments, or nearly so, broadly tubular, of various shades of yellow or orange, but generally darker in shade than the segments themselves. The free margin of the trumpet is regularly or irregularly lobed, and more or less reflexed. Notice should also be taken of the relative length and position of the stamens and styles, and of the periods at which they respectively become mature. All these peculiarities, and many others that might be mentioned, are familiar to the botanist, and are detailed in the works of Baker and Burbidge, but it may be of service to the amateur to indicate where he should look for differences between his favourites.

Mr. Barr's study is situated at Thames Ditton, a few miles from Richmond and Kingston, and easily reached from those towns or from Surbiton. It consists of some 15 acres of flat sandy loam, such as is found throughout the Thames Valley, and this area is largely devoted to Daffodils. Other plants there are — Anemones, Muscaris, Primroses, Pæonies, Lilies, and so forth; but just now the main attraction centres in the Daffodils, which occupy the greater portion of the ground. While other cultivators grow some dozen or twenty varieties at most, Mr. Barr is not satisfied with anything less than a complete representation of the genus. Hence, we find the Hoop Petticoat Narcissi, the triandrus group, the cyclamineus series, the big Daffodils, the little Daffodils, the least Daffodils, the bicolor Daffodils, the cernuus contingent, the incomparabilis tribe, the odorus section, the rugulosus set, the tridymus clan, the poeticus breed, the polyanthus and Tazetta hordes, all as fully represented as possible; and then who shall number, much more describe, the infinite variety of hybrids and crosses, the Leedsi mixtures, the Barri bleedings, the Burbidgei combinations, and the Bernardi amalgamations.

Mr. Barr, by long practice, pronounces judgment upon the supposed parentage of these crosses. In some cases, the correctness of the affiliation is obvious to an unpractised eye, but in others we require to be shown, and even then the unpractised eye fails to grasp the points which seem so obvious to the King of the Daffodils. His majesty even goes so far as to trace in the hybrid something of the character of the raiser. This may sound far fetched, but if one thinks of the scholarly, sensitive, refined experimenter, and of the uneducated, rough-and-ready cultivator, it is easy to see that though both may be working for a common aim, their methods are likely to differ, and the results correspondingly to be diverse—alike in principle, modified in detail.

All this and much more we pick up from Mr. Barr as he conducts us round his quarters; we rapidly note the main differences in the colour, form, and size of the perianth; specially are we struck with the variations in colour and breadth of the "grass," or foliage. Clearly the leaves would afford an excellent field for research, and we have no doubt whatever that a clue to the solution of some of the Daffodil problems we have alluded to would be afforded by a careful microscopical scrutiny of the leaf-structure. But who is to do it? we ask ourselves in despair, as our guide thrusts into our cab, as we are leaving, a big sheaf of varieties, with their fluttering labels attached, as numerous as the bits of paper in the praying wheels of the Tibetan priests.

Ah! there it is—the old story; there is so much to be learnt, so few to learn—so little time or opportunity, so much other work that must be done. Even the king admits that he is occasionally beaten by circumstances, and if that be so with him, *a fortiori*, it must be so with humbler individuals. At any rate, we are obliged to hold our hands, and to defer any special notice of particular varieties till another occasion; but let all who wish to know something more about Daffodils than they can learn from the exhibition table follow our example, and betake themselves to Thames Ditton, and pay homage to the Daffodil King.

PLANTS IN FLOWER AT KEW.

The following are noteworthy amongst the plants now in flower in the houses at Kew:—

Crinodendron Hookerianum (Temperate-house).—A Chilian plant, which is now rare in cultivation, although Messrs. J. Veitch & Sons introduced it many years ago. It is said to form a tree 20 feet high, but in cultivation it is a compact shrub, with horizontal branches clothed with Bog Myrtle-like leaves and drooping axillary flowers. These are very ornamental, as they hang singly on stalks 3 inches long, and are not unlike the flowers of Clematis coccinea in texture, form, and colour, except that they are smaller, and coloured uniformly bright crimson. Probably this plant would thrive out-of-doors in the warmer parts of this country. The Kew example is 18 inches high, and bears twelve flowers. There are two species of Crinodendron, both of them Chilian.

Rhododendron scabrifolium (Temperate-house).—This is one of the Yunnan species, and is the first to flower in England. It is erect, unbranched, 2 feet high, clothed its whole length with scabrid, hairy, oval, acuminate leaves, 2½ inches long, and bearing at the top a compact head of flowers, each 1¼ inch across, almost flat, with rounded segments, white, faintly tinted with rose. In its present character it cannot be classed amongst first-rate garden Rhododendrons.

Randia (*Gardenia*) *Stanleyana*.—A plant 18 inches high, bearing ten flowers, has attracted much attention in one of the stoves. Although introduced from Sierra Leone by the Earl of Derby nearly fifty years ago, and long ago proved easy to manage, free in the production of flowers, and decidedly ornamental as well as distinct, this plant does not appear to find much favour amongst cultivators. The flowers are long, trumpet-shaped, 9 inches long, very fragrant, dark purple outside, white with purple dots inside. The limb of the flower is about 3 inches across.

Euadenia eminens (Stove).—One of the most remarkable of the Capparideæ, and although not striking in the colour or form of its flowers, yet it is just the kind of plant to arrest attention and excite curiosity. It has flowered every year at Kew since it was introduced by Mr. Bull from West Africa in 1881. The plant is 18 inches high, and the leaves are trifoliolate, bright green, deciduous. The flowers are in a large loose head on the ends of the branches; they are erect, with four green sepals and four petals, two of which are 4 inches long, erect, leaf-like, pale yellow, the other pair being scarcely a quarter of an inch long. The leaves are cast by the Kew plant late in the autumn, and it is then kept on the dry side until February. [An illustration from Mr. Bull's plant will be found in our colnmns on April 29, 1882.]

Rudgea macrophylla.—Several flowering examples of this fine Rubiaceous plant are now in the stove. When healthy, it rarely fails to produce in spring its dense heads of creamy-white fleshy flowers. On strong plants the leaves are 2 feet long, very stout and leathery. It is a native of Brazil. [Illustrated in these columns, July 12, 1879.]

Cyrtanthus obliquus.—The largest and one of the most distinct of the Cyrtanthi, of which some twenty species have been found at the Cape. It has large, clustered bulbs, stout, leathery, glaucous green leaves 2 inches wide, and erect scapes 18 inches long, each bearing an umbel of large tubular, curved, orange-yellow and green flowers, suggesting the flowers of Blandfordia. A specimen bearing five scapes of flowers is now in the Cape-house.

Pentapterygium serpens is one of the prettiest of the Indian Whortleberries. It has a thick woody rootstock, from which spring long wand-like, arching branches clothed with stout bright green leaves, and bearing drooping axillary flowers, which are urceolate, 1 inch long, bright crimson, with darker veins. The leaves of the young shoots are coloured deep crimson. It is a pretty greenhouse plant, and may be seen in flower now in the Heath-house.

Helicodeiros crinitus (Cape-house), is not often seen, although an old garden plant under the name of Arum crinitum. Its large ovate spathe, 9 inches long, 6 inches wide, tawny-yellow in colour, shaggy, with reddish hairs on the inside, and the spinous-looking black-purple spadix are very remarkable, even for an Aroid. The odour emitted by the flowers on first opening is more powerful than pleasant.

Taccarum Warmingianum (Stove) is another large flowered tuberous-rooted Aroid, which resembles the Arisæmas in its habit of developing the leaf along with the inflorescence. This is pushed from the base of the leaf-stalk, and is 9 inches long, about half as wide, folded at the base; the colour outside is green with numerous lines of brown, whilst inside the colour is purple-brown. The flowers on the spadix are pale yellow.

Echium arboreum is now grandly in flower in the Temperate-house. It is a giant Bugloss from Madeira, and is 10 feet high, nearly the same through, whilst the numerous leafy branches are each terminated by a large spike of rich blue flowers. *W. W.*

POTATO EXPERIMENTS.

We have been favoured from the Horticultural Division of the Rhode Island State Experimental Station with a report of some interesting experiments on the Potato crop in 1889 on the—

Methods of Planting and Test of Varieties.

Much difference of opinion exists among Potato growers concerning the merits of the various methods of planting now practised, and the comparative value for production for market, and for home consumption, of the many varieties of Potatos that are each season offered for sale for seed purposes. In consideration of these facts, together with a knowledge of the importance of the Potato crop as a source of one of our staple articles of food, this series of experiments was conducted with the object of solving, as far as possible, the following questions:—

1. Is the yield of an individual plant of Potatos mainly determined by the space allotted to it in the row and the condition of the soil? or is it materially influenced by the amount of seed Potato planted?

2. Is the size of Potatos influenced by the quantity of seed planted?

3. What varieties are best adapted to that particular soil and climate?

4. Are northern grown Potatos better for seed than home grown?

5. What varieties are least subject to Potato disease?

The field used for the experiment was new land, the soil loam, with a yellow loam subsoil, and the natural drainage good.

A dressing of farmyard manure was spread broadcast, and turned under with the sod.

After being thoroughly harrowed, the field was furrowed out, May 9, into rows 3 feet apart. Before the Potatos were planted, a manurial mixture, composed of muriate of potash and ground bone, was scattered and well incorporated with the soil by means of a cultivator. On the two following days, May 10 and 11, the Potatos were planted, 114 different varieties, including eight duplicate varieties, that the products from seed grown in that latitude might be compared with the yield from seed of the

same kind grown further north. The experiment was divided into three sections as follows:—

a. Seed cut into single-eye pieces, and planted 9 inches apart in the rows.

b. Seed cut into two-eye pieces, and planted 18 inches apart in the rows.

c. Seed planted whole, 36 inches apart in the rows.

The weather being favourable, all the varieties came up evenly. The field was cultivated four times during the summer, and the soil was drawn towards the haulms twice with a hand hoe.

About July 20, during the hot wet weather that prevailed after the excessive rainfall of the month, Potato haulms blasted very generally throughout the State, and although many of the varieties in the experimental field were at that time in full blossom, they all succumbed to a common fate, the haulms dying and all growth ceasing before August 1.

The results obtained may be summarised as follows:—

Two-eye pieces, planted 18 inches apart, gave the best returns, the average yield by this method being more than 11 per cent. greater than with the single-eye pieces planted 9 inches apart, and nearly 28 per cent. greater than when whole Potatos were planted 36 inches apart. The average proportion of small Potatos was, however, this season, largest in the two-eye section, and slightly less in the one-eye section, than with the whole tubers.

As a rule, the heaviest tubers grew from the whole seed. The total yield varied considerably with different varieties. The average yield of the entire list was 54½ bushels per acre. The five kinds giving the largest yield are, in the order of their productiveness, as follows:—

Thorburn	...	...	...	bushels per acre.
Rose Triumph	...	...	...	.. ..
Early Puritan ..	..	..	..	.. ..
Chas. Downing	...	...	..	.. ..
Webb's Early ..	..	..	..	.. ..

It is also a noticeable fact, that with the exception of Webb's Early, the proportion affected by Potato disease of the above-named five varieties was much below the average, the loss being but 2 to 3 per cent., while some other varieties show a loss from disease of from 14 to 17 per cent. of the total yield. *J. J. Willis, Hoppenden.*

ACCLIMATISED LETTUCE SEED IN INDIA.

In reading the account of M. de Vilmorin's lecture on "Plants for Salads, I was reminded of an interesting and successful experiment which I had made in India, in order to obtain good acclimatised Lettuce seed. Gardening in the plains of India labours under this difficulty. Vegetable seeds have to be imported either from Europe or America, because plants grown from Indian seed have a tendency to run to flower readily, and this tendency increases with every successive generation of Indian-grown seeds. Cos Lettuce, for instance, the first year gives very fine heads, but seeds kept from them next year produce plants that "bolt" before the head of the Lettuce is formed.

The following experiment succeeded admirably. The head of Cos Lettuce from imported seed was cut off close to the ground and eaten; only a few leaves were left on the stump. Side shoots from the axils of the remaining leaves soon appeared, and eventually ran up, and flowered, and seeded. The seeds of these next year gave as good results as could be wished. So that by selecting plants that were well cabbaged at the top every year, and keeping seeds from their side shoots alone, a very satisfactory strain of Lettuce seed resulted. The heads required no tying, for the tops of the leaves overlapped each other, cabbage fashion, so that the inner ones were blanched, sweet and crisp. I found that Lettuce wanted rich loose soil, and plenty of watering. European vegetables can only be successfully grown in winter, in northern India, owing to the dry heat or damp heat in other parts of the year.

Recently a great deal has been written by Weissmann and others on heredity. He holds that no acquired character is transmissible, and that only such characters as are congenital can be inherited by future generations. It appears that this Cos Lettuce is a fair example of an acquired peculiarity becoming transmitted to its future generations. The imported seed from either congenital or acquired habits in Europe gives a slow-growing head the first year. But the influence of its surroundings in India is too much for it. They impress upon its nature a different character, which, in the second generation, produces a quick-growing head, and goes readily to seed without giving time for the inner leaves of the head to blanch. This latter character acquired, from its climatic surroundings, accumulates every successive generation, until the seed becomes useless for salad purposes. Now by cutting off the main stem, and allowing the side shoots to grow and seed, the original character of a slow-growing head is maintained in spite of the climatic surroundings.

I think there is a great deal to be learnt by experiments of this sort, both in biology, and the art of gardening. *E. B.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT CASTLE HILL, ENGLEFIELD GREEN.

It is with pleasure that we note the great improvements made in every department of the fine garden of G. C. Raphael, Esq., by Mr. W. Swan, whose prowess in the gardeners' art had for many years previously been recognised in the more northern counties. In connection with the Orchids is the name of Mr. Swan more generally known, but the condition of the different fruit and flower departments prove that he in no way allows his favourites to over-ride other and equally important subjects.

The Phalænopsis and Angræcums at Castle Hill are looking remarkably well in the house arranged for them, and in which the plain earth floor, which Mr. Swan considers highly conducive to the health of all East Indian things, is left without tiles. Still affording a further surface of earth, beds like those used for planting Cucumbers are planted with Fittonias, Pileas, and other dwarf foliage plants, and over these the plants are suspended; evidence of profuse flowering is seen on all the specimens, some of the P. Schilleriana having six or seven branches. A fine form of P. grandiflora, and some P. amabilis, and P. rosea, were also in bloom, and with stout spikes; the pretty white Angræcum Sanderianum, A. Ellisii, and A. citratum.

Among the Cypripediums, of which a fine collection of large specimens exists, the nobly-formed C. Swanianum , one of the earliest and best of the garden hybrids, raised by Mr. Swan some years ago, stood out prominently, and on the same stage were C. Dominianum×, C. Roezlii superbum, a fine form of the C. longifolium type; several large C. villosum, C. barbatum Warnerii, a very strong C. bellatulum, with two flowers on each spike; C. Hookeræ, C. Lawrenceanum, and most of the other species which flower at this season.

The Dendrobes were making a great display; some specimens of D. Findlayanum, about 2 feet across, and bearing scores of blooms, being equal to, if not better than anything of the kind ever cultivated; Dendrobium Wardianum and D. crassinode were also magnificently flowered, a plant of D. c. Barberianum having from thirty to forty flowers on each pseudobulb. Many specimens of D. nobile and one or two of D. n. nobilius were making a rich display; and D. crepidatum, D. capillipes, D. densiflorum, D. chrysotoxum, D. Pierardi, and other old favourites, are well represented.

The Odontoglossums have chiefly the hybrid forms in flower; one fine O. Andersonianum had a six-branched spike, and O. Ruckerianum was equally fine. Some good forms of O. luteo-purpureum and O. cirrosum were in bloom, and O. Hallii xanthoglossum and many O. crispum and O. Pescatorei. Suspended overhead were plants in bloom of Sophronitis grandiflora, Odontoglossum Cervantesii, and O. Rossii majus, and Masdevallias of the M. bella and M. chimæra section.

The Cattleyas and Lælias were observed in grand order, but with few at present in bloom; some flowers, however, are on the plants of Cattleya citrina and Lælia cinnabarina, whilst the specimens of C. Lawrenceana and C. Mendelii were grandly budded. Other specially noteworthy plants in flower were the rare Cymbidium albuciflorum with several spikes, some C. Lowianum, and C. eburneum, a few large Oncidium ampliatum majus, the curious O. phymatochilum, the pretty crimson Broughtonia sanguinea, Aërides Houlletianum, Calanthe veratrifolia, and with the Orchids, a splendid strain of Anthurium Schertzerianum, and A. Andreanum.

In the other plant-houses, among a fine general collection of plants, were a perfectly cultivated and profusely-budded batch of Gardenia, another of Eucharis amazonica. Some fragrant Daphne indica, a finely flowered batch of Lachenalia tricolor, many charmingly-coloured Azalea mollis, several scarlet Musa coccinea, a batch of Begonia nitida, another of Freesias, some specimens of golden Celsia, and most things likely to give flowers at this season. Indeed, Mr. Swan's aim is to have them all the year round.

Cypripedium Elliottianum.

We find that this plant enjoys a good share of heat, and the East Indian-house is the best place in which to grow it. A liberal supply of water should be given when established, but care is required before it is established that no water is allowed to lie in the heart of the plant, as this is a great cause of decay. The plant is best cultivated in pots, and the side tables are most suited to its requirements, as in this position the plants are tolerably near the glass, which is essential, for it enjoys sun and light, and requires shading only during the hottest part of the day in summer. For soil, use a mixture of fibrous peat and turfy loam, the greater portion of the fine soil, however, being shaken away; to this add some sharp sand and medium-sized nodules of charcoal, to induce the plant to form strong and vigorous roots, and to produce healthy foliage. The soil should be elevated slightly above the pot's rim, in order to allow the water to pass away more readily, and also to allow the roots greater freedom. This species does not appear to propagate so readily as many of the kinds, but this may arise from the plants not having yet become thoroughly established, so that on this subject we are not in a position to offer an opinion. "*Orchid Album*," t. 397.

Dendrobium Brymerianum.

This species is free growing if its wants are supplied, and these are very simple. We find small baskets or pans to suit it best, although we have seen it thriving well in pots. The soil should consist of good fibrous peat (from which all the fine particles have been shaken), and living sphagnum moss; the drainage also must be maintained exceptionally free, as the plant cannot abide anything sour about its roots in potting or basketing. The material should be built up into a cone-like mound above the level, and not too much soil should be used; by this plan the roots of the plant can either penetrate the soil or ramble on the outer surface; this latter, many plants appear to enjoy. Large baskets are not necessary, as this plant does not require much soil about its roots; indeed, the less it has about them the better it appears to like it. The plant should be kept moist at the roots during the season of active growth, but when this is completed, all that is necessary is just sufficient water to keep the bulbs from shrivelling; for the drying-off system should not be carried to extremes. This plant is a native of Burmah, consequently we find the warmest house most genial to it; it should be suspended, say some 18 inches from the glass, and

very little shading given, even through the hottest part of the day in summer. A free circulation of air is essential, and the atmosphere should be well charged with moisture. "*Orchid Album*," t. 398.

Disa graminifolia

is a lovely species, and its thin grass-like foliage from which its specific name is derived, renders it very distinct; but the leaves are not developed with the flowers. The blossoms are of a charming azure-blue, with purple on the tip; they are arranged in racemes, and continue in bloom for a considerable time. This is a somewhat difficult plant to establish, and even when it becomes established, it requires great attention, in order to produce it in the perfection in which it is here laid before our readers. We ourselves have not much experience in growing this plant, but we gather that it grows well in a well-drained pot, and the drainage should have some broken bones added, as we consider this answers the same purpose as mixing manure with the soil, and it has the advantage of always keeping sweet and clean. The soil should consist of about equal parts of loam, peat, and leaf-mould, to which may be added some rough sharp sand, and some moderate sized nodules of charcoal, which greatly assist in keeping open the soil, which should be made firm about its roots. During the growing season a liberal supply of water is requisite, but care should be exercised to see that it passes away quickly; and in the winter, when at rest, the soil must be kept in a nice friable condition, but by no means allow it to become quite dry, for as Disas are found in a state of nature beside streams, on rocks, and in deep ravines, it becomes necessary to imitate the natural surroundings as near as possible. Slight shade is also necessary, for in their natural habitats they are surrounded with trees, which effectually break the sun's rays. This plant appears to have been introduced some sixty-five years ago; but we are not aware that it was successfully established. It has long been a coveted plant by Orchid growers, and now that it is established in our collections, we hope it may long continue. It is a rare and charming colour, and is most desirable in producing a distinct effect among other Orchids. "*Orchid Album*," t. 399.

Foreign Correspondence.

BERLIN LETTER.

In my last letter (see p. 363), I said that horticulture could make much use of the results of the studies of botanists. I further mentioned that horticulture needed experimental stations. Botanical and physiological institutions, of course, have other fields of study than an experimental station would have, if destined for practical purposes. The scientific man has to study matters the knowledge of which would be of but little use to the practical man in most instances, although there are still a great many matters for study where that knowledge would be of the highest importance to the practical man; as, for instance, why do seeds of Cratægus, Roses, &c., germinate in the first year if they are stratified, but in the second and third if they are kept dry during the winter? How could these seeds be made to germinate all at once? Then there is another question: Roses, Dahlias, Begonias, and many other groups of plants give only red or white, never blue flowers; is it impossible to produce varieties with blue flowers, even if only by cultivation each year, as in Hydrangea? Or, what is the cause of fasciation? Fasciated Cockscombs are of great horticultural value. Is it impossible to grow other fasciated plants, *i.e.*, not to further develop fasciations which have arisen spontaneously, but to create artificial fasciations? It would be a matter of much importance to find a way to produce double flowers artificially.

These questions are examples of what would have to be answered in a horticultural experimental station. Agriculture has availed herself of the analyses of plants that have been made. Is it not curious that the sister art, horticulture, has not made more use of them? True, analyses of garden plants have been made in great numbers, but horticulture has not generally noticed them. There is still another point to be remarked. The sums of money annually expended on seeds is enormous. In general the seeds, especially of the more common species, are of good quality. But there are sold every year seeds which are not worth the postage, and it would be part of the work of a station to test seeds with regard to their germinating power, purity (freedom from weeds), &c. A seed merchant would be able to announce that his seeds had been tested by the station. Lastly, I should like to hint at the part mentioned in Mr. Thiselton Dyer's communication "A Gardener's Problem," that plants reach under culture a perfection which much surpasses their growth in their natural position. As was truly observed by one correspondent, in Nature each plant has to fight against other plants, and it is, as far as possible, adapted to that position. For, if this were not so, it would succumb in the struggle. In cultivation it has not to fight, and finds such a surplus of nutriment that it would be wonderful if it did not deviate from the original form. A horticultural experimental station would investigate acclimatisation, and select plants suitable for vegetables.

If gardening is to make advances, it must go hand in hand with botany. Now the results of these experiments must be available to all gardeners, and the stations themselves, servants of gardening, must not be worked for the benefit of any one person, but for the progress of horticulture as a whole.

The correct way of solving a question by experiment is either by excluding all factors but one, or only one. The factors concerning plant life are light, heat, moisture, and food. To study the influence of light upon plants, all factors but light must be eliminated, or the light itself withheld in plant life; the latter is the only possible way, as the plant cannot possibly live by the aid of light alone. But it is also necessary to control the other factors, and to keep them in the same condition throughout the experiment. This is almost impossible in the open air. So for many experiments it is necessary that they be performed in closed rooms. Now light has a directing influence upon the growth of plants, inasmuch as that part of the plant which receives most light is of slower growth in length than the other parts. That is why plants are drawn to the windows when grown in rooms with side windows. A mirror placed behind a plant has a beneficial effect, but is rather troublesome sometimes; so a laboratory should have windows not too high. It would be best if a laboratory were built entirely of iron and glass for experiments relating to physical influences. It would be necessary sometimes to vary the moisture of air, and so it would be desirable to construct several compartments, in which this could be regulated.

Another set of experiments would concern chemistry, and for these a chemical laboratory would be required in which analyses could be made. But the conditions under which plants are cultivated in gardens and nurseries must be considered. So a hot-house, a few frames, and a piece of land must be provided. There must also be an arrangement to permit the plant's exposure to the open air, but, at the same time, protect it from rain. Lastly, an ice-cellar would be useful for many purposes. The following, then, is what is required: One structure of iron and glass, divided into several compartments, for physical experiments, a house containing, say four rooms, the chemical, the anatomical laboratory, the physiological laboratories of each one room; and in connection with this a verandah, where the plants could from time to time be placed in the open air. Then a hot-house, a green-house, several frames, an ice-cellar, and about 2 acres of land, also accommodation for the staff. The Director must be a man educated theoretically as well as practically; he must be well-informed as to what gardening means; general botany, plant geography, and chemical and physical knowledge, he must possess—he it is who formulates the problems; under him are an analytical chemist, a physiologist; also a gardener with good theoretical knowledge, and an assistant, are necessary. As for a great many experiments observation during day and night are required, the whole staff should live at the station. The expenses of the station would by no means be low during the first year. A point of interest is, that I succeeded in obtaining dark blue Primula sinensis; sulphur-yellow Cineraria cruenta; a pale blue Azalea indica, and Camellia japonica, also a yellowish Primula sinensis. I feel I am on the right way to secure blue Dahlias and blue Roses, not as varieties or sports, but purely by cultivation! *Udo Dammer.*

Trillium discolor atratum.

Permit me to elucidate the history of this plant, and to assure my friend "R. D." that there is no wilful manufacturing of name about it. If any one could be called guilty in this case it would be myself. The plant originally came from America to the Royal Botanic Garden, Berlin, and was labelled T. discolor, Wray. About 1873 it was received at Baden-Baden, and as at that time I was not the happy possessor of a complete set of the *Botanical Magazine*, I could not make a comparison, and cultivated it under the above name. I remembered well the beautiful plant at Berlin, and it seemed to me that the plant which M. Bouché was so kind as to send me was in its leafage of a darker and of a more sombre tint than what I had seen there, and having made a comparison, I added the word atratum. Mr. Peter Veitch, when visiting my garden, ordered some plants, and so it came to England. There can be no doubt that it is T. sessile, L., but the plant is a very distinct and beautiful variety of what is figured perfectly in the *Botanical Magazine*, and it is known that the leaves of plants grown in the open air are much darker in colour, and the blotches are of a sombre grey colour. Whether it be called discolor atratum or sessile atratum, I maintain that the plant in question is very distinct, and fully merited an award being given to it; and I am quite sure the just mind of Mr. D. would endorse this opinion, if I could have the honour of a visit, and show him a patch of this plant having leaves of more than 3 inches across. *Max Leichtlin, Baden-Baden.*

DAFFODIL FARMING.

Westward of Richmond Park, on the low ground sheltered by the wooded slopes of that charming resort, lies Ham Common, a good specimen of an English common, though not so far off from the great city as to be beyond the jurisdiction of the metropolitan police. The common and its surroundings, and the adjacent village of Petersham, offer many temptations to dilate, but the inexorable limitations of space forbid us from doing more than allude to a farm, situate on the very edge of the common—a farm very unlike what we mostly understand by that name. It no longer pays to grow Wheat, and agricultural depression is a lamentable fact, the existence of which no one now denies. All honour, therefore, to the cultivator, who, recognising the nature of the situation, boldly turns his attention to other matters than corn-raising. The farmer, it is certain, must become more of a gardener than before; he must not only practice garden methods, but he must take a lesson from the gardener, and learn how to grow a larger variety of crops, grow them well, and not remain dependent on the indifferent cultivation of one, or on a few only.

"A Daffodil farm! What nonsense!" "Who ever heard of such a thing?" These would have been the exclamations ten or fifteen years ago, when all that was attempted in that way consisted of lines of the old double Daffodil, Telamonius plenus, between the Gooseberry bushes in the market gardens;

yet here is one of some 124 acres, mostly given up to Daffodils, and very pleasant is it to see the long rows of gay flowers, assorting in tint so well with the "grass." Seven rows and an alley, and then seven more rows, of the same or of some other variety—and for a distance of nearly a mile, these "breaks" stretch away to the right and to the left. Here and there fruit trees have been planted, intended to serve as wind-breaks, and, in due time, to furnish the markets with something to eat when the Daffodils have done their year's work, and are preparing for the next season's campaign. Apples on the Paradise Stock, Lane's Prince Albert, and Bismarck, being favourite sorts. Pears on the Quince and on the free Stock. Among these are more than a thousand young trees of Fertility, a Pear which comes in for market use when the Hessle is over. A few Plums, such as Princess of Wales, are also grown. The variety mentioned always sells well, and comes in before the Victoria, but somehow the variety does not do well.

But the fruit trees at present are "great expectations" rather than accomplished facts, and it is the Daffodils we have come specially to see on this April morning. It is the Daffodil which has made Mr. Walker's repute in the horticultural world. Time after time has he shown at the Royal Horticultural Society and elsewhere examples of excellent cultivation, and set up with good taste and judgment. When we see the enormous amount of material he has at his command, the way in which the land is farmed, and the plants cultivated, and the care taken in gathering and bunching the flowers for market, we no longer wonder how it is done.

The land is mostly level, the soil a sandy loam, easily worked with a light plough, and the plants so far apart that the soil may easily be stirred with a light "Planet" hoe. As to manure, the soil is a hungry one, but among the many peculiarities of the Daffodils that Mr. Walker tells of, is the difference between one form and another in the matter of manures. For some too much can hardly be given; others of more delicate digestion can hardly take any without evil consequences. In like manner some varieties when cut will grow in water, others will not. Idiosyncrasies of this kind will, no doubt, be pointed out in Mr. Walker's paper at the approaching Daffodil Conference at Chiswick. It is not surprising to learn that some varieties are "good doers," whilst others have no claim to such a character; this is only what we find in any group of plants. What is more unaccountable, and more apparently capricious, is the fancy of the public, especially of the lady part of the community, for particular shades of colour.

Some of the many hybrids of the Leedsi section at present satisfy this fancy for variations in tint, but who is to tell what will take the fancy of the public next spring? It would almost seem as if painters and decorators, *costumiers*, and milliners, must be taken into sweet counsel by the gardeners, so that the latter may be able to furnish what "will go well" with the constructions of the former.

Again, some varieties, though very pretty, are of no use for market purposes; they are not "free" enough, they are not good "croppers," as they say of Potatos; their colours are not decided, they hang their heads instead of looking one boldly in the face, they are thin in texture, they are too small, or they come in at a season when there are plenty of others, perhaps of better quality for market purposes. All these circumstances have to be taken into consideration in addition to those unaccountable whims and caprices of fashion to which we have already alluded.

The flowers intended for market are cut from the open field when the buds are about half expanded; they are placed in water in a Cucumber-house or similar-heated structure, where they expand, unhurt by the casualties that may befall flowers that expand in the open air. From hence they are conveyed to a roomy, paved, well-lighted shed, where they are "bunched" by women, packed in boxes, and sent off over night for the early morning market. A peep into the houses, crammed with expanding flowers, or into the shed where they are being sorted and packed, affords one of the most remarkable sights that can be imagined. When the door of the shed is opened, there issues a perfume as of Araby the blest, whilst the floor and benches resemble one large mosaic of brightly coloured flowers—Daffodils of all shades, from pale lemon to deep orange; white Narcissi (ornatus), and deep red Van Thol Tulips. How bright and fresh they look now by contrast with their appearance in the florists' shops, and still more with their aspect when thrust into one's face by the slatternly flower-girl seeking to tempt us by her importunate cry, "penny a bunch!"

The Daffodil season after all is a short one, so that Mr. Walker has other strings to his bow in the shape of Tulips of all sorts, Lilies of the Valley, Wallflowers, Pæonies, Doronicums, Irises, Day Lilies, Christmas Roses, and many other hardy flowers, the disposal of which at the market may be relied on.

In addition to these seemingly endless "breaks" of hardy flowers, culture under glass is also attended to. Tomatos have been grown, and are so still to some extent, the plants being grown in the borders in light span-roofed houses. "Conference" is well spoken of, though it is not to be depended on out-of-doors, but Tomatos are doomed to be supplanted by Peaches, for whose accommodation no fewer than eight light span-roofed houses have been erected, each 180 feet long by 24 wide, and 14 feet in height. The trees are grown in pots, and treated to scrapings of chamois leather by way of manure. For early work, Alexander, Dr. Hogg, and Hale's Early, are depended on. Then come in a second house Grosse Mignonne, Royal George, and River's Early York. These are succeeded by such sorts as Lord Napier, Nectarine Peach, Gladstone, Princess of Wales, and Sea Eagle. As an illustration of the minute points which are forced upon the grower's attention, it may be said that for market purposes, Sea Eagle is objected to, by reason of the little nipple-like process with which it, like some others, is provided. The reason is that this little projection is apt to get bruised and injured in packing or handling, and so the value of the fruit is deteriorated.

It is thus obvious that while Mr. Walker's establishment is not what is called a "show place," and indeed it is not desired that it should be, it is one where the professional visitor will be welcomed, and where he will find much to interest and even astonish him.



Fig. 68.—Cascarina in Mr. Harry's Garden, Malta. (see p. 448)

ENVILLE.

This demesne, called originally Evenfield, shortened to Enfield, and changed to Enville about the beginning of the eighteenth century, was one of the manors bestowed by the Conqueror on William Fitzansculph; and in the twentieth year of the reign of William I., it was held by one Gilbert. The heirs of this Gilbert seem to have assumed the surname of Evenfield, for in the time of Henry III. and Edward I., Richard de Evenfield was possessed of the manor. The family of Evenfield held Enville till the reign of Henry VI., when it was sold to the family of Lowe, of Whittington. Humphrey Lowe was sheriff of this county, 19th of Henry VI., and was returned among "the prime gentry of the county of Stafford." The principal residence was then at Whittington. The daughter and heiress of Humphrey Lowe, Eleanor, married Robert Grey, third son of Reginald, Lord Grey of Ruthin, and thus the manor of Enville passed into the family of Grey. Thomas Grey (who died 2nd of Elizabeth, and whose tomb is in Enville Church), built a house at Enville, and in Plots, Staffordshire, there is a view of the south front of this old house, dedicated to Harry Grey, Esq., with his arms and quarterings. The above-mentioned plate in Plot shows the style of architecture of Henry VIII.'s time, having two lofty turrets at the entrance, and rich gabled ends, with ornamental chimneys on each side. In this state Enville continued till 1739, when Harry Grey, fourth Earl of Stamford, having purchased several estates so as to make the whole hill above the house and town his own property, and having married Mary, the only daughter and sole heiress of George Booth, last Earl of Warrington, by whom he had an immense fortune, laid out many thousand pounds in making the place beautiful! Dr. Wilkes says, "This he has done with as much art, and in so elegant a manner, that few places in England can rival, and none of the same compass of ground exceed it." The hall built by this Earl, with additions and alterations, is the one still standing. The poet Shenstone was a great friend of Harry, fourth Earl of Stamford, and laid out the woods and grounds at Enville. The church at Enville, dedicated to St. Mary, is an ancient structure, erected at different periods, and exhibiting various styles of architecture. The north aisle was founded by the Lutteleys in 1333. Philip de Lutteley, a parliament man and escheator to Edward III., had the king's licence to found a chantry in the parish church of Enfield to the honour of God and St. Mary, and for a priest to say mass every day at the altar of Our Lady there.

In 1270, Philip de Lutteley gave lands to the said Chantry for the priest to pray at the altar of St. Mary, for the health of his soul and Maud his wife, and of Sir Tulke de Birmingham, and of other benefactors recited in the deed. The church contains many interesting monuments. In the north side of the chancel is a stone coffin, with the recumbent figure of a priest sculptured on the lid. During the restoration this coffin was opened, and the skeleton of the occupant was found intact. There were faint traces of the robes, and the cup and paten lying by the right hand. The soles of the shoes, kept in their places by the bones of the feet, were in a perfect state of preservation. No inscription or date was found, but tradition says he was the founder of the more modern portion of the church, viz., the south aisle and chancel. There is also an alabaster altar tomb adorned with elaborate workmanship; the figures are of a knight and his lady. The knight is in armour, his head resting on his helmet, and at his feet a lion; the lady is in the dress of the period, and towards her feet is a small dog catching hold of the folds of her robe. This is the inscription:—'Here lyeth the bodyes of Thomas Grey, of Enveld, esq., and Anne, his wyfe, doughter to Sir Raffe Verney, of Pendley, w^th^ in y^e^ countie of Bucks, Knight, y^e^ whyche Thomas died y^e^ last day of December in y^e^ yere of Oure Lorde, 1559, and y^e^ sayd Anne, died y^e^ day of . . . in y^e^ yere of Oure Lorde . . . upon whose sowles God have mercy. Amen."

There are other monuments and monumental tablets to Henry Grey, grandson to Henry Lord Grey, of Groby, 1686; Harry Grey, Earl of Stamford, 1768; Lady Dorothy Grey, founder of the Girls' Charity School, 1781. The registers date from 1627, and contain many interesting entries, among them that of the marriage of the poet Shenstone's brother. During the years 1872-3-4 the church was thoroughly restored and beautified under the superintendence of the late Sir Gilbert Scott, and mainly at the expense of the late Earl of Stamford. It is now one of the finest country churches in the district.

The grounds at Enville are very extensive, and of a most charming character. A notable feature are the specimen Conifers 30 to 40 feet high, and also the fine specimens of Copper Beeches, whose branches spreading out, rest upon the turf; the pools and fountains should be mentioned. Every turn of the path opens fresh views to the pedestrian, and which have a beauty peculiarly their own. Through the kindness of Lady Stamford, the grounds are opened to the public two days in a week during the summer months, and thousands of persons visit the place each year.

The conservatory is a noble structure, built by Messrs. Gray and Ormson, about thirty years ago. It is now in capital condition, and is kept gay at all seasons; it is 180 feet long by 90 feet wide, the centre beds are planted with Camellias, which are of large size, and very robust, and flower well every year. There are also numbers of standard Bay trees, a Chamærops excelsa, 18 feet high; some grand Dicksonias antarctica with stout stems and fine fronds. In recesses at the sides are large specimens of Azalea indica, mostly A. i. alba. These plants are of pyramidal form, and measure 8 feet in height by 6 feet in diameter, full of growth, well set for flower, and promise in their season to make again a fine display. Large plants of Acacia affinis, a very useful species for cutting purposes is found; a number of plants of Coprosma Baueriana variegata, 4 feet high, and bushy withal, were placed among the other plants, enlivening the whole considerably.

Passing into the walled-in garden, where the greater portion of the glass is situated, attention is arrested by a Peach case of 365 feet in length, and in four divisions; three being devoted to Peaches and Nectarines, and one to Cherries. These trees produced splendid crops last season, and are full of promise for the present year. One of the Cherry trees measured 13 yards across.

Capital Muscat Vines and Lady Downes' are found in the vineries, whose age is sixty years; the colour and finish of the fruit is always excellent. Pines, a specialty at Enville, and a number of houses were filled with them. In the various houses is to be found some of the finest plants of Eucharis amazonica in the kingdom. These plants are always kept growing; they are carefully shaded during the bright days of summer, frequently syringed overhead, and very seldom shaken out of their pots. This treatment results in great vigour, in freedom from insect, and in quantities of flower-spikes at nearly all times of the year. In the stove were observed many fine specimens of the ordinary class of plants; clean-grown Crotons, Dracænas, and other fine foliage plants employed in house decoration. Some beautiful baskets, 4 feet in diameter, filled with Adiantum cuneatum, whose fronds spread out all round; A. gracillimum, A. Farleyense, and others, were very large and full of fronds. Here, too, were noticed Platycerium alcicorne, an immense mass; and one of P. grande, originally placed in a shallow pan, which had grown so much that it encompassed the whole of the pan, and the barren fronds measured 5 feet across. The fruiting frond of this plant, so distinct from the former, was 3 feet 6 inches in length. A plant of Anthurium Schertzerianum was 5 feet over. A number of fine Bouvardias were in flower; and a quantity of Clivias were noted, which have a house to themselves. A span-roof house is set apart for small flowering plants in season.

Several houses are devoted to Orchids, and contain a number of the Manley Hall plants, which have now grown to large size. Many Vanda tricolor and V. suavis are from 3 to 5 feet high, and full of vigour and roots; V. Batemanii was in flowering, with a spike 5 feet long; V. gigantea, with twenty-four leaves. The Aërides are good; masses of Cœlogyne cristata, very large; Dendrobium nobile is still one of the most useful Dendrobes; Cypripedium caudatum, Maxillaria venusta, Cattleyas, Odontoglossums, &c., were in good health, and some of them in flower.

Poinsettias are largely grown, as are also Carnations—the pure white Queen, Nimrod, Miss Joliffe, Souvenir de la Malmaison, &c., being principally grown. Veltheimia in pots is found of great use. There are many other glass structures which space forbids me to mention.

Two walls of 170 yards in length and about 4 in height are covered with Pear trees, which are carefully looked after and well trained, and, doubtless, when in fruit are very attractive.

Bedding out is not carried on to the extent it was formerly, when Enville was far above most other gardens. My notes would be incomplete without mention of the kindness and courtesy of Mr. Green, who conducted me over the greater part of the gardens and grounds. *W. S.*

PLANTS AND THEIR CULTURE.

The Greenhouse.—Plants of Azalea indica which have been forced should be encouraged to make a free growth and an early set of flower-buds. Weak guano water is of great assistance to old plants of Azaleas not often shifted, and Clay's Fertiliser is a good one for the purpose.

Small plants whose bloom is over, and which require to be repotted, should without delay be taken in hand, using plenty of clean crocks in the drainage and not overpotting them. Plants now coming into bloom will last longer if they are shaded from hot sunshine, and late bloomers should be placed in a house facing north so as to retard them. Camellias should be encouraged to grow freely, and if intermediate-house temperature can be afforded them and plenty of moisture, growth will be rapid. If planted out, frequent syringing of the plants should be carried out, and shutting up the house early in the afternoon. Hybrid Rhododendrons will now be making new growth. We grow ours in an intermediate house, and keep them well syringed from the bottom upwards, and not as is usually done; by so doing new growth is emitted freely by the old wood. Red spider and thrips sometimes infest them, but in a moist house these insects do not give much trouble. Rather small pots are best for these Rhododendrons.

Hybrid Calceolarias now throwing up their flower trusses, should get a few sticks to support them, and frequent supplies of water and weak liquid manure should be afforded the plants. If green fly be present at all, fumigate the house in a mild way several nights in succession before flowers appear on the plants. Plants to bloom late should have a repotting (the last), and a place near the light, so that growth may be sturdy. Zonal Pelargoniums to flower late, will require to be shifted into larger pots and grown in a light position. Old stock plants cut back, shake out, and repot in a good compost, or their season of growth will be a short one. A good compost for these plants will consist of loam, and small quantities of decayed cow manure, and leaf mould.

Fuschias should be stopped at the points, and young stock shifted into larger pots. The early plants may soon be supplied with weak liquid manure—that is, as soon as they fill their pots with roots; cuttings taken now will make useful plants for autumn flowering. Another sowing may be made of Torenias, the plants raised being grown in a warm pit. Nicotiana affinis, Balsam, Rhodanthe, Celosia pyramidalis, Cockscomb, Primula sinensis, and a pinch of Cineraria seed, if these last named plants be required at a very early date. Musk, Mimulus, and Intermediate Stocks should not suffer for want of moisture at the root.

Named varieties of Cinerarias from which cuttings

are desired, may be put into a cold frame not exposed to much sun, the cuttings being taken off when 2 inches high. Liliums, as the top growth increases, should be afforded a top-dressing of decayed manure and loam, and when potting the bulbs it is best to leave space for this. Bulbs late-potted, should have the plunging material removed before stem-growth is far advanced; this succession will require less water than the earlier one. Seeds of Campanulas for pot culture may be sown, and the pans kept in a temperature of 60°, removing the seedlings when visible to a frame. Seedlings of last year may be shifted into larger pots; these plants are of great use in large houses. C. calycanthum and C. pyramidalis are best for pot culture, and they are best when grown in loam in which a small quantity of decayed manure and old mortar are put, and made very firm. *Geo. Wythes, Syon House, Brentford.*

The Orchid Houses.

East Indian House.—The treatment of the spring flowering variety of Angræcum sesquipedale should be in all respects the same as that of the typical plant. It has been doubted if there are two distinct blooming seasons for this plant; to which I say yes, undoubtedly! The plants revel in heat and moisture; but air, and atmospheric moisture must also receive due attention. Epidendrum Stamfordianum is a pretty species, seldom seen. When the plant is a strong one, it makes a large spike of brightly coloured flowers, which have the odour of ripe Oranges; it does well in baskets, near to the roof. E. dichromum is another pretty Orchid that is rarely found in good condition, it being usually placed in a house that is too cool for it. The plant requires great heat, but thrips are partial to it, and a constant watch should be kept for them. A little tobacco smoke given twice a week checks the thrips, doing this when the foliage is quite dry, and the roots moderately dry. It is not at all necessary that the house should be filled to suffocation. If done as I have suggested in previous Calendars, it acts as a preventive; but where thrips abound, dipping and sponging in tobacco-water and soft-soap must be adopted, until the infested plants are thoroughly cleansed. The temperature may now be 70° at night, with a rise of 15° by sunlight, with air on.

Cool House.—Odontoglossum pulchellum majus will now be going out of bloom, and if the plants were not repotted in September last, that should be done now. Give Disa grandiflora and D. racemosa manure-water, as recommended for Miltonia vexillaria. Very little water will need to be applied to any plant in this house with the water-can, the syringe, if freely applied, doing nearly all that is necessary. Temperature, 50° at night, with a rise of 10° by day. *A. G. Catt, Parkfield, Worcester.*

Fruits Under Glass.

Orchard Houses.—Where a mixed collection of fruit trees in pots is grown there is the risk of a failure of the crop by neglect of root watering at the right time, and besides, a collection of mixed kinds sometimes leads to various kinds of compromises at this season of the year which result in poor crops; nevertheless under good management very fine Apples, Pears, Plums, Cherries, Figs, Peaches, and Nectarines may be produced in Orchard-houses, the first three often excelling open air fruits, and especially is this true when the trees are grown on Doucin, Quince, or Mussel stocks, and well supplied throughout the growing season with manure water of some kind. Although Orchard-houses may be a necessity in cold and exposed districts, the handsome looking fruits produced in them are not equal in flavour to those grown in the open in favourable districts; Apples, Pears, Plums, and Cherries, must at all times of night and day (sharp frosts or keen windy weather excepted) have free ventilation, and the trees should be arranged together at the cool end of the house. A little warmth should be maintained in the pipes so as to create a buoyant atmosphere in the house.

Runaway shoots must be pinched to four or six leaves, and thin sprays removed. Watch for the first appearance of insects, and fumigate for aphis or yellow thrip. Syringe the trees occasionally with clear decanted soot water or soapy water, but not during sunshine; unroll leaves curled round the caterpillar of the winter moth, and destroy the grub. It is not possible to say what number of fruits an individual tree or a bush should carry, but in all cases it is better rather to under than over crop. Towards the middle of the month of May some of these trees or bushes may be placed in a sunny but sheltered position outside, the pots being plunged in fine coal ashes or Cocoa fibre refuse. If any roots show on the surface top dressings of turfy loam, bone meal, and horse droppings should be given from time to time as may seem to be required.

Tomatos.—Plants raised in August last from cuttings, and set early with fruit, will now be showing colour in the same, and part of the foliage may be removed to allow the inlet of light, leaving two lobes of the leaf unremoved. An irregular system of tying in the laterals is preferable to cordon training for winter-grown Tomatos, owing to the great difficulty of setting the fruit, which has to be done artificially with camel-hair brush, the unfruitful wood having to be pruned out occasionally. Spring-planted Tomatos, or those grown in large pots, are best cordon-trained. I find that Hackwood Park Tomato, and good selections from the Old Red, set fruits more freely in winter than those of the Perfection type. The plants are best when grown in a free compost, but made very firm, and not enriched with animal manures. Abundant ventilation, but no draughts, is necessary—55° to 60° is the proper night temperature, and 70° to 80° by sun heat. Close stagnant air is fatal to the Tomato; if this be combined with strong manures, it will probably produce the much-dreaded Tomato disease. Therefore, do not close the house to keep up the temperature, excepting after the customary afternoon syringing, but rather keep the ventilators open, little or much according to the state of the weather, and make use of the hot-water apparatus. Prepare the plants required for walls or other contrivances outside, and pot them on as soon as ready into 6 or 7-inch pots, and if a little pot-bound by the middle or end of May, it will be so much the better. A score of plants planted out in a Strawberry-house when forcing is over, will give abundance of first class fruit up to Christmas.

Strawberries.—If plants have been introduced into the houses as advised, a regular succession of fruit will now be realised, and whenever extra dishes are required, it will be found easy to retard some, or to push on others. The fruit will be of superior flavour if allowed to finish slowly on dry, sunny, airy shelves, and not gathered till highly coloured, and not watered with liquid manure, but given a reduced quantity of clear water.

Where fruit is required for travelling, it must be gathered as soon as it is coloured. It will be found advantageous if a board 6 inches in depth be fixed to the front of the shelves, to prevent the sun striking the sides of the pots, and which will also economise watering. Feeder roots may now be observed in the turf squares or pads of moss under the pots. Keep the syringe going daily amongst progressing crops, and endeavour to keep the foliage free from red spider up to the finish. Strawberry plants once allowed to become dry at the roots so as to flag, are certain to be attacked with spider. Continue to ventilate prudently, and so build up stout foliage; and harden off old plants required for planting out. I treat out-door plantations of midseason kinds simply as annuals with good results, but for the supply of early runners for forcing purposes, I plant in August runners prepared early, and allow each plant on an average to carry three strong runners, which by July are ready for placing in the fruiting pots. The earliest and best out-door fruit can be gathered from the same source. *W. Crump, Madresfield Court.*

The Hardy Fruit Garden.

Fig Trees on Walls.—The protective materials should now be removed from the trees if this be not already done, and if the pinching and stopping of shoots were closely attended to during the season of 1889, there will be but little pruning now requiring to be done; but if some pruning should be required, the least matured shoots may be thinned out, and any shoots which show the smallest number of embryo Figs cut out clean. The shoots of Figs are better if trained in a horizontal direction, as they become then more fruitful, and the trees are better balanced than when fan or perpendicularly trained. [The horizontal training here meant is really a modification of the fan method. Ed.] Pay particular attention to the protection of bloom on wall-trees of all kinds. There is much damage done to fruit trees by retaining protection too long over them, and in having it of too heavy a nature. If aphides are found at this stage to be infesting the bloom, the shoots most affected may be dusted with tobacco powder or other insecticide, and curled leaves crushed between the finger and thumb. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

Celery Seedlings.—The earliest plants will be large enough to prick out, and for this succession a frame should be employed to cover them. In preparing the bed for their reception, which should be in a warm spot, place a layer, 6 inches deep, of short warm dung and tread it firmly, and over this put a layer 3 inches thick of light sandy soil, and beat the surface smooth and level with a spade. The plants should be thoroughly watered before pricking out is begun, which should be done at 3 inches apart, watering the soil well at the finish. The frame should be closed for a few days, slightly dewing the plants over twice daily and shading them when sunshine is strong until rooting has taken place, when more and more air must be afforded them. Make a final sowing of the red kinds, in which Major Clark's should be included. Sow in pans or boxes to secure young plants for soups and flavouring.

Broad Beans.—Another sowing should be made on well-tilled soil; if planted in double rows, 3 feet should be allowed between the rows, and 6 inches from plant to plant. Mazagan and Longpods sown in February will now be several inches high, and may be hoed freely; and if slugs are troublesome, soot and lime should be dusted over the rows.

Spinach.—Spinach may be more frequently sown than hitherto, and to avoid breaks in the supply it will be advisable to sow small breadths at a time. The round-seeded variety should be sown at intervals of ten days, and the Viroflay, which is of robuster habit, and is longer in running to seed, less frequently. Sow in beds by itself, or, if needs must, between the rows of Peas, and thin out moderately when nicely up. If the soil be very dry at the time of sowing, water the drills before covering the seed with mould.

Cabbages should be earthed up as they may seem to require it, and whenever the soil becomes baked on the top, it should be broken up with a Canterbury or other hoe. Ellam's Early is a Cabbage that is now fit to cut; and although not of a large size, it is one of the best of the early varieties, and should be cut before hearting, or it is liable to split, and then become almost useless.

General Hints.—Keep the hoe in constant use on all plots of land, to destroy weeds, and give every attention to the stirring of the surface between growing crops. Potatos and other vegetables in frames must be well ventilated in fine weather, and not allowed to suffer from dryness at the roots. Stir the soil between young Cauliflowers, Carrots, Brussel Sprouts, &c., and keep down weeds of all kinds. *H. Markham, Mereworth Castle, Maidstone.*

PLANT PORTRAITS.

Abutilon vexillarium, *Garden*, March 22.—A pretty greenhouse species, now found to be hardy, or nearly so, although a native of Rio. The proper name for this plant is A. megapotamicum, but the name given by the late Professor Morren will probably survive in gardens.

Apricot (the Peach), *Bulletin d'Arboriculture*, March.

Billbergia Perringiana×.—A hybrid between nutans and Liboniana; flowers in loose racemes, bracts and calyx rose-coloured, petals blue. *Gartenflora*, March 15.

Cymbidium Mastersii, *Lindenia*, *t.* 222.

Cypripedium Elliottianum, *Orchid Album*, *t.* 397.

Dendrobium Brymerianum, *Orchid Album*, *t.* 398.

Disa graminifolia, *Orchid Album*, *t.* 399.

Lælia pumila, *Orchidophile*, February.

Vriesea Morreniana × Barillettiana, *Illustration Horticole*, *t.* 91.—Leaves tufted, oblong, entire; flower-stalk erect, expanding above into a flat two-edged blade or spike, consisting of two rows of boat-shaped bracts, scarlet at the base, greenish-yellow at the tips. Highly ornamental.

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, APRIL 15.—Royal Horticultural Society at Chiswick: Fruit, Floral, and Scientific Committees, and Daffodil Conference opens (four days).

THURSDAY, APRIL 17.—Linnean Society.

SHOWS.

TUESDAY, APRIL 15.—Daffodil Conference at Chiswick (four days).

WEDNESDAY, APRIL 16.—Newcastle (two days).

THURSDAY, APRIL 17.—Royal Horticultural of Ireland at Dublin.

SALES.

WEDNESDAY, APRIL 16.—Roses, Shrubs, Climbers, Border Plants, &c., at Stevens' Rooms. Lilies, Palm Seeds, Plants, &c., at Protheroe & Morris' Rooms.

THURSDAY, APRIL 17.—Collection of Orchids in Flower and Bud, at Stevens' Rooms.

FRIDAY, APRIL 18.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—48°.2.

Fruit Culture.

THE British Fruit Growers' Association has adopted the plan of commissioning competent lecturers to visit particular districts, and give instruction in fruit culture. This is a procedure which our French and Belgian friends have long ago adopted with very great advantage, and it is one which we have over and over again pressed upon the notice of the Royal Horticultural Society, but hitherto without avail, and, as a consequence, another Institution steps forward to take up work which the parent Society was pre-eminently well qualified to undertake, and which, as will be seen from a document that has reached us since these remarks were written, she now proposes to do if asked.

A very large measure of ignorance, and a still larger amount of indifference, prevail in country districts as to the culture of fruit trees, the sorts to be grown, the necessity of care in selecting for market, and the exercise of judgment as to the time when the fruits should be offered for sale with the best chance of a remunerative return.

We have repeatedly called attention to the waste of energy in the case of local horticultural shows generally. A day's holiday, the transfer of a few shillings, or a pound or two, or it may be of a copper kettle from one possessor to another—these are pleasant and innocent things in their way. We would by no means disparage them; but we would once again ask the managers of these exhibitions, whether the benefit to horticulture is in any way commensurate with the zeal, the labour, and the cost expended upon these gatherings? There is no reason why something of more substantial advantage should not be associated with the friendly rivalries and eager competition of the exhibition tent. The conferences held by the Royal Horticultural Society of late years supply useful models for imitation. Another plan would be to invite some competent practitioner to explain, and, as far as possible, to demonstrate methods of cultivation, to show by actual example how grafting, pruning, or even planting should be done. Exhibitions might be made of the kinds of fruit or vegetable best adapted for general cultivation, or for special use in the particular district in which the show is held. The prizes might consist of selections of the best seeds, or fruit trees, or of orders to dealers which could be executed at the proper season. Something of this kind, we believe, has been adopted with success at Grantham for many years past, and it is easy to see how the plan might be extended and modified so that the local horticultural society might do something more than provide an excuse for an outing, and show that horticulture has higher aims than that of affording an opportunity for beating one's neighbour and triumphing over his discomfiture.

The Fruit Growers' Association has set a good example by commissioning Mr. WRIGHT to address the members of the Ellesmere Horticultural Society on the subject of fruit growing. His address, as we see from the extended report in the *Salopian and Montgomeryshire Post*, was judicious and practical, neither fostering vain hope and exaggerated anticipations, nor undervaluing the real benefits that may accrue from the judicious extension and improvement of fruit culture.

"Mr. WRIGHT commenced his lecture by referring to the differing views that were entertained on the subject of fruit growing—the optimists, he said, regarding it as only another name for fortune-making, while the pessimists described it as all fudge, from which nothing could be gained. He thought the truth on this and other matters was to be found somewhere between extremities of assertion. He dealt somewhat trenchantly with persons who proclaimed their incapacity as cultivators by preaching in newspapers the doctrine of fabulous profits for all who would plant certain trees, and reminded his hearers that it was very necessary to beware of quacks. He directed attention to the action of the Royal Horticultural Society, the Fruiterers' Company, and the British Fruit Growers' Association in procuring and disseminating information, with the object of increasing and improving the fruit supplies of the kingdom, as altogether more reliable than the preaching of popularity-hunting crusaders. He pointed out the unwisdom of trusting to any one kind of fruit alone, such as Apples or Pears, for producing profitable crops yearly, and adduced instances showing that losses had been incurred by such ventures, especially when a tree each of a great number of varieties had been planted. He strongly advocated a directly opposite course—of planting many trees of a few of the best varieties, not omitting a due proportion of the more certain-bearing small or bush fruits; and said that under the combination system he had never known a total failure; but, on the contrary, with a good choice of sorts, good soil, and good management, a fair return would accrue to cultivators, and much better than they could obtain from farm crops. He would not, however, advise inexperienced persons to invest all their money in fruit growing, and thought farmers should only regard it as an adjunct to other crops. He should like to see good collections of fruit well grown around the stately homes of England, both for supplying those homes with the rarest and choicest samples, as well as for educational purposes, in showing the tenantry the varieties that would be the most remunerative to them.

"Several examples of land being increased in value by fruit culture were given, and of the consequent higher rents obtained on the termination of tenancies An extension of the best Kentish methods was advocated, and a distribution of production over a much wider area, as trees were often barren in one district and laden with fruit in another, it might be 200 or 300 miles north of London, through the later blossoming of the trees. The fallacy of the reiterated allegation of fruit to the value of £8,000,000 being imported annually that might be grown in this country was exposed, and it was because the statement had scarcely an approach to truth that there was such a wide field open for British cultivators, who were advised to adopt American methods in selection, culture, packing, and marketing, then the time would not be long in coming when our enterprising rivals would be beaten in our markets. After indicating the periods after planting at which different kinds of fruits become profitable, Mr. WRIGHT gave practical hints on situations and shelter for trees, soil and its preparation, planting, pruning, and manuring some of the more important manipulative points, including the arrangement of trees, being illustrated by large coloured drawings."

THE ROYAL HORTICULTURAL SOCIETY.—Much as has been already accomplished by the zeal and energy of the council, some items in the programme recommended for adoption by the outside Committee, have perforce had to be postponed. So zealous has the council been, so energetic its officers, that to complain of delay would be ungrateful. Moreover, the Council has shown itself so desirous to carry out the wishes of the Fellows, and to consider fully all proposals made to it, that there are excellent grounds for the belief that they will continue in that course, which, to the astonishment of some, has rescued the Society from the slough into which it had fallen. Among other proposals, is one for a more adequate affiliation of local Societies with the parent body, and this we trust will be followed by the establishment of local secretaries and district counsellors or representatives in every county. The following suggestions have been handed to us for publication:—"Local societies subscribing £1 1s. will be entitled to (1), two copies of the Royal Horticultural Society's *Journal* for circulation amongst the local Society's members. (2) To nominate one of their members to rank as a £1 1s. Fellow of the R.H.S. with a £1 1s. Fellow's privileges, with the exception of the Society's *Journal*. (3) One transferable ticket, admitting to all the R.H.S. meetings and shows, and which may be used by any members of the local Society. (4) To purchase at cost price one Silver and one Bronze Medal of the R.H.S. (a new medal is being struck, and until that is done the price cannot be fixed). Local societies subscribing £2 2s. will be entitled to: (1) four copies of the R.H.S. *Journal* for circulation. (2) To nominate two of their members to rank as £1 1s. Fellows of the R.H.S., &c. (3) Transferable tickets admitting to all the R.H.S. meetings and shows, &c. (4) To purchase at cost price two Silver and two Bronze Medals of the R.H.S. Local societies are invited to send interesting exhibits and specimens of plants, diseases, &c., to the R.H.S. fortnightly meetings of the Floral, Fruit, Orchid, and Scientific Committees, and to correspond with the R.H.S. Secretary, or any interesting subjects or events in their locality. The secretary of the R.H.S. will at any time be happy to assist the Secretary of any affiliated

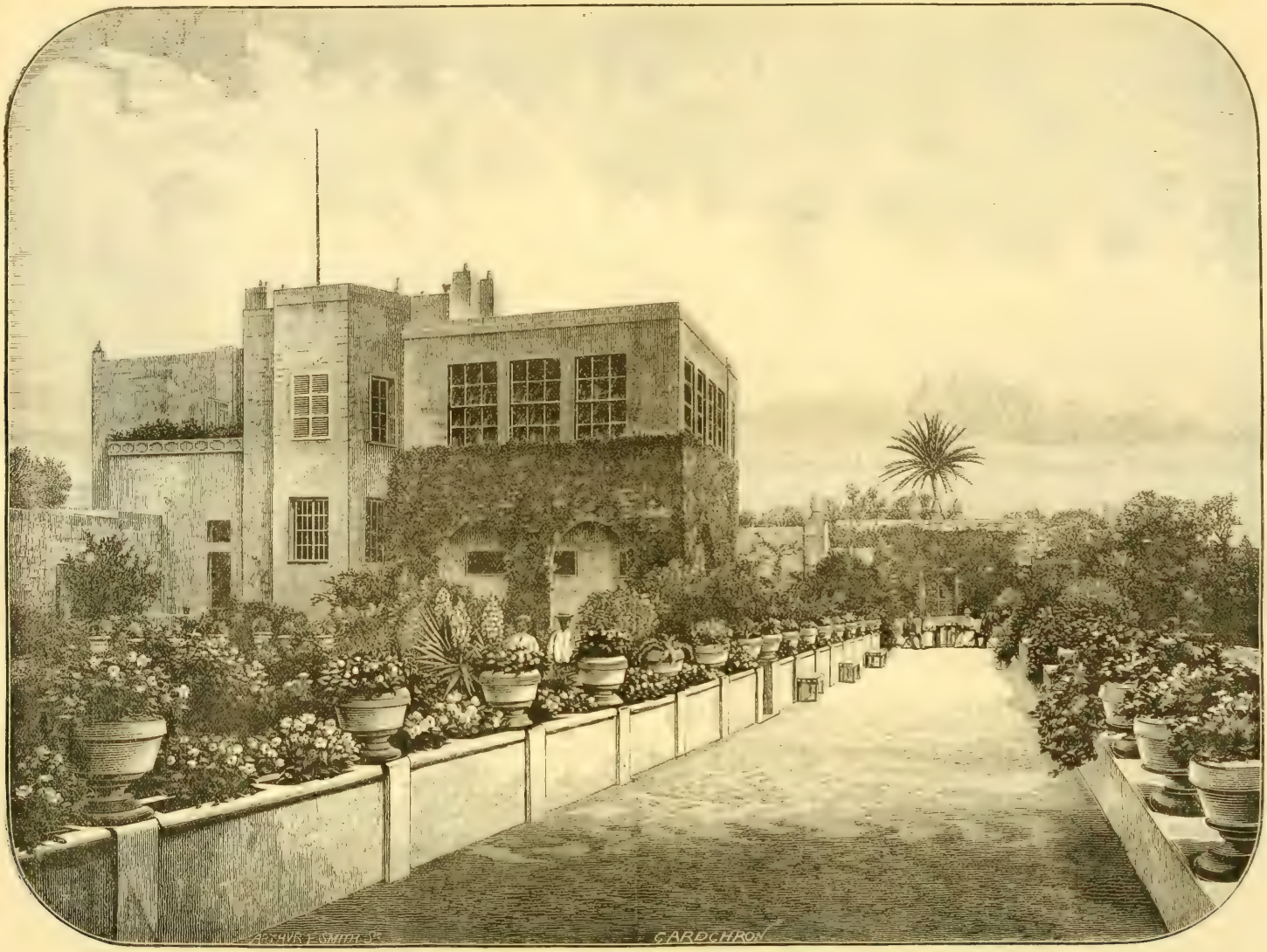


Fig. 69.—Mr. Harby's garden at St. Julian's, Malta. (see p. 447.)

Society in introducing them to horticulturists or specialists able and willing to deliver lectures on interesting subjects before meetings of their local Societies. W. Wilks, Sec., R.H.S. By order of Council."

Hall of Horticulture.—Boston has its magnificent hall at the disposal of the Massachusetts Horticultural Society, where its unrivalled horticultural library is housed; Paris is almost equally well endowed. London has to hire a drill shed and two rooms in Victoria Street! and yet no Society of the kind in the world has done so much for horticulture, and none is capable of rendering such efficient service as the Royal Horticultural Society. An attempt is now being made to secure a suitable permanent home for the Society, under conditions which involve the Society under scarcely larger pecuniary responsibilities than at present, and about £10,000 have already been promised. The plan, as already mentioned, presupposes the collection of some £30,000 or £40,000 to be lodged in the hands of trustees, and devoted to the erection of a suitable building. As the horticultural trade are so largely concerned in the matter, their co-operation is invited; and, as will be seen, a meeting is to be held at 117, Victoria Street, on April 22, at 1.30, to discuss the project. We subjoin the circular:—

"Royal Horticultural Society,
"117, Victoria Street, Westminster.

"You have doubtless heard of the proposal to build a great Central Hall of Horticulture in some prominent position in London, similar to the magnificent buildings which the Société d'Horticulture de France possesses in Paris. The effect of those central buildings on the whole horticultural trade of France has, I am told, been very marked, not only in the neighbourhood of Paris but throughout the whole country, and we anticipate that a no less marked benefit would accrue to the whole horticultural interest of Great Britain if we possessed a similar central institution. It would promote, encourage, and stimulate an increased love and knowledge of gardening from one end of our country to the other, and produce everywhere an increased demand for all horticultural subjects, thus greatly enhancing the transactions and emoluments of the trade.

"The promotion of such a scheme is, however, a matter demanding a far greater outlay of money in London than was required by our neighbours in Paris, the comparative value of land in the two capitals being almost beyond calculation. All the more necessary is it, therefore, that all horticulturists, both professional and amateur, should join cordially together in promoting the scheme.

"For these two reasons, (1) the impetus which it would give to gardening everywhere, and (2) the absolute necessity of friendly co-operation, the trustees of the new buildings—Sir Trevor Lawrence, Bart., M.P., Baron Henry Schröder, and E. A. Hambro, Esq., have desired me to call a meeting of the whole horticultural trade of the kingdom, to be held at the above address on Tuesday, April 22, at 1.30 p.m. punctually, to consider in what way the trade can best help on the movement.

"Hoping that you, or some representative of your firm, will be able to be present on this occasion,

"I am, &c.,
"W. Wilks, Secretary."

Royal Botanic Society.—A series of lectures, commencing on Friday, May 9, and continued on the five following Fridays, will be delivered at the Gardens of the Royal Botanical Society of London, Regent's Park. The first and fourth lectures will be delivered by Mr. E. M. Holmes on British Sea Weeds and British Mosses. The second and third by Mr. G. R. M. Murray on Insectivorous Plants and Flowering Parasites. The last two lectures, on Vegetable Oils and Fats and on India-rubber and Gutta-percha, will be delivered by Mr. J. R. Jackson. The lectures will be delivered in the Museum in the gardens at 4 o'clock in the afternoon, and they will be free to fellows and members of the Society as well as all visitors in the gardens at the time.

"Journal of the Royal Horticultural Society."—The first part of the twelfth volume has been issued, containing the reports of the Vegetable Conference and of the Chrysanthemum Conference—both remarkable gatherings. The first was of special utility, the second is of particular value from the point of view of history and progress. Events succeed each other so quickly, that the reports of shows held in September and November have lost much of their interest by March—at least, for those who took part in them.

The Daffodil Exhibition and Conference.—We may remind our readers that this interesting exhibition will be opened at the Royal Horticultural Society's Garden at Chiswick on Tuesday next, April 15, at 3 p.m., by H.R.H. the Duchess of Teck. On Wednesday, Professor Foster will open the Conference at 2 p.m. with an address. Mr. Scrase Dickens, Mr. Burbidge, Mr. Engleheart, and perhaps Mr. Dorrien Smith, will address the meeting. On Thursday, Mr. Baker will preside at the same hour; and Mr. Wolley Dod, Mr. J. T. B. Poë, Mr. Engleheart, and Mr. Walker, will narrate their experiences. Chiswick is easily reached by rail to Turnham Green, Acton Green, or Gunnersbury stations, all within a few minutes' walk of the garden.

The Wildsmith Memorial Fund.—We learn that the promoters of this memorial are very desirous of publishing a concluding list of subscriptions, and bringing the collection to a close. About £20 more are needed to complete the memorial, when the amount gathered will be at once handed over to the committee of the Gardeners' Orphan Fund. It would be a pity if the funds fall short of the occasion by so small a sum.

Consett Park.—Mr. Duncan Smith, landscape gardener and rockwork artist, has been engaged by the Consett Iron Company to lay out their new park at Consett and Black, Durham.

British Fruit Growers' Association.—The following arrangements have been made for the year 1890:—Conferences: June 27, Royal Aquarium, Westminster—Strawberries and Bush Fruits. August 5, Leicester—Fruit Culture for Profit. September 5, Crystal Palace, Sydenham—Plums and Stone Fruits. September 11, Brighton—General Fruit Culture, including Grapes and Tomatos. October 15, Royal Aquarium, Westminster—Apples. Hon. Secretary, Lewis Castle, Hotham House, Merton, Surrey.

Mexican Flora.—M. Maury has been requested by the Mexican Government to accompany the surveying expedition charged with the preparation of a map of the country in the capacity of botanist. M. Maury will collect specimens for the Paris and other herbaria.

"Epharmosis."—Under this title a distinguished French botanist, M. Vesque, has published a series of valuable papers on what in this country are called adaptive characters, that is to say, characters or points of structure, dependent upon the conditions of soil, temperature, light, &c., under which plants grow. This relation of structure to "environment" is for M. Vesque "Epharmosis." The species of Capparis were studied in their anatomical relations, and now we have before us a similar treatise on the Guttiferæ. The anatomical characteristics of the plants constituting the order are detailed, a distinction being drawn between those which are congenital, and those which are acquired, no fewer than 162 anatomical plates being given. The necessity of studying the minute anatomical characteristics of a genus is becoming as apparent as the investigation of the external morphology has long been. It is unfortunate, however, that its study must tend more and more to foster specialism. The time required in these researches is so long that the student will be compelled to confine himself to one or two groups only. This being the case, it is of the utmost importance that students should obtain a sound general knowledge of botany before they launch into specialism. This general knowledge it is which is neglected in the botanical teaching of the day. The study of the adaptive characters is likely to prove of the greatest value to cultivators, as indicating to them the conditions under which the plant has grown, and those, therefore, under which, with the necessary modifications, it may be expected to grow in gardens. We earnestly hope that some one will treat Orchid structure on the same lines as M. Vesque has done the Guttiferæ.

Variation the Consequence of Frost.—MM. Ettinghausen and Krazan have observed, that after a severe frost, which did much injury to certain Oaks and Beeches, leaves were put forth in the following spring—unlike the ordinary leaves, but recalling those of some of the American species, and even some species now only known in a fossil state. The authors are of opinion that the species now only known in a fossil state did not disappear suddenly by the extinction of individuals, but by successive change of characters, according to circumstances, so that they acquired ultimately an appearance quite different from that which they had at first. Similar changes in the leaves of the same tree have been observed as a result of the attacks of insects. Hence existing species are the result of transformations effected in the parent stock. In connection with this circumstance, we may recall a similar illustration in the case of the Japanese Maple at Mr. John Waterer's nursery, one side of which was injured by salt winds, and which has ever since produced leaves and flowers of a different character to those on the opposite side of the tree.

Bees in Germany.—We read in the *Alsace and Lorraine Bee Journal* that, according to an estimate presented to the German Reichstag, the culture of bees brings in yearly a total net profit of 17,000,000 marks to those engaged in the occupation. This is a much larger sum than anyone had imagined, and which may be still further augmented.

Publications Received.—*Das Gärtnerische Unterrichts-wesen* (*Horticultural Instruction Matters*), by H. Herr. Reprinted from the *Deutsche Gärtner Zeitung*, December, 1889.—*Journal of the Royal Agricultural Society*, vol. i., pt. 1, third series. (London: John Murray, Albemarle Street)—*Journal of the Royal Horticultural Society*, vol. xii., pt. 1. (London: Offices of the Society, 117, Victoria Street, S.W.).

Roses.

AMONG THE ROSES.

"I suppose you are come to see the ruins," was the salutation which greeted me from Mr. George Mount, as I entered his Rose nursery at St. Dunstans, Canterbury, on March 17. I at first hardly solved what he meant, but then the remembrance of the bitter frost that we experienced on the morning of the 4th ult., occurred to my mind. "Were you hard hit, then?" was my question. "Come and see" (not quite in the sense of some perennial advertisements). I did go and see, as mournful a sight as it has ever been my lot to witness.

Canterbury lies in a basin, through which the River Stour slowly wends its way, and consequently is liable to damp touches of frost; but although I have known it for many a long year, I have never known it to undergo such a bitter experience as on this occasion, when the thermometer went down, at a foot from the ground, 3° below zero, and it may well be imagined what havoc it wrought. Fortunately there had been a good fall of snow previous, or the results would have been more disastrous still; but just let me say how my friend Mr. Mount suffered from it. He has gone in very largely for growing Roses for cut blooms, as well as for plants. For these cut blooms

he has several large houses for early work, while for the later work of June and July, he has several wooden fences throughout his gardens, as well as a large number of dwarf standards, and it is amongst these that the sweep has taken place; he had grand plants of Maréchal Niel, Rêve d'Or, William Allen Richardson, and others, so useful for bouquets. These are all, if not killed, so utterly crippled, that it will be probably better to cut them all away; at any rate, as far as this year is concerned, they are worthless. And yet, looking at the wood, I should in many cases have said this is all right, it looks plump, and shows no sign of withering. I said so. "And so," said Mr. Mount, "I thought, until this morning, but knowing you were coming, I determined to go round previously, and I have condemned them. Look at this piece, it seems plump, we will cut it." He did, and the discoloured bark told its tale; it would not die off, perhaps, but the shoots would be so weak as to be utterly useless. Now all the havoc occurred in about two hours between 6 and 8 A.M. on the morning of the 4th. The night had been cold, and it was freezing sharply, but this cold "snap" did not come until the morning. All the Rose trees in the garden, hybrids and Teas alike, had been killed to the snow-line, but these will, of course, shoot up again; some standards that had been worked in the autumn, and were not so full of sap, escaped, and so did the dormant buds.

I have thought it worth while to record these facts, because amateurs will be, or ought to be, amongst the Roses at this time, and the all-important question of pruning will be occupying the thoughts and employing their hands; and after seeing these plants, I should say that if anything like this frost has occurred generally, the pruning must be hard this year. It will soon be time to get amongst the hybrids, and they should be cut hard, unless in some exceptional cases, where the strong growth of some kinds must be taken into consideration, or else if pruned hard they will go to wood; but even this admits of limitation. When writing of strong growers, most people cite as an example Etienne Levet, but with me it never grows very strong, as mine is not a Rose soil. I thought nothing of this, but I was surprised to have so experienced a grower as Mr. Ben. Cant say the other day, that it never grew strong with him, and yet he has good Rose soil, and knows how to treat Roses.

Those amateurs who grow for exhibition, will probably not only not disturb the mulching on their beds at this season, but will add to it, so as to give fresh vigour to the young shoots, and lead them to produce fat blooms. Those who do not, will now clear off from their beds all the long littery stuff of the autumn mulching, and gently fork in the short stuff, or else take all away, long and short. I have always allowed the thin straggling wood of the previous year to be cut out in the autumn, leaving only the three or four long shoots which have come up from the base of the plant. This will greatly facilitate the process of pruning now. Those who have small gardens must remember that this continual heaping on of manure has its drawbacks; the land becomes so full of it that the bushes cannot assimilate. Turtle and milk punch may do very well now and then, but they would not quite form an everyday diet to live upon; and I have known many an ardent amateur who supposed that he had nothing to do but to manure highly and go in and win, after a season or two fall lamentably into the background, the Roses refusing to grow. There are only two ways in which this can be remedied, the first, not always practicable, a complete change of garden; the other, within the reach of most people, taking out a portion of the soil every year and putting in instead an equal quantity of good loam, thus gradually renewing the beds.

Although in the system of pruning adopted by exhibitors, the form of the bush has but little importance, there are certain matters to be observed. Care should be taken to cut to a bud which points outwards, so that the centre of the bush should not be crowded. Although the French use the "sécateur" most for this operation, I believe that with us the knife is the favourite weapon; the former is apt sometimes to bruise the shoots, and with a stout arm and a pair of gloves, there can be nothing better than a good pruning knife. Experience can alone teach the grower as to how perpetual Roses may be pruned, but generally speaking, the more delicate-growing varieties require to be pruned the hardest, and should be cut down to about three eyes; the more robust will not need such hard pruning, and in the same way if a plant, of a Rose, which, in ordinary circumstances, is a fair grower, exhibits weakness, it will be best to cut it in very hard. When the beds are done, the cuttings should be raked off, and the beds made generally tidy.

It is impossible just now to forecast the season, but all one can say is, that where that terribly severe snap of frost was not experienced, Roses look well, and are not nearly so forward as some people imagined they must be.

I need hardly say that it is too early to prune Tea Roses, they should be left for another month. *W. J. Rose.*

PHALÆNOPSIS IN THE PHILIPPINE ISLANDS.

It is undoubtedly of great importance to our botanists to have as much information as possible when describing a new species; its surroundings, its nearest allied neighbours are almost as necessary as the simple description of the plant itself. As far as my own experience will allow me, I will endeavour to give here the exact distribution of the section Euphalænopsis which grows in the Philippine Islands. The long chain of extinguished volcanoes, running from south to north, connecting the Moluccas with the Island of Formosa and Japan, seem to have had their part in the distribution of Phalænopsis, as almost all the known species lie in this line, and away from which they do not appear so numerously. Moreover, we may connect each well defined species with its own extinguished volcano, and around which it grows more numerously than elsewhere. Singularly enough the few active volcanoes, although well-wooded to a great height, are almost destitute of Phalænopsis. Beginning at the southernmost point of the Archipelago lies the small island of Balut, at 6° N. lat., with its extinguished volcano Sarangani. Here the typical form of P. Sanderiana grows—leaves green, and flowers dark rose-coloured—and no other form is to be found on the island. Their area of distribution may be said to lie between the sea-level up to an elevation of 800 feet, which corresponds exactly with the limits of Bamboos in these latitudes—the beginning of the Fern region. Crossing the channel to the Island of Mindanao, the second in extent of the Philippines, along the coast from the south point, Sarangani to the west, as far as the volcano of Pollok, a white-flowered Phalænopsis grows, with silver-grey markings on the leaves, similar to those of P. Schilleriana, but not yet described as a distinct species, although often sent home amongst plants of P. Sanderiana. It is most likely that from here came the variety described as P. Schilleriana alba. Turning east to the Bahia de Davao, from Sarangani to the River Hijo, from the very sea-shore up to the slopes of the volcano Apò, came all the Phalænopsis sent home as P. Sanderiana. It is on this particular spot that so many varieties have been found having variation in the colour of their flowers and the markings of the leaves—the result, undoubtedly, of intercrossing between three different species, viz., P. amabilis, P. Sanderiana, and the white-flowered silver-grey-leaved species.

In no other part of the Islands are so many species formed in such near proximity as there. Although P. amabilis and P. Schilleriana are to be found growing in close proximity to each other in the island of Luzon, yet they do not seem to intercross with such facility as the above-mentioned species undoubtedly do. On the north coast of Mindanao, from the south-west point of Zamboanga up to the River Agusan, but not crossing that river, P. amabilis grows in great abundance, and amongst them in the Bahia de Iligan a singular variety of P. amabilis, with flowers more richly marked with yellow, and the plants are generally found growing in clumps together. The same island is also the home of P. Stuartiana, and we may give the valleys around the lagoon of Meinit as their favourite haunt. This lagoon lies at the north-east point of Mindanao at an elevation of a few hundred feet above sea-level, having its source in the very centre of a crater. P. Stuartiana is also to be found in great profusion in the very humid valley of the River Agusan, far into the interior of Mindanao until reaching the rivers flowing south, where some strayed P. Sanderiana may be found; hence natural mules between them have already appeared. So far Mindanao, which in extent is the second of the Archipelago, is the richest in species, but a great part of the island is not searched yet, and there can be no doubt that some new species may yet appear.

P. amabilis grows all over the Philippine Islands, indeed very few are entirely destitute of them, yet its cradle may be traced to the central part of Luzon, which is the greatest of the 100 Islands, and lies 300 miles north of Mindanao. The central part of Luzon, on the Pacific coast, and few adjacent islands, are the only places where P. Schilleriana is to be found growing, and where it occupies amongst its congeners the smallest area, and distant from the home of P. Sanderiana about 350 miles. The latter is considered to be a natural cross between P. amabilis and P. Schilleriana, which it may be botanically; but it seems to be too far off from at least one of its supposed parents for this to be likely. The several groups of volcanic islands connecting the Philippine Islands with Borneo, although included in the Archipelago, yet judged by their flora and fauna more belong to Borneo; but here is found the link connecting the Phalænopsis of Borneo with those of Java. In the Tawi-Tawi group a form of P. amabilis grows, and in the Island of Palawan, P. grandiflora is found. From these islands a straight line down to Java may be traced, around which the different forms of P. grandiflora are growing. *C. Ruchelen, Singapore.*

VEGETABLES.

STANDARD BEARER CELERY.

I was glad to see this recently-introduced variety of red Celery shown in fine condition at the late Vegetable Conference. The habit is sturdy, growth large, the stalks solid and of fine flavour. It will prove to be one of the best Celeries yet sent out. It is valuable because it will remain in good condition until late in the season; and at the present date (April 4), we have some of it that is very good. Standard Bearer was shown in good condition at the meeting of the Royal Horticultural Society, March 25, and the Fruit Committee considered it to be a valuable late-keeping variety. Those who may require Celery late in the season should certainly give it a trial. It is equally good for early use, as the Committee, at the Chiswick Conference, awarded it a certificate of merit. Much of its red or pink colour disappears by keeping it through the winter, and it is blanched very easily. It is dwarfer than most of the large red Celeries, an advantage of some moment, as less earthing-up is required; seed may be sown now, and again at the end of the month. I would also advise sowing the seeds very thinly for the last sowing, and in a cold frame, and planting out the seedlings in the trenches without first pricking them off. Thus treated there is no crowding in the seed-bed, growth is sturdy, and progress is rapid. I have had no experience with this variety on heavy soils, and am writing in its favour from having grown it on a light soil; but I have no reason to doubt its excellence in any other, as it has proved itself the best Celery for general purposes we have yet grown, and remarkable for hardiness. *G. Wythes, Syon House.*

Fruit Register.

STRAWBERRY EDWARD LEFORT.

A variety figured in the *Revue Horticole* for February 6, and having globose fruit, with a long thick stalk or neck; the colour is rich crimson, the pips deeply imbedded. The highest character is given to the variety as a cropper, for flavour, and as a market fruit bearing carriage well. It seems to have carried off special prizes wherever shown. It is a seedling from a variety called General Chanzy. Our contemporary does not say where this highly praised novelty is to be obtained.

Pear Leger.

A novelty with fruit of middling size, irregular form, and when ripe it is still green. Flesh yellowish-white, watery, without sweetness or aroma.

The tree is enormously fruitful.

Quetier Buerre.

A new variety, which possesses every property of a good Pear for extended cultivation, or small gardens.

The fruit is of medium size, light green with a light tinge of red on the sunny side whilst on the tree, and when ripe it is yellow.

The flesh is firm when ripe, of very pleasant flavour, and with fine aroma. Trees grow well on the wilding stock, and bear well. Ripe, October and November.

Pear Mansuette de Bougnies.

An old but still unknown variety, with numerous synonyms and certainly of Belgian origin. Handsome, regular form, flesh juicy, aromatic, somewhat acid and half melting. The rind almost wholly of a fine red colour. Ripe in September. The tree is a strong grower, and well suited for general cultivation. *Bulletin d'Arboriculture*.

STICKING PEAS.

If a race of Peas could be produced which required no stakes to keep them erect, what a boon it would be to gardening. Here we have one of our most popular as well as useful of garden vegetables, presenting more trouble in its culture than almost any other. It is not that labour in staking Peas is grudged, that is a comparatively small matter, although with many, one of some concern. The difficulty lies rather in the getting Pea sticks at a fair price; with many, indeed, it is getting them at all. The gardener whose lines are cast in woodland districts, has, so far as Pea sticks are concerned, comparatively no trouble about them as compared with his urban or suburban brother, whose sticks, if he can get any to buy, cost nearly as much as the crop of Peas is worth when gathered; because for Peas we must have sun rays, its power of endurance is limited, and rarely are sticks of much service the second year. Thus it happens that if we will have our peas staked where sticks are dear and scarce, we must pay for the luxury. No wonder that myriads of town dwellers who have fair sized gardens prefer to buy their Green Peas to growing them, and that is bad for both the seedsman and the consumer, because if he grows good sorts he could have even from his own garden Green Peas on his own table, of the highest quality, whereas buying in the market he must take what he can get. In some cases birds present considerable difficulties to the cultivation of Peas. But, on the whole, they are more troublesome in woodland districts than elsewhere; and, all the same, Peas are widely grown there. It is possible to ward off the attacks of birds, because their damage is chiefly confined to eating the tops just as they come through the ground, or until strong growth has followed. Threads of wool or worsted, strained along the rows, will do much to keep away the depredators; but wire Pea-guards, enduring for many years, are on the whole best and cheapest. The use of a gun, when the Peas are in pod, although charged with powder only, will have good results in keeping the birds away. But it is easier to ward off depredators than to provide the Peas with the needful support, and the problem to be solved is, what constitutes the cheapest and best substitutes for sticks. Perhaps the best on the whole would be found in stout squares or sections of flat wire trellis, made in heights of 4, 5, and 6 feet, and in 6 feet lengths. The mesh should be rather diamond-shaped than square, as the wires running obliquely would enable the Pea bud to secure a better grip of the trellis, than if the pattern be square. The mesh should be about 6 inches in height and 5 inches across, so as to afford full liberty to the hands in gathering; wire sections of this kind could be fixed more rapidly than ordinary Pea sticks can be, apart from the earlier labour in



Fig. 70.—Boddy's plant stand.

pointing them, as it would be needful to drive in stout stakes at 6 feet intervals, and tie the sections of wire to them with stout string. When not required, fifty or 100 such sections could be stowed away in a shed or loft, occupying little space, and giving little trouble. With ordinary care, such wire supports should endure for twenty years, at least, during which time they would save their first cost, as compared with the cost of sticks, twice over. A temporary and cheap method of supporting Peas would be found in large mesh nets of varying heights and lengths, tied to stakes as for the wire sections. Still it is doubtful whether if ever so well cared-for the netting would endure for more than two years, and would make a flabbly sort of support at the best. For dwarf Peas we might manufacture cheaply rough forms of trellis from thin wood for frames, and plasterers' laths for the intersecting mesh. If string be employed to sustain the Peas, being run at intervals of some 9 inches apart from stake to stake along the rows, it will be of no service probably after one season's exposure. We might use soft iron wire for the purpose, having small holes in the stakes, or staples driven into them at intervals to pass it through; both stakes and wire would endure probably some three or four years if carefully stored during the intervening winters. Stout dwarf Peas, having rigid erect stems, are not at all difficult to sustain erect when cropping, but those who provide support of any kind, seem to think it will only pay when applied to tall growers, and when Peas reach 6 feet in height, they are in wet and windy weather very difficult to keep upright, especially when laden with pods. No doubt, for that purpose, nothing, not even good hazel sticks, will or would be so advantageous as the stout wire sections, 6 feet square, advised for tall Peas. In some parts of the kingdom where it is the detestable fashion to trim up the Elm tree stems to a mere mop-head, excellent branches for making Pea sticks may be obtained, about every six years. That is, of course, but an intermittent supply, and does not replace the considerable clearance of Hazel-wood which seems to be going on. Even where Hazel is plentiful and Pea sticks may be purchased cheaply they constitute such cumbrous material that cost of transit, proportioned to the actual value of the sticks, is abnormally great. It is about time that raisers of new Peas put on oneside all varieties which exceed 4 feet in height, and give us ordinary kinds of exceptional stoutness. Also that wire makers favoured gardeners of Peas with cheap, satisfactory, and enduring supports. *A. D.*

Useful Inventions.

The accompanying illustration (fig. 70) represents a new introduction of Messrs. Toope & Co., Stepney High Street, London. The article is sufficiently explained by a reference to the figure, which shows a snail turning away with disappointment when he finds there is water to be crossed. The top part of the pot is made of perforated zinc, and fastened in a watertight metal dish. The pot, or plant, is placed in the top part, as shown, and the dish is filled with water, so that slugs, &c., would have to swim to get a footing, to enable them to reach the plant. The dish also acts as an evaporating-pan.

Cultural Memoranda.

FUNKIA GRANDIFLORA.

The bold, sub-cordate leaves and spikes of pure white fragrant flowers, thrown well above the rich green, Eucharis-like foliage, entitles this Japanese Liliaceous plant to be extensively grown in borders and pots. It is a good plant for standing in vases in rooms, entrance halls, and for decorative purposes generally. The plant will reward generous treatment, and plants potted up now in sandy loam and leaf-mould, or as soon as they have made a little growth, in 4½-inch and 6-inch pots, and stood on a bed of coal-ashes, in a low pit or frame, and kept close for a few days, make nice flowering plants by the autumn. The Funkia, of which there are several varieties, loses its leaves in winter, during which period the pots may be stood in a cool-house, or pit, or plunged to the rims in coal-ashes, out-of-doors, where water is not likely to lodge. *H. W. Ward.*

Lemon-scented Verbena.

Cuttings a couple of inches long, taken off the tops of young shoots of this shrub, and inserted round the side of small well-drained flower-pots, filled with sandy soil, watered, and placed anywhere in heat, will soon take root, when they may be potted off singly in the same size pots, and being afterwards attended to in the way of giving water at the roots, pinching the shoots, and syringing over-

head, nice bushy little plants may be obtained by the autumn for furnishing purposes, and for cutting from. *H. W. W.*

The Bulb Garden.

NARCISSUS SIR WATKIN.

In a recent issue Mr. Wolley Dod gave an interesting account of this handsome form, and in the course of which he says that only one bulb had been known to vary from among the original stock, and this was regarded as a sport. My own experience does not quite agree with this, for frequently I find many flowers with the perianth segments of quite a pale sulphur colour, while the majority have segments of the dull tint of yellow seen in many of the Trumpet Daffodils. I send three blooms of each shade of colour, showing that it is not merely a chance flower, and it will be observed that the colour penetrates right through the segments, and is quite distinct, whether viewed in front or at the back. Neither is this variation of colour a matter of age in the flowers, for I put three blooms of each kind in water on March 25, and these retained their colour as when cut. The difference appears to be that the light-coloured flowers have their segments nearly, or quite, identical with N. incomparabilis Stella, while the dark ones have segments identical with those of Golden Spur in colour; I have, however, never seen the slightest variation in the colour of the cup, which appears to mark the one Mr. Dod refers to. *J.* [The blooms were coloured in the manner our correspondent describes. Ed.]

— In speaking of this fine and stately incomparable Narcissus, Mr. Brockbank, at p. 396, tries once again to match it with the engraving on plate 41, fig. 1, of Hale's, or Hill's, *Eden* (1757, &c.) Personally I do not think that that figure was ever made from the variety we call Sir Watkin to-day. This, however, matters but little; still I am anxious that Mr. Brockbank should not, in error, suppose that Hale's, or Hill's, figure is in any sense a faithful and original one. The fact is, the figure alluded to in Hill's *Eden* is a reversed copy of a figure in *Hortus Floridus*, published by Crispian Passe, junr., at Utrecht, in 1814—17. At plate 4 it is therein named "Narcissus omnium maximus," or "Narcissus Nonpareille." I believe I am right in saying that *Eden, or a Compleat Bodyng' Gardeninge*, was one of the works of the late Sir John Hill, a noted literary pirate and charlatan of his day. That he pirated many of Passe's original engravings is past all doubt, and he was accused of plagiarising Miller's *Gardeners' Dictionary*, and of many other little bits of smart practice. He quarrelled with David Garrick, and the Royal Society of his day, which had refused to elect him, and seems to have been generally unreliable. *F. W. Burbidge.*

Home Correspondence.

THE GARDENERS' ORPHAN FUND.—The comparatively assured success of the Wildsmith Memorial Fund, a matter for warm congratulation, removes from the list of expectant recipients of the ordinary fund one orphan at least, and leaves the field open more fully to those who shall be nominated for election next July. Of these there is one child whose election is being promoted by that eminent and esteemed gardener, Mr. Rust, of Eridge Castle Gardens, which seems to have for various reasons a strong claim upon the sympathy of subscribers. Of course the claims of the child in question, an absolute orphan, having neither parent alive, will be fully set forth with those of other candidates at the next election, by the committee; but there is one special reason for sympathy in this case—one which, because somewhat sentimental, cannot be properly adverted to on the nomination paper. It is that the orphan in question is the child of an Irish gardener, and Mr. Rust makes natural as well as earnest appeal that the case should receive support on the special ground that it is the first application for the benefit of the Fund from Ireland, and that the subscribers would show impartiality as to nationality as well as kindly sympathy in supporting the claim by their votes. Of course every candidate has a circle of friends anxious to secure the election of their favoured orphan. Still cases differ appreciably, and this particular one is sad enough. Apart from that, I would earnestly join with Mr. Rust in urging subscribers to show that they are above all prejudice, and are willing to manifest by their votes their breadth of sympathy, which is not limited to England, but extends to all parts of the United Kingdom. I have been looking over the published list of subscribers and givers of donations for the preceding year, and find a total of 1750. Out of these it is worthy of note that but 44 are from Scotland, 40 from Ireland, and 32 from Wales—in all 116; an infinitesimal number compared with the total, and an unsatisfactory proportion. The question is, does not this comparative paucity of subscribers from the sister kingdoms arise from lack of confidence in the management of the Orphan Fund, so far as securing the benefits for orphans is concerned. That is the point to which I would draw attention, because it is obvious, if such is the case, English subscribers will do much to help remove that impression if they secure the election of Mr. Rust's Irish *protégée*. It would be indeed a misfortune were Scotch, Irish, and Welsh gardeners or horticulturists led to believe that their efforts to secure the election on to the



Fig. 71. [illegible]

Orphan Fund of some suitable candidate would be in all cases swamped by the enormous proportion of English votes. Gardeners in Ireland, Scotland, and Wales, though excellent men, are not so numerous relatively, nor have they such good wages generally as English gardeners; hence, whilst the comparative fewness of subscribers from these countries is to be deplored, it is to some extent explained. Still, it does seem as if, were greater confidence in the impartiality of the English subscriber inspired, a much larger number of subscribers from the sister kingdoms would result. Neither Ireland or Scotland have a vice-president representative, but Wales has Sir J. T. D. Llewellyn. Still, there is not a single representative from either of the allied kingdoms on the executive committee; but it can easily be understood that such representative, if elected, could rarely attend. Scotland and Ireland each have four local secretaries, who are honorary members of the committee; and Wales has two. Still, it does seem as if direct members of the executive, such as Mr. Dunn, for Scotland; Mr. Bradshaw or Mr. Dumper, for Ireland; and Mr. Muir or Mr. Pettigrew, for Wales, were appointed, good would result, and a strong sense of confidence created. It is worthy of note that so far every child on the Fund now is from some English district. *A. Dean.*

SHRUBBY CALCEOLARIAS.—These plants should be removed from the cutting-frames before becoming drawn, and planted out in a well-sheltered aspect. It is a good plan to plant them in shallow trenches, with a layer of short dung at the bottom, this being covered with 6 inches of moderately light loamy soil. By this mode of treatment the plants at planting-out time are furnished with a compact mass of roots and soil. Plant firmly at about 6 inches apart, and pinch out the tops, if this has not been done. Whilst in the cutting-frame, some slight protection against frosts will be necessary; a slight amount of shade will be necessary during bright sunshine. See that the plants do not suffer from dryness at the root, and sprinkle them lightly at the close of warm days. The culture of these plants has declined of late years, on account of their dying off suddenly in summer time, and the shortness of their bloom in hot seasons. Golden Gem, a variety which I grow, is dwarf, robust, and very productive of flowers. Early planting, much manure, and a deeply-worked soil, that should not be allowed to get very dry, suits the Calceolaria; and in hungry soils, occasional applications of manure-water are beneficial, after the plants have become established. *H. Markham.*

ALEXANDERS.—The olden-time pot-herb, called "Alexanders" (Smyrnium olusatrum), is abundantly naturalised near Dublin—indeed, all over Ireland—on or near the sites of old abbeys and other religious foundations. What is the golden fungus which gives to it such a bright yellow variegated effect, as now growing on the Sutton or sunny side of Howth Head, a peninsula extending on one side of Dublin Bay? It may be very common—I should say it is—but it is unknown to *F. W. Burbidge.* [See our answers to Correspondents in our last issue for the name of the fungus. Ed.]

THE SHUTTLECOCK FERN.—The Struthiopteris are among the finest and most noble of the hardy Ferns, as they attain a large size and are of striking appearance, the fronds generally attaining a length of 3 or 4 feet, and are so arranged, that the plants have the appearance of shuttlecocks. The outside fronds are of a beautiful pale shade of green, and are barren, the fertile ones appearing later in the season in the middle of the plant, and being of a dark brown colour, they are conspicuous. Towards the autumn, these fertile fronds become of a still richer shade. Although this species of Struthiopteris will grow almost anywhere, the most suitable place for it is one which has moisture and a porous soil, on which the creeping stolons extend themselves very fast, and soon form quite a colony of plants. Not only do such situations favour growth and development, but the plants are kept much healthier, they not being so much subject to thrips or red spider. The Struthiopteris are early to start into growth, and the spot should be a sheltered one, or the early fronds will get cut by cold winds. S. pennsylvanica is the larger of the two, and with S. germanica should be in every garden and freely planted, as well as grown in pots for grouping or embellishing greenhouses during the first months of the season. *J. S.*

EFFECT OF FOG ON PLANTS.—I was much interested by the notes on the subject of fog by your able correspondent, Mr. Hudson, in last week's *Gardeners' Chronicle*, as it fully corroborates my own experience. I was once under the impression that the effects of fog were often exaggerated, and that failures were due in some instances to other causes; but having had two winters and springs in this locality, and having to do a lot of early forcing, I have good reason to change my views. In fact, I believe we suffer more in this respect than Mr. Hudson, as we are much lower than he, and only a few feet above the river level, consequently fogs remain longer with us. I have had the same trouble with Strawberries, and thought that perhaps I should be more successful with another variety; so this season I gave up the useful Keen's Seedling for Laxton's Noble and King of the Earlies for the earliest lot; but I would not advise any one to follow my plan. We gave the plants a nice mild bottom-heat of sweet Oak leaves, but I should have done better if I had used the house for other purposes, for every pot failed to fruit. Some certainly showed bloom, but after a few days of fog both the blooms and young leaves were affected. I shall now take Mr. Hudson's advice, and not attempt very early forcing, and keep to the well-known and proved varieties, namely Keen's Seedling and Vicomtesse Hericart de Thury for fruiting at this date, using the latter for the first lot. We have a splendid set of Keen's at this date, and when about to start the early lot, in November, a few picked plants were placed with the others, but the plants failed to show bloom. I got the Laxton's potted up very early from runners taken off young plants that had all the

first blooms picked off to get strong runners for the purpose, and the plants were showing the bloom-spikes at the time of my housing them. I felt sure of success, but the result was the same: the foliage was strong but little bloom showed, although placed close to the glass, and the temperature was all that could be desired. The loss of a few Strawberries, although annoying, is not so serious as that of Grapes. The early forcing of these in this district has become a serious matter, especially as in our case Grapes are wanted all the year round. When in more favoured districts, where more light and sun are enjoyed, and less fog, this is not at all difficult; but around London if the gardener has only a limited number of houses, I feel sure he should not be expected to produce very early Grapes. With abundant means at our disposal we can only secure half a crop, and the Vines themselves do not last long; therefore I agree with Mr. Hudson that pot Vines are our sheet anchor; but these will produce little fruit if not of special goodness and strong. We use both pot and permanent Vines; the pots come in a short time before the permanent ones, and are useful, but we do not get such good bunches from them. The late Mr. Woodbridge adopted the method of planting canes and fruiting them the next season, restricting the roots to a small space and feeding highly, and after a couple of seasons' hard forcing planting new ones; some small pits were employed for this purpose, and the results were very satisfactory, as he used pot Vines, but was not dependent on one house only, for should fogs be prevalent at the time of setting the result is most disastrous, and there is the chance of a clear atmosphere for one of the houses. The effects of fog on the bunches is as described; they gradually turn yellow and curl up, and in a short time the ends drop off. The small amount of light and sunshine diffused around London is much against successful forcing, and when combined with fog, the operations are expensive. We have, after a few days fog, to wash the outside of the glasshouse, and have the glass rubbed with a brush before the filth left by fog can be removed. The effects of fog on early Cucumber and Melon are equally disastrous, and one of its effects is to make the foliage thin and injuriously affected by the least amount of bright sunshine, so that it is necessary to have a succession of plants ready to make good the losses occasioned. Orchids suffer dreadfully—we had a house full of Calanthes in full bloom, and after two days of fog, the blooms dried up, and large numbers fell off. Cypripediums shrivel and lose their colour if they have been out only a few days. Bouvardias lose both their leaves and flowers. I was much surprised at this, the first winter after I came here, as I thought there must be mismanagement somewhere. I thought they had had too much tobacco smoke, but I was assured it was all due to the fog. I was giving them ordinary treatment, but this year I adopted the higher temperature for plants in bloom, and the plants do not suffer so much. Most of the plants I have named have suffered in a similar way, and we have endeavoured to ward off the evil effects, by adopting a temperature a few degrees higher, and getting the winter blooming plants propagated early, so as to give them greater strength. Camellias do not, I find, drop the buds so badly if got into early growth; and many other plants which are weak do not survive through the winter months if propagated late. Tree Carnations are most difficult to keep in anything like a healthy condition if not strong at the approach of winter. My able predecessor gave up the cultivation of Violets in frames after several attempts to grow them. This is very disheartening, as gardeners in the country have very little trouble with these ordinary garden plants. The plants at the present date outside look very miserable, and scarcely a leaf or bloom to be seen, and yet up to November last they formed fine masses, and were grown on a warm raised border. The bad effect fog has on all newly-painted wood or iron is very marked. The paint requires renewing yearly in this district, and more oil must be used, as the continued washing and excessive moisture combined soon affect the wood if not well covered. I have no doubt that some suffer worse than others from the fog, and avoid growing any plants that are subject to its evil influences as much as possible, but this is not practicable in all cases. I have, in as few words as possible, given my experience, and the means I have taken to cope against fogs as far as I possibly could do so. *George Wythes, Syon House, Brentford.*

LAWNS.—The month of April is almost too late in the spring to undertake the making of a lawn, still in northern districts it may still be done, and a good even surface of verdure follow this late work. Never make a large extent of turf quite flat, as this would ruin it for walking on after rain; but give the ground what is called a "hanging level," or slope, however slight, to cause water the sooner to drain off. If the soil is not very rich, it will still make a good lawn; and if it be rather heavy in its nature, it should not be made lighter by the addition of sand, ashes, &c., as a lawn on stiff soil always keeps of a good colour in the dryest of weather, whereas light soil is drained of moisture with rapidity, with the sure result of brown turf in warm weather. The one thing to be observed with heavy soils is to drain them well by pipe or rubble drains, and have plenty of catch-pits in the adjoining walks to carry off the water falling on the latter.

—— Where lawns are almost taken possession of by a carpet of moss, I have found after experimenting with several remedies that nothing is so certain in its effects as a dressing of wood ashes. The effect is not immediate, but is seen in the course of the following summer; the moss disappears, and a thick sward of fine grass with a profusion of White Dutch Clover succeeds. In some places difficulty is found in obtaining wood ashes. In that case collect all the prunings of hedges, shrubs, bushes, and other waste materials of a similar nature that are found about most places, and burn them in a heap. Lacking wood ashes a thin sprinkling of lime may be applied, and afterwards one of soot. Some gardeners apply soot and lime mixed together, but this should not be done, as lime robs soot of its usefulness. Where verges or edges of grass from annual cutting have widened the walks to an unsightly degree, strip off the turf a foot wide, which should be cut to make good the turf to its original width. Prick up the soil lightly and make hard and relay the turf, but do not lay narrow strips of turf near to the walks. In extensive lawns there is seldom any attempt made to dig out the Daisies, except in the most prominent places; but in small places these are objectionable weeds, and are sometimes spudded out and got rid of in other ways. Some people do not think of doing this until the plants are in bloom, when by digging them out holes and bare spots are left which remain unsightly all through the summer. To avoid this, the proper time is March and April. After digging out the roots fill the holes with soil, and make firm afterwards, sowing Lawn-seed mixture. *A. Evans, Lythe Hill.*

HOME-GROWN SPIRÆA JAPONICA.—As I have been trying to grow these plants for some time, so as to secure a stock for forcing, I will relate my failures and ultimate success, for the benefit of your readers. Some imported clumps, after being forced, were planted out in due course on a warm border, where they grew fairly well, and the second year afterwards I took them up to force again; but they did not flower at all satisfactorily, and my employer thought the best place for them was in a neighbouring wood, but I thought I would try again, and this time the result was no better; so I had to think of some other plan. This time I planted them, last spring, on a north border, and as they were planted a good quantity of clayey soil was placed around their roots. The plants grew as well as one could wish, and on being taken up for forcing I was obliged to divide them with the spade before I could get them into 32's. I have now about fifty plants, measuring 2 feet across, which carry from twenty to thirty spikes of bloom—far exceeding the number I ever saw on imported plants. I have forced only half my stock this year, as I intend to have two lots of plants, forcing them each alternate year. It is to the rest the plants had that I attribute my success, and to the brick earth, into which they rooted very freely, and did not suffer from drought. *Alfred Bishop.*

LILIES OF THE VALLEY.—Londoners need not go to the eastern counties to find large Lilies of the Valley, although there can be no doubt whatever but that Mr. Jannoch, of Dersingham, has succeeded in showing that as fine Lily crowns can be produced in England as in Holland. My example is found at Twickenham, where, as has so often been mentioned, Messrs. Hawkins & Bennett grow their fine Victoria Lily of the Valley in beds, and which produce crowns equal to the best to be purchased anywhere. Lilies of the Valley need a few years to get them into that high condition of development essential for market value; but then, on the other hand, what other plant is so valuable over a rod of ground as is the Lily. Literally where well grown thousands of fine crowns may be taken from a rod of soil, the value being great, because a market can always be found for the roots—where, as in this country, so largely employed for forcing. It is true that at Twickenham the firm which produces such splendid Lilies of the Valley prepares the beds by excavating the soil and making new ones absolutely, but they are driven to that contingency for want of room. If they set out to grow roots for market sale, as Mr. Jannoch does, no doubt they would go further afield and secure fresh soil, but that is not possible, therefore the fresh soil is brought to them. The beds are about 6 feet in width, that they may be protected by frames and lights in the blooming season; but although the plants are densely crowded, yet annual top-dressings of manure put on in the winter with plenty of water given in dry weather, keep the beds in the finest of growth for some eight or ten years, when they are broken up and re-made. We ought to be able to utilise for our Lilies of the Valley occasional sewage floodings, for the roots are gross feeders and well repay feeding. *A. D.*

LACHENALIA PENDULA.—An effective way in which to grow this plant is in a basket, the natural droop of the leaves and flowers fitting it admirably for this purpose. At the present time we have a pair of baskets in the conservatory whose diameter is 2 feet 6 inches and their depth 2 feet, and 300 fully-expanded spikes of greenish-yellow are visible, and many buds at the tips of the bloom-spikes; the baskets are quite hidden under the mass of foliage and bloom. Lachenalias require a very small amount of skill to grow, and are so free from noxious insects that it is a wonder that they are not more commonly grown as basket and pot plants. If the baskets in which they are grown are large, it is not necessary to remove the tubers for the purpose of adding new soil every year, each alternate year being often enough to transplant them, providing manure-water is supplied when growth is most active, which is when the flower-spikes are appearing. Circular baskets give the best effects, and if these are 12 or 15 inches deep they will be large enough; ours are made of No. 9 galvanised iron wire. The side-wires are fixed to the circle at the top, at 2 inches apart, and the basket is suspended by four looped wires, and fixed to a hook in the roof timber. After flowering, the baskets are removed to a cool house, and less and less water is given to them until the foliage dies off. The baskets are then hung up in the potting-shed, where they remain without any water being given to them until near the end of the month of September, when roots begin to form, and new growth to take place. The bulbs may then be removed and sorted into two sizes, the smaller ones being reserved for other baskets, or potted six or eight in a 5-inch pot, to increase in strength. When filling a basket, suspend it close to the potting-bench; cover the bottom of the basket with long green moss and a layer of compost, consisting of turfy loam three parts, leaf-soil and horse-dung one part, and some silver-sand. It is not necessary to place any of the bulbs actually at the bottom, but the first row may be placed at 3 inches away from the centre; the leaves and spikes of flower from the first row will fill the lower space. The bulbs should be placed in layers 2 or 3 inches apart, allowing the point of the growing shoot to protrude through the moss horizontally, and continue to plant in layers until the basket is full, when a few strong bulbs should be planted upright, so as to cover the top. The soil should be moist, so that no water will be required for several days, when a thorough soaking may be given, and afterwards as often as water is needed. The baskets may be hung in any cool light house until the bulbs begin to flower. Forcing is detrimental to the appearance of the plant, and should not be practised. *E. M.*

BOOKS AND SPECIMENS AT THE NARCISSUS CONFERENCE.—It would be most interesting if an exhibition of the books, especially the older ones, relating to the history of the Narcissus as a flower, could be made in connection with the Narcissus Conference, to be held at Chiswick, April 15, 16, 17, and 18. The works of some of the "old masters" such as Gerard, Parkinson, Sweert, Crispian Passe, jun., "Hortus Floridus." The rare *Jardin du Roy*, and the still more rare *Campi Elysée*, vol. ii., of the Rudbecks, Barrellier's *Icones*. The *Theatrum Floræ* is another rare folio containing splendidly etched figures of Narcissi, including the newly re-introduced N. cyclamineus, and the enormous elephant folio *Hortus Eystettensis*, would also of itself form a most interesting feature. Perhaps the Director of the Royal Gardens, Kew, could oblige us in this

matter, or add to the botanical interest of the exhibition by exhibiting dried specimens or drawings (of the wild species of Narcissi), as he so generously did for us at the Chrysanthemum Conference last November? At any rate, the subject of rare books and authentic wild specimens and illustrations seems worthy of consideration in connection with the reading of papers, and the exhibition of cultivated species and forms. *F. W. Burbidge, F.R.H.S.*

BERRIED AUCUBAS AT CHISWICK GARDENS.—Some years ago the late Mr. John Standish contributed to the columns of the *Gardeners' Chronicle* a suggestive paper on "Evergreens for Towns," and in it he strongly recommended the use of Aucuba japonica for town planting, and he particularly recommended that in the London squares there should be planted the dark green-leaved varieties of both sexes, regarding them as much more handsome than the variegated forms, and predicting the time when, if the types he named were planted, they would be seen "loaded with their rich coral-like berries." In the several beds and clumps of Aucubas at Chiswick, Mr. Barron has planted male Aucubas in the centre, surrounding these with a line of the variegated female Aucuba, a dwarf green-leaved type known as vera being used as an edging plant, and which are as well berried as the others. The leaves of A. fœmina vera being small, the large and numerous clusters of bright red berries show prominently. Plants of this type are worthy of being grown in pots for conservatory decoration, and although the male forms bloom much earlier than the females—apparently before the flowers of the latter are sufficiently developed to become impregnated with pollen—yet somehow fertilisation is accomplished. As the Japanese Aucuba is an excellent London plant, there is no reason why the successor to John Standish should not see his own words exemplified: "Only fancy the London squares lighted up with such plants loaded with their coral-red fruit from Christmas until June." *R. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

April 8.—At the Royal Horticultural Society's meeting, held on Tuesday last in the Drill Hall, at Westminster, there were comparatively few exhibits, and nothing specially remarkable.

Mr. W. Ingram, of Belvoir Castle Gardens, Grantham, read an address on "Spring Flower Gardening," in which he alluded to the plants he employs in the now well-known spring flower garden at Belvoir Castle. The lecturer was attentively listened to by a large company, whilst in a chatty style he described the colour, height, habit, and length of flowering of his favourite plants; and showed how much floral and leaf beauty may be added to our gardens by a large increase of the flowers of spring.

An account of the spring flower garden at Belvoir is given in our issue for May 22, 1886, p. 649, and many other notices occur in previous issues.

The lecture was efficiently illustrated by living plants kindly supplied by Messrs. Paul & Son, Cheshunt.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. S. Hibberd, T. Baines, H. Herbst, C. T. Druery, T. W. Girdlestone, B. Blair, H. B. May, R. B. Lowe, C. Jeffries, B. Wynne, G. Paul, F. Ross, and Rev. H. H. D'Ombrain.

A nice and pleasing group of pot Roses was sent by Mr. W. Rumsey, Joynings Nursery, Waltham Cross. The plants were well grown and flowered, and comprised such varieties as Madame Marie Rhodocanchi, Climbing Niphetos, Lady Mary Fitzwilliam, Miss Hassard, Duke of Edinburgh, and General Jacqueminot. Also a box of some handsome cut blooms, including Mabel Morrison, Souvenir de la Malmaison, Innocente Pirola, Sénateur Vaisse, Duke of Teck, &c.

Messrs. Paul & Son, Old Nurseries, Cheshunt, contributed largely to the display, having a number of alpine plants in pots, a small collection of flowering shrubs, a group of Amaryllis, and three standard hardy Azaleas, which were laden with well-developed bloom. Other plants were Ribes carnea, Berberis Darwinii, Tree Pæonies, Tulipa Greigi vars., alpine Auriculas, a fine lot of Doronicum plantagineum excelsum, Tecophylla cyanocrocus, with a beautiful blue flower; Fritillarias, Caltha minor, Saxifrages, a pot of Pyxidanthera barbulata, which forms a dense tuft, and bears white flowers having five petals. There were some thirty plants of Amaryllis from this firm, and they made a brilliant show, having well-coloured flowers, of moderate size, and fairly dwarf. Titian, white ground, with heavy crimson edge, was one of the most striking.

Old-fashioned greenhouse plants were sent from the collections in the Royal Gardens, Kew, and included some useful old favourites, which, when well grown and flowered, make a good effect, and are useful for all cool conservatories. Among others were Banera rubioides, Agapetes buxifolia, Goodia latifolia, Mackaya bella, Grevillea Thelemaniana, Eupatorium atro-rubens, very showy; Polygala Dalmaisiana, Chorizema varium, full of its brightly-hued flowers, and many others of a similar character.

A number of alpine Primulas were contributed by O. T. Hodges, Esq., Lachine, Chislehurst; they were healthy, well-grown examples, and bore nicely-coloured flowers. The following species were in the collection:—P. admontensis, P. verticillata, P. marginata, P. rosea, P. viscosa, P. pubescens alba, P. glaucescens, P. tyrolensis, &c. Half-a-dozen pots of Lachenalia Nelsoni were also sent by this exhibitor.

Two handsome Amaryllis came from Messrs. J. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, S.W. Dante, white with red flush and band, was very fine; and in Grand Monarch, was a large flower of deep red down to the very base of the perianth segment, which makes this a desirable variety. Primrose, Oakwood Blue, was sent by G. F. Wilson, Esq., Oakwood, Weybridge. It is a seedling from Sir T. Wilson, and has flowers of dark plum-colour with a conspicuous yellow eye. Mr. Hudson, gr. to Messrs. de Rothschild, Gunnersbury House, Acton, sent flowering branches of Magnolia conspicua, a very handsome shrub, Habrothamnus scaber (Newelli), and Maranta Warscewiczii. Mr. Wilkins, gr. to J. M. Pearson, Esq., The Grange, Kingston Hill, Surrey, sent a few varieties of Primrose, and Mr. R. Dean, Ealing, also contributed a few varieties, one of which, Terra Cotta, a Polyanthus form, had flowers in which red and brown were curiously combined. The Rev. W. Wilks, Shirley Vicarage, Croydon, sent an example of Cytisus Adami from the Laburnum. Representative collections of Daffodils were staged by Mr. Walker, Whitton, and by Messrs. Barr & Son, Covent Garden, and added considerably to the display.

Orchid Committee.

Present: Dr. M. T. Masters in the chair, and Messrs. De B. Crawshay, H. M. Pollett, H. Ballantine, C. J. Pilcher, J. Dominy, E. Hill, L. Castle, S. Courtauld, J. Douglas, A. H. Smee, J. O'Brien, T. B. Haywood, and Baron Schroder.

From M. P. Blair, Frankton Gardens, Stoke-on-Trent came a small collection of nicely-grown and well-flowered Orchids. There were the hybrid Dendrobium chrysodiscus with seven flowers, Dendrobium nobile nobilius, and D. n. Cooksoni, both with very finely flowered examples. Cattleya Trianæ, Trentham variety, with fine flowers of delicate hue, the lip being very brightly coloured, also Odontoglossum flavescens and O. triumphans, with large flowers.

Mr. W. H. Young, gr. to F. Wigan, Esq., Clare Lawn, East Sheen, also sent a pretty group, in which a fine plant of Cattleya Schroderi was conspicuous, others being Angræcum Leonis, Lycaste Harrisoniæ, Cypripedium hirsutissimum, and C. suavissimum, all very creditable examples.

E. Ellis, Esq., Manor House, Wallington (gr., Mr. T. A. Glover), had a very good piece of Aerides suavissimum, bearing four spikes of bloom, the flowers being of a delicate rose colour with the lip of yellow.

From the collection of F. G. Tautz, Esq., Shepherd's Bush, W. (gr., Mr. J. C. Cowley), there were sent Miltonia vexillaria, a form having large flowers of rose with a white border; Cattleya Lawrenceana rosea, with richly coloured flowers, and a well developed piece of Cypripedium selligerum majus.

Mr. G. Palmer, gr. to T. H. Powell, Esq., Drinkstone Park, Bury St. Edmunds, sent a bloom of a good coloured form of Odontoglossum Pescatorei.

The Rev. — Handley, Bath (gr., Mr. Veerstade), sent a fine form of Odontoglossum crispum, with large flowers; Angræcum sesquipedale with six blooms, and a plant of Odontoglossum maculatum with five large flowers. A pigmy Cypripedium niveum, having flowers only 1½ inches across, was sent by Messrs. J. Laing & Sons, Forest Hill. A very interesting object was sent by Messrs. J. Veitch & Son, Chelsea, the plant being Dendrobium atro-violaceum. The specimen exhibited had one erect raceme of five flowers, which are carried in a drooping manner, the stems about 12 to 15 inches in height with no leaves; the flowers are 2 inches in diameter, yellowish, the petals oblong ovate, sepals narrower, and both spotted with violet, the lateral lobes of the lip are ascending greenish-yellow outside, streaked heavily with violet within, the median lobe also being streaked and dotted. A Botanical certificate was awarded to this plant by the Scientific Committee.

Fruit Committee.

Present: Sir C. Strickland, Bart., in the chair; and Messrs. P. Crowley, R. D. Blackmore, T. F. Rivers, W. Warren, J. Smith, J. Wright, A. Watkins, G. Wythes, H. Balderson, H. Weir, J. Hudson, and J. Cheal.

A few fine fruits of Laxton's Noble and Auguste Nicaise Strawberry came from Mr. James Smith, Mentmore Gardens, Leighton Buzzard. Mr. Miller, gr. to Lord Fowley, Esher, sent a fine lot of Mushrooms; and from the Society's Gardens, Chiswick, came a collection of Broccoli, Purple Sprouting, Leamington, and Sutton's Dwarf being very good.

Awards were made as follows:—

By the Floral Committee.

Award of Merit.

To Pyxidanthera barbulata, from Messrs. Paul & Son.

To Primrose Oakwood Blue, from G. F. Wilson, Esq.

To Polyanthus Terra-cotta, from Mr. R. Dean.

To Amaryllis Grand Monarch, from Messrs. J. Veitch & Son.

Medals.

Silver Banksian, to Mr. W. Rumsey, for group of Roses in pots; to Mr. J. Walker for collection of Daffodils; and to Messrs. Paul and Sons, for a group of plants in flower.

Bronze Banksian, to O. T. Hodges, Esq., for a group of Primulas.

By the Orchid Committee.

Medals.

Bronze Banksian, to F. Wilson, Esq.; and to Mr. B. Blair.

By the Fruit Committee.

Award of Merit.

Strawberry Auguste Nicaise, from Mr J. Smith.

ROYAL CALEDONIAN.

April 2 and 3.—This Society held its spring show in the Waverley Market, Edinburgh, on Wednesday and Thursday last week. The weather was auspicious on both days, and the event was a success financially. Few flower shows have been held by this Society. The competitive groups of plants for effect in the nurserymen's class were placed on the floor instead of being elevated on tables two feet or more in height as had been done formerly. The groups themselves were better seen; they presented less obstruction to the general view of the show. In the class for a group of plants of 400 square feet, Messrs. Laird & Sons and Messrs. Ireland & Thomson were the only competitors, and they were placed by the judges in the order named. Palms, Ferns, and other foliage plants, Azaleas, Hyacinths, Cytisus, Rhododendrons, Spiræas, and the usual flowers of the season, natural or forced, were included.

An attractive feature was the table of Primula Sieboldi varieties, set up with taste by Messrs. Ryder & Son, of Sale, near Manchester. The plants were arranged in pans of about 12 inches diameter, plunged in a bed of fresh green moss, sloping towards the spectator, the flowers springing erect to the height of from 6 to 9 inches in well defined circular masses, displayed charmingly their bright and varied colours. It was a charming display.

Mr. John Downie of Beechhill Nurseries, Edinburgh, exhibited a fine lot of large-flowered Cinerarias. Messrs. Methven & Sons, Princes Street, Dicksons & Co., Waterloo Place, James Dickson & Son, Hanover Street, Edinburgh, each contributed attractive tables of flowering and foliage, greenhouse and stove plants, intermixed with forced and hardy flowers, which by their gay colours and excellent arrangement, added much to the beauty of the show.

Forced flowering plants were in great abundance. In the class for twelve plants, the competition was keen, Mr. McIntyre, The Glen, Innerleithen, Mr. McKinnon, Melville Castle, and Mr. Laing, Salisbury Green, shared the honours in the order named. In the collection of the last-named competitor was a very perfect plant of the Scotch variety of Laburnum, very well flowered, which should induce others to make free use of it for exhibition and home decorative purposes.

Indian Azaleas were represented in about their usual numbers and styles. In the larger class of four specimen plants, Mr. Paterson, Milbank, took first honours; Mr. Bald, Canaan House, and Mr. Grossart, Oswald House, were 2nd and 3rd in their order. In the smaller class of two specimens, Mr. McLennan, Restalrig House, came to the front, with Mr. Copeland, Orwell Lodge, a good 2nd. The class of four plants in pots not exceeding 8 inches, placed Mr. Paterson again victor, followed by Mr. Copeland, and Mr. Donaldson, Murrayfield, in their order.

Stove and greenhouse plants were in about the usual form at these shows, and the familiar names of Paterson, Bald, Grossart, Fraser, Canaan Park, and McKinnon, were the principal prize takers.

Cape Heaths.—In the case of four distinct varieties, Mr. Paterson was an easy 1st; 2nd, Mr. Bald. Mr. McKinnon had no competitor in the class for two distinct, but his plants would have been hard to beat had there been more candidates for places.

Azalea mollis, these in all classes were generally so well exhibited in regard to quality, that comment is needless. Mr. Paterson and Mr. Henderson, Clermiston, and Mr. McIntyre distinguished themselves in the order named in the larger class of six plants distinct; while in the class of three standards, McKinnon was placed 1st, and McIntyre 2nd, having the competition to themselves.

Orchids were neither numerous nor very remarkable. The best six came from Mr. Grossart, and comprised Cypripedium Warneri, Lycaste Skinneri alba, fresh and well bloomed; Dendrochilum glumaceum, Cattleya Lawrenceana, and Cymbidium Lowii, all in good form. The best three were set up by Mr. McIntyre.

Ferns were numerous, and as usual, well done; there were eight classes. The principal prize takers were Mr. J. Napier, Rockville, whose four distinct exotics took first prize; A. Crichton, Southfield, first in the class of two distinct; Mr. Paterson 1st for three Gleichenias, distinct; Mr. Anderson, an amateur, Edinburgh, 1st for three filmy Ferns, which were very fine; the same competitor also taking 1st for six dwarf British Ferns, which were altogether admirable; and Mr. Laing took 1st in the class of Tree Ferns.

Roses were an excellent show, marking an advance on the numbers and quality of some recent years. The best six in pots were tabled by Mr. Paterson; and the best three in pots came from Mr. Johnstone, Sillerbit Hall, Hawick.

The best twenty-four cut blooms were set up by Mr. Henderson; the best twelve by Mr. Wynter, Rockville, Linlithgow; the best twelve Gloire de Dijon by Mr. Chalmers, Davidson's Mains; and the best twelve Maréchal Niel by Mr. T. Fender, Creiff.

Hyacinths.—In these there was a perceptible falling off in quantity, but generally there was better growth, though hardly the usual excellence of finish. The 1st prize twelve in the gardeners' classes were set up by Mr. McBean, Johnstone, Renfrewshire, who also took the same position in the class of eight; and in the class of six, Mr. George Lawrie took the 1st place. In the amateurs' class of six, Messrs. Adam Brydon, Tweed Bank, Innerleithen; John Barnie, Jock's Lodge; and R. McKean, Norton Place, took honours in their order.

Tulips.—These were generally excellent and plentiful, and gardeners and amateurs entered the lists against each other. The leading prize takers in the several classes were Grossart and Barnie.

Fruit was scarce. Mr. McIntyre tabled the only Pine, and Mr. Dow the only six pots of Strawberries. The finest thirty Strawberries were from Mr. McIndoe, Hutton Hall, Guisburgh, being Laxton's Noble, which for colour and perfection of form were the admiration of all. Mr. Smith, Oxenford Castle, and Mr. McIntyre were 2nd and 3rd respectively. For two bunches of black Grapes, Mr. McIndoe took 1st place; Messrs. Smith and McIntyre being 2nd and 3rd. The 1st prize for twenty-four kitchen Apples went to Mr. Potter, Seacliffe, N. Berwick, who also took 1st position with twenty-four dessert Apples. The best twelve dessert Pears were put up by Mr. Robertson Hartrigge, Jedburgh, who also tabled the best twelve kitchen Pears.

Vegetables.—The collections of twelve distinct kinds were numerous, and of high excellence. They each comprised samples of forced Asparagus, Kidney Beans, Seakale, Potatos, Rhubarb, and the three which took the allotted prizes, have never been surpassed in quality at this season here. The prize winners in their order were Mr. Robertson, Mr. Cairns, Bonjedward, Jedburgh, and Mr. G. Potter. The best collection of salads came from Mr. T. Milne, Sunnybank Cottage. The best brace of Cucumbers from Mr. McIndoe; the best pint of Mushrooms from Mr. Thorburn, Valleyfield, Penicuick. The best fifty pods of Kidney Beans from Mr. J. Cossar, Spot House, Dunbar; the best twenty-five Asparagus from Mr. Crichton; the best six heads Seakale from Mr. Robertson; the heaviest six stalks Rhubarb from Mr. Thomson, Ferry Road, Leith; the best twelve forced Potatos from Mr. S. Bigham, Jedburgh; the best three Broccoli from Mr. Dow, New Byth; the best twelve Onions from Mr. Johnstone; the best six Leeks from Mr. R. P. Brotherston, Tyninghame; the best six Beet from Mr. Gourlay, Musselburgh, &c.

Nurserymen's Classes were, as usual, good, and honours in them keenly contested. At the outset we have noted the leading class in this section—the group for effect. Messrs. Laird & Sons had no competition in the class of twelve hardy Rhododendrons in pots or tubs, which were grand, tree-like specimens, splendidly flowered. Messrs. Ireland & Thomson were an easy 1st, with twelve hardy Rhododendrons in pots not exceeding 12 inches diameter. The 1st prize for two Camellias in bloom went to Messrs. Laird & Sons. Messrs. Ireland & Thomson were an excellent 1st, with four Azalea indica; they also excelled with their twelve dwarf Azalea mollis, but were beaten by Messrs. Laird & Sons with six standards of that species. Messrs. James Dickson & Sons took 1st prize for twelve Conifers in tubs or pots. Laird & Sons were again placed 1st with six Palms, also with three Crotons, and three Dracænas. Two Tree Ferns brought Messrs. Dicksons & Co. to the front, and twelve table plants again gave the leading position to Messrs. Laird & Sons, who were also 1st with four new and rare plants.

For twenty-four Hyacinths, the 1st prize was earned by Messrs. Kerr & Sons, Roxburgh.

For six Tulips, Messrs. Laird & Sons were 1st, as also for six pots of Narcissus.

In the two classes of twelve cut Roses distinct, and twelve Maréchal Niel, Mr. Bryson, Helensburgh, had the running to himself.

Primulas of sorts, including P. obconica, the hardy Primroses and Polyanthus, &c., were with the exception of Auriculas—which were very indifferent samples—more numerous and better presented than they generally are at these shows. The collections of alpine plants also were pretty numerous, although species questionably alpine are too freely admitted in the category by the judges and committee. The educational effect of competitions of this kind is, may be permitted to remark in passing, very unsatisfactory when an Arabis asarifolia is permitted to stand for two days labelled Saxifraga without being corrected.

The collection of hardy spring flowers of Messrs. Munro & Ferguson, set up in competition, was rich in good old and new and rare things of this kind, and had the 1st prize awarded to it. At one end of the table was a small collection of interesting spring flowers from Mr. Boyd, of Fauldonside, Melrose, among which was a spike of flowers of an alleged hybrid between Scilla bifolia and Chionodoxa Lucilliæ. The inflorescence and ovary were those apparently of the Squill, while there was little besides a paling down of the blue to almost a white tint at the base of the perianth to show any resemblance to the other alleged parent.

An interesting collection of Daffodils was exhibited by Messrs. Peter Barr & Son, London.

SCOTTISH HORTICULTURAL ASSOCIATION.

The ordinary monthly meeting was held in the lecture hall of the Young Men's Christian Association, St. Andrew Street, Edinburgh, on the 1st inst., Mr. Morrison, Vice-President, in the chair. The Rev. Mr. Marjoribanks, of Preston Kirk, gave an interesting popular lecture on "A Trip Across America to California and Alaska, Returning by the Canadian Pacific Railway.

Exhibits on the occasion were sent in by Mr. James Mathieson, gr. to Mr. Buchanan, Currie Hill, of beautiful examples of Schizanthus pinnatus, and S. Grahami. Some sixteen varieties of hybrid Rhododendrons, exhibiting the blood of R. Thomsonii, R. Campbellii, and R. arboreum, were sent in by Mr. Morris, Hay Lodge, Trinity. They were mostly deep reds, with large campanulate blooms, which were very effective. The same exhibitor had also a truss on the table of a large trumpet-flowered Rhododendron, said to be the result of first crossing R. formosum with R. ciliatum, and re-crossing the progeny with R. Edgeworthii.

LIVERPOOL SPRING FLOWER SHOW.

April 8 and 9.—Just after the Easter holidays, the Liverpool Horticultural Association decided to hold their spring show. It took place in St. George's Hall, a place eminently fitted for showing plants and flowers to the best advantage. Three longitudinal tables did duty in the area, and the wings at the side were relegated for the larger specimens sent for competition by gentlemen gardeners. As a whole, it was a floral show, not without some large plants to tone down any squat formality.

The principal showy plants came from the greenhouses of the gentlemen about and around Liverpool, Mr. B. Cromwell, gr. to Mr. Timms of Allerton, had splendidly grown plants of such as Dendrobium nobile, Clerodendron Balfourianum, Kentia Fosteriana—particularly fine, and Croton Disraeli. In addition to these, he had capital Azaleas, of which Madame Ambrose Verschaffelt was in best condition. He had also a capital plant of Franciscea ampertiflora, of Rhododendron Veitchianum, of Erica Devoniana, bristling with crimson tubular blossoms. Mr. Jellicoe, gr. to Mr. Essage, had very fine plants of Cycas revoluta, the pure white fragrant hybrid Himalayan Rhododendron, a capital Dion edule, Rhododendron Gibsoni covered with bloom, and several otner good plants. Mr. Winkworth had a fine example of a really effective hardy Rhododendron called Phantom. Mr. McKelnir, had grand plants of Davallia Mooreana; excellent example of Azalea mollis were staged from Mr. Morris, gr. to Mr. Jones. Mr. H. Wales, Eden Hall, had a striking specimen of Calamus ciliaris and of Kentia Belmoreana. Mr. Bounds had the best Azaleas, and Mr. James Kelly showed a well-grown and flowered plant of standard Azalea, after the style of Apollon. Lachenalia pendula, grown in a basket, and suspended, clearly showed that this was a good system, as the habit of the plant, and the quantities of pendulous flowers of yellowish-green, took the eye much better than when presented on a level. Mr. L. F. Bahr had excellent hybrid perpetual Roses.

Among Orchids, which were comparatively numerous, and briskly competed for, Mr. Osborne, gr. to Mr. Robinson, Woolom, had the best, his Odontoglossum crispum and Cypripedium caudatum were particularly noteworthy. Among others were Odontoglossum Edwardii, Cattleya Trianæ, Dendrobium Wardianum, Chysis bractescens, and several well-known Dendrobes. For the best single specimen, Mr. Smith, gr. to Mr. Y. Varrondo, took 1st with a well-grown Phalænopsis amabilis, but a poor variety. Mr. Jellicoe was 2nd, with a well-grown plant, properly flowered, of D. Jamesianum; and Mr. Thomas Wilson was 3rd with Vanda suavis, with three spikes of bloom.

Hyacinths were past their best, and the general bulb classes were only indifferently represented.

Roses were good, the cut Maréchal and William Allen Richardson very fine indeed, from Mr. John Campbell, Mersey Road.

The other exhibitors were the Liverpool Horticultural Company, with a variety of excellent articles for general decoration. Messrs. Davies & Son, Wavertree, with a lot of bulbous plants, among which were several well-flowered Amaryllis, and other useful plants. Ryder & Son, Sale, had an excellent group of Primula Sieboldi, really an excellent decorative plant in a great many shades of colour, which won the plaudits of the visitors.

Cattleya Trianæ.—M. Lucien Linden sends us a flower with the segments in pairs instead of in threes. There is no ovary, two sepals placed laterally, two lip-like petals placed at right angles, and an erect column, without an anther. A similar malformation is very common in Orchids, and is the result of arrest of growth and suppression. Some who are fond of speculation, suppose that such flowers indicate a descent from some more simple stage.

MARKETS.

COVENT GARDEN, April 10.

The holidays are still making our business very dull, especially with forced goods. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6-	7 0	Lemons, per case	12 0-	20 0
— Nova Scotia, brl.	12 0-	25 0	Pine-apples, Eng., lb.	1 0-	1 6
Grapes, per lb.	2 0-	5 0	— St. Michael, each	2 0-	6 0
— New, per lb.	5 0-	8 0	Strawberries, lb.	4 0-	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per bdle.	12 0-	...	Mustard and Cress, punnet	0 4-	...
Beans, French, lb.	2 0-	...	Onions, per bunch	0 5-	...
Beet, red, per dozen	1 0-	2 0	Parsley, per bunch	0 6-	...
Carrots, per bunch	0 6-	...	Rhubarb, per bundle	0 6-	...
Cauliflowers, each	0 3-	...	Seakale, punnet	2 0-	...
Celery, per bundle	1 6-	2 0	Shallots, per lb.	0 6-	...
Cucumbers, each	1 0-	1 6	Spinach, per bushel	6 0-	...
Endive, per dozen	2 0-	...	Sprue, per bundle	1 6-	...
Herbs, per bunch	0 4-	...	Brussel Sprouts, per lb.	0 3-	...
Leeks, per bunch	0 3-	...	Tomatos, per lb.	1 0-	...
Lettuces, per dozen	1 6-	...	Turnips, per bunch, new	0 4-	...
Mushrooms, punnet	1 6-	...			

POTATOS.—Old Potatos have been selling freely at the late low prices. Tendency for New ones; much lower price. Heavy arrivels are due this week. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0-	18 0	Ericas, various, doz.	8 0-	24 0
Aralia Lalies, per doz.	9 0-	18 0	Ferns, in var., doz.	4 0-	18 0
Aspidistria, doz.	18 0-	42 0	Ficus elastica, each	1 6-	7 0
— speci. plants, each	7 6-	10 6	Foliage plants, various, each	2 0-	10 0
Azaleas, various, each	2 0-	3 0	Genista, per doz.	8 0-	12 0
Cineraria, per doz.	6 0-	10 0	Heliotrope, per doz.	6 0-	9 0
Cyclamen, dozen	9 0-	24 0	Hyacinths, p. doz.	6 0-	9 0
Cyperus, per dozen	4 0-	12 0	Hydrangeas, doz.	12 0-	18 0
Daffodils, doz. pots	8 0-	12 0	Lily of the Valley, p. doz. pots	18 0-	24 0
Dielytra, per doz.	9 0-	12 0	Marguerites, doz.	6 0-	12 0
Dracæna terminalis, per dozen	30 0-	60 0	Palms in var., each	2 6-	21 0
— viridis, per doz.	12 0-	24 0	Pelargoniums, scarlet, per dozen	6 0-	8 0
Erica Cavendishii, per dozen	18 0-	48 0	— per doz.	18 0-	24 0
— ventricosa, doz.	15 0-	24 0	Roses, various, doz.	18 0-	36 0
Euonymus, in var., per dozen	6 0-	18 0	— (Fairy), per doz.	8 0-	10 0
Evergreens, in var., per dozen	6 0-	24 0	Solanums, per dozen	6 0-	12 0
			Tulips, doz. pots	6 0-	9 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0-	4 0	Maiden Hair Fern, 12 bun.	4 0-	9 0
Azaleas, doz. sprays	0 6-	1 0	Mignonette, 12 bun.	2 0-	4 0
Bouvardias, per bun.	0 8-	1 0	— French, per bun.	1 6-	2 0
Calliasthiopea, 12 bl.	3 0-	5 0	Marguerites, 12 bun.	3 0-	6 0
Camellias, white, per dozen	2 0-	4 0	Narcissus, various, doz. bun.	1 6-	6 0
— various, per doz.	1 0-	2 0	Pelargoniums, scarlet, 12 spr.	0 6-	0 9
Carnations, 12 blms.	1 0-	2 0	— dozen sprays	0 9-	1 0
Crocuses, 12 bun.	1 0-	2 0	Primroses, 12 bun.	0 6-	1 0
Cyclamens, 12 blms.	0 4-	0 6	Primulas, double, 12 sprays	1 0-	1 6
Daffodils, 12 bunches	3 0-	9 0	Roses, Tea, per doz.	1 0-	3 0
Eucharis, per dozen	4 0-	8 0	— coloured, dozen	2 0-	4 0
Gardenias, 12 blooms	3 0-	6 0	— French, dozen	1 0-	2 0
Heliotropes, 12 spr.	0 6-	1 0	— red, per dozen	3 0-	5 0
Hyacinths (French), per bunch	1 0-	2 0	— Safrano, dozen	1 6-	2 6
— (Dutch), in boxes, white, per box	2 0-	4 0	Spirea, doz. sprays	0 6-	1 0
— (Dutch), in boxes, various, per box	1 6-	3 0	Stephanotis, 12 spr.	9 0-	12 0
Lilac, white, Fr., bun.	4 0-	6 0	Tuberoses, 12 blms.	1 6-	2 0
Lilium, var., 12 bl.	2 0-	6 0	Tulips, doz. blooms	0 6-	1 0
Lily of the Valley, doz. sprays	0 6-	1 0	Violets, 12 bun.	1 0-	2 0
			— French, bunch	1 0-	2 0
			— Parma, bunch	3 0-	4 0

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *April* 9.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report a steady demand for all kinds of seeds required for immediate sowing. All descriptions of Cloverseeds are now obtainable at remarkably low rates. Imported and perennial Rye grasses meet a brisk sale at previous low currencies. Of English Sanfoin the supply seems all exhausted; fine French seed, however, can be bought on very moderate terms. Lucerne, like nearly everything else, is cheap this season. Tares realise last week's rates. Fine Blue Peas are getting into a narrow compass. Mustard and Rapeseed keep firm.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure, for the week ending April 5:—Wheat, 29*s.* 8*d.*; Barley, 30*s.*; Oats, 18*s.* 1*d.* For the corresponding week in 1889:—Wheat, 30*s.* 1*d.*; Barley, 25*s.* 4*d.*; Oats, 17*s.*

FRUITS AND VEGETABLES.

SPITALFIELDS: *April* 9.—Good supplies of all kinds of green stuffs. Moderate supply of fruit. Plentiful supply of Potatos. Demand good for fruit and vegetables, but very dull for Potatos. Prices:—English Apples, 4*s.* to 7*s.* per bushel; American Apples, 16*s.* to 22*s.* 6*d.* per barrel; forced Rhubarb, 1*s.* to 1*s.* 6*d.* per dozen bundles; natural ditto, 1*s.* 3*d.* to 2*s.* 6*d.*, do.; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Curly Kale, 4*d.* to 6*d.* per bushel; Spinach, 2*s.* to 3*s.*, do.; Turnip-tops, 1*s.* to 1*s.* 6*d.* per sack; Swedetops, 1*s.* to 1*s.* 6*d.* do.; Sprouting Broccoli, 6*d.* to 9*d.* per sieve; do., 1*s.* to 1*s.* 6*d.* per sack; Parsnips, 4*d.* to 8*d.* per score; Beetroots, 4*d.* to 6*d.* per dozen; Cauliflowers, 1*s.* to 2*s.* 6*d.* do.; Greens, 2*s.* to 3*s.* 6*d.* per dozen bunches; Turnips, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Cabbage Lettuce, 1*s.* to 1*s.* 6*d.* do.; Endive, 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; Parsley, 2*s.* to 3*s.* per dozen bunches; Horseradish, 1*s.* to 1*s.* 4*d.* per bundle; English Onions, 9*s.* to 10*s.* per cwt.; Spanish do., 9*s.* 6*d.* to 12*s.* 6*d.* per case; Bordeaux do., 7*s.* to 7*s.* 6*d.* do.; Dutch and Belgian do., 5*s.* to 6*s.* 6*d.* per bag of 110 lb.; Carrots, 12*s.* 6*d.* to 30*s.* per ton.

STRATFORD: *April* 8.—Supply has been good during the past week, and a fair trade was done at the following prices:—Savoys, 3*s.* to 5*s.* 6*d.* per tally; Cauliflowers, 6*s.* to 11*s.* 6*d.* per crate; Turnips, 25*s.* to 35*s.* per ton; Carrots (household), 25*s.* to 40*s.* do.; do. (cattle feeding), 18*s.* to 22*s.* do.; Mangolds, 13*s.* to 18*s.* do.; Swedes, 15*s.* to 19*s.* do.; Onions, English, 9*s.* to 10*s.* 6*d.* per cwt.; do., Dutch, 6*s.* to 7*s.* per bag; Apples, English, 16*s.* to 28*s.* per barrel; Watercress, 6*d.* per dozen; Cress (hot and cold), 9*d.* per dozen baskets; Celery, 4*s.* to 8*s.* per dozen rolls; Rhubarb, 1*s.* 6*d.* to 2*s.* per dozen bunches.

POTATOS.

BOROUGH AND SPITALFIELDS: *April* 8. — Quotations:—Regents, 40*s.* to 85*s.*; Hebrons, 30*s.* to 80*s.*; Magnums, blackland, 30*s.* to 40*s.*; Bedfords, 40*s.* to 45*s.*; Lincolns, 40*s.* to 55*s.*; Yorks, 45*s.* to 80*s.*; Scotch, 47*s.* 6*d.* to 100*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *April* 9.—Quotations:—Magnums, 30*s.* to 47*s.* 6*d.*; Regents, 50*s.* to 65*s.*; Champions, 40*s.* to 45*s.*; Imperators, 35*s.* to 60*s.*; Hebrons, 30*s.* to 40*s.* per ton.

STRATFORD: *April* 8.—Quotations:—Scotch Regents, 55*s.* to 72*s.*; do. Magnums, 55*s.* to 75*s.*; do. light English Magnums, 45*s.* to 60*s.*; do. dark, 37*s.* to 45*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 75*s.* to 92*s.*; inferior do., 40*s.* to 75*s.*; hay, best, 60*s.* to 87*s.*; inferior do., 26*s.* to 50*s.*; and straw, 20*s.* to 38*s.* per load.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending April 5, is furnished from the Meteorological Office:—

"The *weather* has been very fine and bright in all parts of the kingdom, with fairly warm days, cold nights, and very dry air. At the close of the week, however, it had become less settled, and slight rain was experienced at our western and northern stations.

"The *temperature* has varied a good deal in different parts of the country; but, as a rule, it has been rather high during the daytime, and very low at night. The averages for the week were somewhat above the normal value over Scotland and in the north of Ireland; but in most other districts a slight deficit is shown. The highest of the maxima, which were recorded either on March 30 or April 5 over England, and on irregular dates over Ireland and Scotland, ranged from 65° in 'Scotland, E.,' and 'England, S.W.,' and from 64° in the 'Midland Counties,' to 57° in the 'Channel Islands.' The absolute minima were very low for the time of year, and occurred during the latter half of the period, when they varied from 24° in the 'Midland Counties,' to 28° over the north of England and south of Ireland. In the 'Channel Islands' the lowest reading was only 41°. The ground frosts were very severe, the thermometer on the grass falling to 18° at Oxford on the night of the 1st-2nd, and to 17° in London on that of the 4th-5th.

"The *rainfall* was altogether absent until the close of the week, when slight amounts were registered in the western and northern districts.

"*Bright sunshine* has been more prevalent than for many months past, the percentage of the possible duration having ranged from 48 in 'Scotland, N.,' to between 60 and 70 in most other districts, while in 'England, S.W.,' and the 'Channel Islands,' 76 and 77 per cent. were recorded respectively."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 5.	Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since Jan. 1, 1890.	Below 42° difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 +	39	18	+ 67	— 75	4 —	70	15.4	48	21
2	3 +	52	20	+ 63	— 81	4 —	55	8.2	60	27
3	0 av.	39	20	+ 42	— 105	5 —	48	5.3	55	24
4	2 −	27	37	— 3	— 33	4 —	52	5.7	61	31
5	2 —	36	47	— 12	— 21	4 —	46	5.3	63	27
6	2 —	44	20	— 21	— 50	4 —	46	5.8	71	29
7	1 +	42	18	+ 41	— 72	3 —	61	13.8	59	24
8	0 av.	44	17	+ 38	— 75	4 —	57	8.6	64	26
9	2 —	43	18	+ 18	+ 23	5 —	54	9.1	76	33
10	1 +	47	15	+ 20	— 43	5	63	8.8	60	27
11	1 −	49	18	+ 17	+ 2	6 —	60	12.8	68	32
12	0 av.	39	0	+ 80	— 20	5 —	55	8.2	77	38

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

ENQUIRIES.

"*He that questioneth much shall learn much.*"—BACON.

CARDAMINE PRATENSIS (common Cuckoo-flower).—Will any reader of the *Gardeners' Chronicle* kindly supply Mr. J. Morton, surgeon, New Brompton, Kent, with a plant or two, the common single variety, as growing in woods and fields. Reciprocation is offered, and parcel-postage will be paid. Those who can supply the plant in request should kindly write first, to avoid duplicates.

NOTICES TO CORRESPONDENTS.

"**" **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

AMPELOPSIS, ROSES, &c.: *W. W. & Son.* There is no disease, but the leaves appear as if injured by fumes—sulphur perhaps—or by the application of strong manures.

BELGIAN PLANTS: *W. M.* The materials employed by the Belgian nurserymen is not obtainable here;

and the plants if they arrived at the proper season for repotting are the better if partly deprived of the soil they are in, and repotted in suitable composts, and in pots just large enough to take the reduced mass. Keep the plants so treated close, until rooting takes place. Plants which arrive at other times must be afforded stove or greenhouse treatment suited to their needs until potting time comes. Exposure to draughts ought to be carefully guarded against, and also sudden changes of any kind. Warm-house plants are pushed along at great speed, and strictly greenhouse plants feel the lessened light and warmth disadvantageously on coming to us.

Cedar: *W.* The annual growth, as seen in the shoots sent, is short and weak, indicating want of vigour, due to an unsuitable or very dry soil. Examine the roots.

Fruit Houses containing Vines in Pots, Permanent Vines, Figs, Peaches: *B.* Employ no shade for any of these, unless it be for bunches of black Grapes on the pot Vines, which cannot be shaded by their own leaves, and then the bunches only, may be shaded with paper.

Fungus on Dahlias: *Adolescens.* It is probably the destructive fungus, Flowers of Tan, which is overrunning the plants, and which springs on beds of tanners' bark, leaves, &c. Water the bed with a solution of half a drachm of blue vitriol to a quart of water. The plants must be cleaned with a soft brush and soapy water.

Gloxinias Deformed: *W. T.* The kind of deformity observed is not uncommon, and in some instances that we have seen it amounts almost to a double flower.

Inverted Mushroom: *J. L.* Many thanks. We have frequently figured such curiosities.

London Purple: *R. E.* This substance is made in this country, but not sold here. Paris green may be got from some of the larger manufacturers of chemicals.

Names of Fruits: *D. Knight.* Your specimen is an Orange; we cannot say which variety.

Names of Plants: *Water Jug.* Andromeda calyculata. — *W. O.* Saxifraga oppositifolia. — *No Name* (packed in small tin box). Forsythia viridissima, yellow-flowered shrub.—*S. & M.* Forsythia suspensa.—*W. W.* Schizanthus pinnatus. —*W. H. D.* 1, Pittosporum tenuifolium; 2, Bignonia (next week).—*F. H. C.* 1, Prunus triloba; 2, Cistus, probably ladaniferus; 3, Cephalotaxus Fortunei; 4, Ligustrum ovatum; 5, not recognised; 6, Ficus Parcelli. — *C. Thompson.* The Primrose sent is P. cortusoides var. amœna, a native of Eastern Asia, quite distinct from P. amœna (M. B.) of the Caucasus, which is closely allied to P. elatior. (*C. W. D.*)—*Mrs. S.* Cattleya Trianæ, a fine variety.—*S. C.* Buphane ciliaris.—*R. M.* Magnolia conspicua.—*W. P. Y.* Dendrobium chrysotoxum. *Camjee.* Epidendrum atropurpureum syn. macroceilum; Oncidium luridum var., Adiantum concinnum latum.—*J. B.* Lycaste gigantea.—*J. P. K.* Bifrenaria Harrisoniæ. Sanchezia nobilis.—*T. C.* Nelumbium speciosum, Sacred Bean —*W. M.* 4, Blechnum occidentale.

Peach Leaves: *B.* The leaves are infested with aphis, which may be got rid of by dipping the shoots in weak tobacco water; taking care to syringe the trees afterwards with warm water; Tobacco and other insecticides being liable to injure the fruits if allowed to remain on them. Syringe the trees regularly night and morning until the fruits begin to colour.

Royal Horticultural Society: *F. R.* You should address your letter to the Secretary of the Society, whose province it is to correct errors such as those you mention.—*Rivers.* No examination is required. For forms of application, apply to the Secretary, 117, Victoria Street, Westminster, S.W.

Service Notice: *S. G.* Unless there be something in the agreement to the contrary, or you were engaged at a yearly wage, a week's notice on either side is sufficient.

Communications Received.—H. Hetherington.—F., W. R. —Otley.—R. Y.—J. B.—D. S. H.—H. T.—C. T. D.—F. J. R. —G. R.—W. E. D.—R. D.—A. W. E.—J. D. J. S. E.—F. R. —Rev. G. Henslow—F. Bennett, M.A.—J. J. W.—Dr. W., Berlin—W. W.—P. L. S.—E. C.—C. C. B.—M. S.—W. E. G.

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For use in the CONSERVATORY, GREENHOUSE and VINERY; FLOWER and KITCHEN GARDENS, the HOP-YARD, and the ORCHARD.

Practically Tested by Practical Gardeners. *Acknowledged to be the most Perfect Insecticide yet Invented.*

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PRICES—Carriage Paid to any Address: —1 Pint, 1s. 6d.; 1 Quart, 2s.; ½ Gal., 3s.; 1 Gal., 4s. 6d.; 2 Gals., 8s. 6d.; 4 gals., 14s. Special Quotations for Larger Quantities.

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DEATH TO THE WEEDS

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WEED KILLER.

PRICES, Carriage Paid, to any Railway Station on 4 gallons and over:

4	Gallons, sufficient for 100 gallons of water...	£0	6	6
8	" " 200 " " ...	0	12	0
16	" " 400 " " ...	1	2	0
40	" " 1000 " " ...	2	7	6

1 gal. Sample Tin, tin free, 2s.; 2 gals, tin free, 3s. 6d.

5 per Cent. discount for cash with order on amounts of £1 and upwards. To Ireland, Scotland, and Channel Islands, carriage only paid on 12 gallons and over.

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FIR TREE OIL

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Dog and Bird Fanciers should all use it.

Housewives should use it as a Disinfectant, Bleacher, and Cleanser when washing Under Linen.

Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., & 4s. 6d.; ½ gallon 7s. 6d., 1 gallon 12s. 6d., or less in large quantities.

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BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

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Quality, THE BEST in the Market. (All sacks included.)

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 4d. each; 10 sacks, 12s. 6d.; 15 sacks, 17s. 6d., 20 sacks, 20s.; 25 sacks, 24s.; 30 sacks, 27s.; 40 sacks, 35s.; 50 sacks, 40s.; Truck-load, loose, free on rail, 30s. Limited quantities of G., special quality, granulated in sacks only, 2s. 6d. each.

GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d. BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth or Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, &c., &c. Write for Price List.

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GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade, Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

Protect your Gardens.

NETTING supplied by G. ROBINSON at 3½ square yards for 1s., is oiled and dressed, will not rot if kept out in all weathers; sent any width. Carriage paid on all orders over 5s. Can be sent on approval. Commoner Netting at 50 square yards for 1s. Hundreds of testimonials.

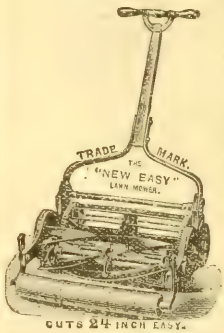
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LAWN MOWERS.—The "EXCELSIOR" (Patent) has the largest sale in the world, and is pronounced by all Gardeners to be the very best for keeping the Lawn in prime condition. The patent "NEW MODEL" is guaranteed to be the easiest working machine in the market. Can be had of all Ironmongers and Seedsmen. Price Lists post-free from the Manufacturers—CHADBORN AND COLDWELL, M'f'G Co., 228, Upper Thames Street, London, E.C.

See large Advertisement, March 22, page 376.



THE
"NEW EASY"
LAWN MOWER.



HAS AN OPEN STEEL ROLLER.

A man can work a 24-inch machine without assistance.

The Front Roller, with simple adjustment for regulating height of cut, enables the machine to cut close to the ground, and to do fine work, besides adapting it for verge cutting.

There is no easier working, no better finished, no stronger, no more durable mower in the market.

To be obtained through all the leading Ironmongers and Seedsmen, or from the Sole Licensees,

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BOULTON & PAUL,
MANUFACTURERS,
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WIRE FRUIT TRAINERS.
CASH PRICES.

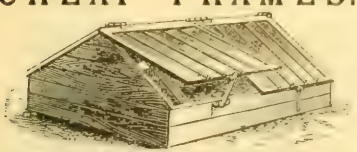
FOR PEARS, APPLES, &c.,
3 feet high, with eight lines of Galvanised Wire, 7*d.* per yard.
Terminal Posts, with Raidsseurs, 12*s.* 6*d.* each.
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6 feet high, eight wrought bars, ¾ inch diameter, 1*s.* per yard.
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WALL FITTINGS.
Raidsseurs, one for each wire, 3*s.* per dozen.
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3 feet high, 4*s.* 3*d.* per dozen; 3 feet 6 inches high, 4*s.* 6*d.* per dozen; 4 feet high, 5*s.* 3*d.* per dozen; 5 feet high, 7*s.* 3*d.* per dozen.
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18 inches wide, in 6 feet lengths, 2*s.* 3*d.* each; ends, 3*d.* each.
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Catalogues free on application.

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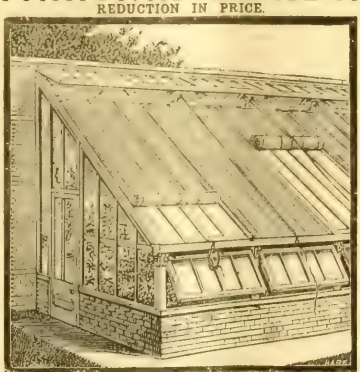
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			£	s.	d.
6 feet long,	3 feet wide	Packing Cases FREE.	2	0	0
6 feet ,,	4 feet ,,		2	10	0
12 feet ,,	4 feet ,,		4	7	6
6 feet ,,	5 feet ,,		3	10	0
12 feet ,,	5 feet ,,		5	17	6

Larger sizes at proportionate prices.

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The words "Frigi Domo" are registered as a Trade Mark, and in two recent actions of Benjamin Edgington, Limited, Plaintiffs, *v.* John Edgington & Co., Defendants, and Benjamin Edgington, Limited, Plaintiffs, *v.* Osman & Co., Defendants, judgments have been obtained against the Defendants for a Perpetual Injunction, restraining them from using the words "Frigi Domo" as a Trade Mark for any material intended to be used for Horticultural or similar purposes not manufactured by or for the Plaintiffs or selected by them, and the Defendants, John Edgington & Co., and Osman & Co., were ordered to pay Damages and Costs.

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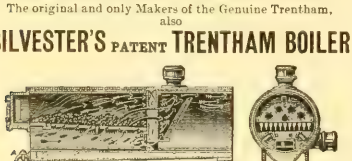
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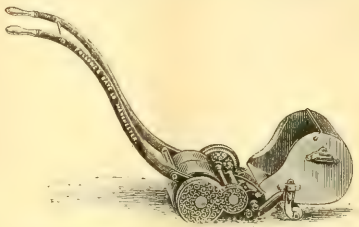


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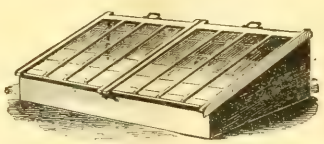
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	Length.	Width.		
1 Light Frame,	4 ft.	by 6 ft.	Cash	£2 0 0
2 " "	8 "	by 6 "		3 0 0
3 " "	12 "	by 6 "	Prices,	4 5 0
4 " "	16 "	by 6 "	Carriage	5 10 0
5 " "	20 "	by 6 "	Paid.	6 15 0
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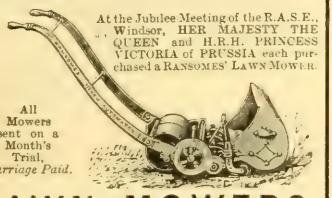
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GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

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All Mowers sent on a Month's Trial, *Carriage Paid.*

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"NEW AUTOMATON," the Best Gear Machine.
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"EDGE CUTTER," the only one of real service.
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THE BEST PONY and HORSE-POWER MOWERS.

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JOURNEYMAN (First), in the Houses.—Age 23; seven years' experience, partly in the Midlands. Excellent recommendations.—H. SNELL, Upton St. Mary Church, Torquay.

JOURNEYMAN (First), or otherwise. Mrs. Dalbiac, Ewington, Cirencester, strongly recommends a young man as above. Trained in Large Gardens; understands Glass, Kitchen, and Flower Gardens. Seven years' character.—S. NEWLAND, 1, Grandison Road, Wandsworth, S.W.

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JOURNEYMAN, where two or three are kept. Age 21; two years' good character.—J. SWAIN, Sunningdale, near Ascot, Berks.

JOURNEYMAN, in the Houses.—Age 20; six years' excellent character. Bothy preferred.—H. SILK, Whiteness Gardens, Margate.

JOURNEYMAN, in the Houses.—Age 22; six years' experience in general Housework, with good references.—W. SANFORD, Tolpuddle, Mary Church, Torquay.

JOURNEYMAN, in Private Establishment.—Three years in present place; good reference.—F. ROBINSON, The Stye, Garstang, Preston, Lancashire.

JOURNEYMAN, under Foreman; age 21.—H. Fuller, ... Ward Hall, Hoddesdon, recommends a strong ... Inside ... six years' experience, two and ... [illegible]

JOURNEYMAN, in the Houses; age 22.—W. Ring, Gardener to J. H. Leeds, Esq., would be pleased to recommend a thoroughly reliable young man as above.—FAULL, The Vyne, Basingstoke, Hants.

JOURNEYMAN, in the Houses; age 22.—J. Thomson, The Gardens, Milton Park, Peterborough, can highly recommend to any Head Gardener a steady, active, and well-conducted young man.

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JOURNEYMAN, in a good Establishment; age 22.—William Burnie, Hanbury Hall, Droitwich, can strongly recommend an active pushing young man, with nine years' experience.

JOURNEYMAN, in the Houses. Age 20; five years' good reference.—ALFRED JENKS, Bramley Nursery, East Grinstead, Sussex.

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JOURNEYMAN (Second), in the Houses, or otherwise, in a good establishment.—Age 20; good character.—JOHN DEAR, 4, Pond Square, Highgate, N.

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IMPROVER, in Houses preferred.—Age 18; four years' experience in General Nursery Work.—J. WOODCOCK, Rose Cottage Nursery, Canterbury.

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IMPROVER, Inside, or Inside and Out, in a Gentleman's Garden.—Age 20; five years' good character. F. SIMMONDS, Chilhurst, near Petersfield, Hants.

IMPROVER, Inside and Out.—Age 20; five years' excellent character and experience.—C. LONDON, Swallowfield, Reading.

IMPROVER, in Gentleman's Gardens.—Age 18; three and a half years' good character.—ALFRED TYRRELL, Swallowfield, Reading.

IMPROVER, in the Houses, in a Good Establishment.—Age 22; strong, active, and willing. Five years' good character. Bothy preferred.—W. BALDOCK, Sissinghurst Castle, Cranbrook.

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IMPROVER; age 18.—Advertiser wishes to communicate with a Nobleman or Gentleman's Gardener to place a Young Man with good character in first-class establishment as Improver.—H. HACKWELL, Stanford, Worcester.

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TO HEAD GARDENERS or FLORISTS.—Arthur W. Major would have pleasure in recommending a young Man (age 19), who has been in his employ over six years, is very steady and industrious.—The Nurseries, Oundle.

TO GARDENERS, &c.—Wanted situation in a Gentleman's Garden by a young man. Two years' experience. Age 18.—E. HOAD, Mr. R. Saxby, Westerham, Kent.

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SHOPMAN.—Age 21; good knowledge of the Trade in all branches. Good reference.—MENTHA, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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MANAGERESS, and First Hand. — Good Saleswoman; ten years in last place. Highest references.—Write, B., 32, Elm Grove, Hammersmith, W.

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PATENT SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of Towns, Villages, Irrigation, Railway Stations, Mansions, Fountains, Farms, &c.

No Cost for Motive Power, which is obtained from the Stream of Water passing through the Ram.

NO OILING OR PACKING REQUIRED.

MADE IN SIZES TO RAISE FROM 300 TO 200,000 GALLONS PER DAY. WILL FORCE TO A HEIGHT OF 1500 FEET.
SPECIAL RAMS for HIGH FALLS to send up to Two Gallons out of every Five Gallons passing through them.



Fig. A.

This Ram raises a portion of the same water that works it.



This View represents Fig. A Ram forcing up a part of the same water that works it, which is supplied from a spring. Special Rams of A make can be supplied to force to a height of 800 feet.



Fig. B.

This Ram, whilst worked by a stream of impure water, will pump clean water from a well or spring.

TESTIMONIALS.

From Mr. THOMAS VARLEY, Agent to the Trustees of the late William Roundell, Esq., Gledstone Estate, West Marton, Skipton, August 11, 1887.

"Dear Sir,—The Patent Hydraulic Ram you fixed five years ago on this estate is still working as well as it did on the day it started. It is driven by spring water carried along the hillside in 950 yards of iron pipe, and forces up an abundant supply to an underground tank on the hill at a distance of two miles from, and at an elevation of 280 feet above the Ram. The water is then gravitated through several pipes and branches, having a total length of about four miles, for the supply of the mansion, gardens, stables, estate workshop, and steam boiler, the village of West Marton, and several farms. There are five fire plugs inside the mansion, and seven outside; and as the underground reservoir is 70 feet above the mansion, seven jets of water can be thrown over the house in case of fire. As there is still a considerable overflow from the underground reservoir running to waste, I intend to form a second reservoir at a lower level, and utilize the water for other farms. I have much pleasure in being able to report as above."

From C. PAGE WOOD, Esq., Wakes Hall, Wakes Colne, Essex, January 11, 1889.

"Sir,—In reply to your inquiry, the Hydraulic Ram you put down for me in 1884 has cost me only sixpence in repairs (for a new stud my blacksmith made); the second Ram you put down to supply an off-hand farm, has been running three years, and has cost not a penny for repairs; the third and largest Ram you put down two months ago, which is for the supply of water to my neighbours, is running satisfactorily. All three Rams throw up more water than you guaranteed. From inquiries I have made from friends who have Rams of other makers, I am convinced of the superiority of yours, and my third order is a proof of my good opinion. My abundant water supply is the greatest possible comfort to me. "Yours faithfully,
"C. PAGE WOOD."

From MATTHIAS SMITH, Esq., Hill Top Hall, Pannal, near Leeds, January 14, 1889.

"Dear Sir,—I have great pleasure in bearing testimony to the marvellous efficiency of the Ram you fixed here in January, 1888. It is worked by spring water of irregular volume, the dry-weather flow being 6 pints per minute, with which quantity you promised to work the Ram, forcing through 330 yards of delivery pipe to an elevation of fully 144 feet, but out of 5½ pints per minute, 166 gallons per day are sent up; and out of 2 gallons per minute now flowing through the Ram, 540 gallons per day are delivered at the same height. Considering the extremely small quantity of driving water, I certainly did not expect so grand a result. With every wish that you may get the reward you deserve,—I am, dear Sir, yours faithfully,
"MATTHIAS SMITH."

From Mr. HENRY ROBINSON, Engineer to the Stockport District Waterworks Company, September 8, 1883.

"Dear Sir,—I can now report well of the two Hydraulic Rams we have fixed to your instructions for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 68 feet, but on testing them I am convinced that 50,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equal to half the capacity of the 6-*inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found.*"

From J. A. RUTHERFORD, Agent to C. F. H. Bolckow, Esq., Estate Office, Marton Hall, Middlesbrough, September 26, 1883.

"Dear Sir,—I am glad to say that the Rams you put down on the Hambledon Estate for Mr. C. F. H. Bolckow are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a day, and with enough water to work the Rams at full power, 2000 gallons a day. With a supply of 11½ gallons per minute they are lifting 2200 gallons, and when working full power 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start, and have gone well since." (The delivery pipe in the above case is 9000 feet in length.)

From CAPTAIN TOWNSEND, Wineham, February 10, 1877.

"In answer to your inquiry I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long, at the rate of 80,000 gallons per day, although you only promised 50,000."

JOHN BLAKE, HYDRAULIC ENGINEER, ACCRINGTON, LANCASHIRE.

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ROYAL BOTANIC SOCIETY,
Gardens, Regent's Park, N.W.
SECOND EXHIBITION of SPRING FLOWERS, WEDNESDAY, April 23.
Gates open at 2 o'Clock. The Band will play from 2.30 to 5.30.
Tickets, to be obtained at the Gardens only by Vouchers from Fellows of the Society, 2s. 6d. each.

CRYSTAL PALACE.
GREAT SUMMER EXHIBITION of PLANTS and FLOWERS, SATURDAY, May 10.
Entries Close on May 3. Forms and Schedules post free on application to Mr. W. G. HEAD, Superintendent, Gardens Department, Crystal Palace, S.E.

ROYAL AQUARIUM, Westminster.
SECOND SPRING EXHIBITION, TUESDAY and WEDNESDAY, April 29 and 30.
AURICULAS, POLYANTHUS, CLIVIAS, &c. Schedules of WILLIAM HOLMES, Frampton Park Nurseries, Hackney, London.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
SPRING FLOWER SHOW in the Town Hall, Manchester, on TUESDAY, the 29th inst. National Auricula Society's Show (Northern Division), on the same day.
The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1890 will open on MAY 23. Schedules may be had from the undersigned— BRUCE FINDLAY,
Botanic Gardens, Manchester.

RICHMOND HORTICULTURAL SOCIETY.
The SUMMER SHOW will be held in the Old Deer Park, Richmond, on WEDNESDAY, June 25, 1890. For Schedules, and all particulars, please apply to
J. H. FORD, Hon. Sec.
22, George Street, Richmond.

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GREAT FRUIT and ROSE SHOW will be held in Trentham Gardens, on JULY 10, 1890, upwards of £80 given in Prizes for Cut Roses. Collections of Fruit (nine varieties), £8, and special value, £5; 2nd, £3; 3rd, £2. Six varieties £1, £2, and £1. Prizes amounting to nearly TWO HUNDRED AND FIFTY POUNDS are given. Schedules now ready, post free, on application to—
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See large Advertisement, March 22, page 376.

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MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 24, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, St. Albans, CATTLEYA TRIANÆ, a splendid importation. The plants are in grand order, with fresh green leaves and plump eyes; there are many fine masses amongst them, with 100 bulbs and upwards. The plants now offered are the result of a special journey made by our collector to the district from whence we imported, some years back, the several consignments that produced the marvellous and hitherto unsurpassed varieties, so well known to Orchid lovers, Cattleya Trianæ Leeana, C. T. Schroderiana, C. T. Emperor, C. T. Measuresiana, C. T. Courtauldiana, and many others, whose names are historical. We are sanguine that our expectations with regard to the lot now offered will not be disappointed, and that many extremely beautiful and distinct forms will be found to exist amongst them. It is well known that there are many forms of Trianæ greatly differing in shape, size, and colour, the finest varieties always coming from the district whence these came, but owing to its impracticable roads and enormous outlay, and the attendant risks, it is rarely that plants from this particular region are introduced.

CATTLEYA SPECIES.—We prefer designating the above as species, from the fact of the consignment having become mixed. Our collector writes us:—"Cattleya with a very large lip, like Sanderiana;" "Cattleya with three colours, pink, maroon, crimson and yellow;" "Cattleya colour of Skinneri, large, with yellow throat.' These plants have been mixed in repacking, while our Collector was lying dangerously ill from the continuous hard work in the mountains and forests (far beyond the track of any white explorer), that has nearly cost us that life of one of our best Collectors. We believe them truly magnificent.

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Oncidium Papilio	Cypripedium calosum

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On view morning of Sale, and Catalogues had.

Thursday, May 1.

SPECIAL SALE of ORCHIDS in FLOWER.

MR. J. C. STEVENS begs to announce that he will hold a SPECIAL SALE of ORCHIDS in FLOWER and BUD, on THURSDAY, May 1, and will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will SEND PARTICULARS AS SOON AS POSSIBLE, but at latest, by THURSDAY NEXT, as several Entries are already to hand.

Auction Rooms and Offices, 38, King Street, Covent Garden.

Tuesday Next.

ESTABLISHED and IMPORTED ORCHIDS.

A further portion of the COLLECTION of ESTABLISHED ORCHIDS, by order of Messrs. J. W. Steel & Co., of Chigwell, who are giving up their business, including a large variety of plants particularly suitable to gentlemen forming collections, and the Trade. Also about 150 lots of ESTABLISHED, and SEMI-ESTABLISHED ORCHIDS; ORCHIDS from Mr. W. Gordon, of Twickenham, and an importation just to hand of the beautiful Cattleya Schroderæ, ORCHIDS in flower, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, April 22, at half-past 12 o'clock.

On view morning of Sale, and Catalogues had.

Wednesday Next.

GREENHOUSE PLANTS and FERNS, a large quantity of various BULBS, comprising Lilies, Begonias, 1000 Hybrid Gladiolus, an importation of BULBS from the Cape, HARDY PERENNIALS, and several lengths of INDIA-RUBBER HOSE.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, April 23, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

CATTLEYA AUREA CHRYSOTOXA.
DENDROBIUM FORMOSUM GIGANTEUM.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. F. Sander & Co., St. Albans, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, April 25, a large Consignment of Imported ORCHIDS; also a large quantity of popular varieties, specially adapted for the Trade.

CATTLEYA AUREA CHRYSOTOXA.—Without doubt, this is the most lovely Cattleya in the section to which it belongs. It has also another great recommendation, by its being a free grower and not "miffy" under cultivation, as its Central American congener. Our collector, who first discovered this fine plant, has, after months of search, sent us a few more plants, which have arrived in grand order, the bulbs being round and plump, and the leaves green and healthy.

It is impossible to exaggerate the beauty and excellence of this magnificent Cattleya, and we can recommend it to purchasers with the fullest confidence, knowing that among them there are splendid novelties. The sepals and petals are usually of a brilliant primrose-yellow, the lip velvety-crimson, distinctly veined with golden-yellow. As many as four of its lovely blossoms are sometimes produced from a single bulb.

DENDROBIUM FORMOSUM GIGANTEUM. There are many forms of this species. The one now offered is a colossal variety, requiring precisely the same treatment as the ordinary type, the plants have reached us in superb condition, the bulbs being stout and healthy; the flowers measure from 3 to 5 inches across, and one of great substance, they are pure white, the lip having a broad blotch of rich yellow in the centre. The flowers last a long time in perfection, hence it is most useful

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for exhibition purposes, and also for cutting. Also a fine lot of Odontoglossum luteo purpureum in fine condition; Cattleya Mendelii, unflowered and in sheath; Cypripedium Curtisii, a most beautiful species; Dendrobium Dearei, a fine lot of plants; D. Jamesianum in fine condition; Phalænopsis Schilleriana, a few very fine young plants. Also a fine importation of ODONTOGLOSSUM ALEXANDRÆ LEHMANNI, Rchb. f., just to hand. This is a simply lovely form, extremely rare, and producing great branching spikes, the lip always is spotted with large spots of a crimson-chocolate colour, of which there are generally five.

Also about 100 lots of CHOICE ORCHIDS in Flower and Bud, from Messrs. F. Horsman & Co.

On view morning of Sale, and Catalogues had.

Special Sale, Tuesday, April 29.

ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS desire to announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER, will take place as above, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS SOON AS POSSIBLE.

Eltham.—Expiration of Lease.

CLEARANCE SALE of GLASS ERECTIONS, HORSES, CARTS, GREENHOUSE PLANTS, by order of Mrs. Todman whose lease is expiring.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Eltham Nursery, Eltham, Kent, about a mile from Eltham Station, on WEDNESDAY and THURSDAY, April 30 and May 1, at 12 o'Clock precisely each day, the ERECTIONS of GREENHOUSES, and several PITS and GARDEN BOXES, with the Brickwork, Hotwater-piping, and Boilers, the whole of the GREENHOUSE PLANTS, 5500 Amplopsis and Irish Ivies, in pots; 350 Golden Euonymus, in pots; 1300 pots of Conifer cuttings; strong CART HORSE, 3 COLTS, Roan HORSE, 16 hands, 5 years, quiet to ride and drive, has been hunted; Chesnut Mare, 7 years, 16 hands, quiet to ride and good hunter up to 14 stone; PONY, DOG-CART, 2 light spring CARTS, spring VAN, Tumbril CARTS, WAGGON, Pony CHAISE, several sets of HARNESS, 100 loads of MANURE, CHAIN HARROW, HAY SHAKER, GARDEN ROLLERS, MOWING MACHINES, TROLLIES, and numerous other EFFECTS.

May be viewed the day prior, and mornings of Sale. Catalogues may be had on the Premises; at the principal Inns in the neighbourhood; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Friday, May 2.—Established Orchids.

A PRIVATE COLLECTION from Gloucestershire, about 100 Lots, including several very fine specimens; also a consignment of GREEN TREE FROGS.

MESSRS. PROTHEROE AND MORRIS will INCLUDE THE ABOVE in their SALE on FRIDAY, May 2.

Further particulars will appear next week.

Exeter.

HIGHLY IMPORTANT Three Days' UNRESERVED SALE of particularly well-grown STOVE and GREENHOUSE PLANTS, by order of Messrs. Lucombe, Pince & Co., who are relinquishing their business.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Exeter Nurseries, Exeter, on TUESDAY, May 6, and two following days, at 12 o'Clock precisely each day, without the slightest reserve, the first portion of the extensive and valuable Stock of STOVE and GREENHOUSE PLANTS, comprising 500 specimens, such as Stephanotis, Lapagerias, Azaleas, Orchids, Kentias, and other Palms; 2000 Stove Plants, including Crotons, Anthuriums, Draceenas, Hoyas, Ixoras, Allamandas, &c.; 4000 Greenhouse Plants, consisting of Lapagerias, Rhododendrons, Roses, Azalias, Begonias, Ericas, and numerous others; 600 Orchids, including Cattleyas, Cypripediums, Cœlogynes, Cymbidiums, Dendrobiums, Odontoglossums, Lælias, Vandas, and others; 2000 Show and Regal Pelargoniums, 3000 Exotic and Hardy Ferns, 1500 choice Carnations, Picotees, and 10,000 Herbaceous Alpine Rock and Bedding Plants.

N.B.—The NURSERY to be LET or SOLD on very advantageous terms. Particulars forwarded on application to the Auctioneers.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Land Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

The Grammar School, Bancroft, Hitchin, Herts.

On the Great Northern, Midland (Branch from Hitchin to Bedford), and the Hitchin, Royston, and Cambridge Railways.

To FLORISTS, NURSERYMEN, and OTHERS.

MR. GEORGE JACKSON has been favoured with instructions to SELL by AUCTION, on WEDNESDAY, April 23, 1890, at 11 for 12 o'Clock, on the Premises, Bancroft, Hitchin, a substantial and ornamentally-built CONSERVATORY, about 26 feet long and 17 feet wide, with a domed iron-framed roof and stone slab floor, fitted up with hot-water apparatus; a LEAN-TO GREENHOUSE (with division), about 33 feet long and 18 feet wide, with hot-water apparatus; also a LEAN-TO VINERY, about 34 feet long and 15 feet wide, fitted with hot-water apparatus, as now standing on premises belonging to the Trustees of the Grammar School, the site being required for other purposes; also at the same time a COLLECTION of HOTHOUSE and GREENHOUSE PLANTS, including large, well-grown, and mostly fine Camellias, Azaleas, Orchidaceous Plants, Ferns, &c.

May be viewed by application on the premises, and Catalogues obtained at the Inns in the neighbourhood, and of Mr. GEORGE JACKSON, Auctioneer and Appraiser, Hitchin, Baldock, and Royston, Herts.

Manchester.

IMPORTANT SALE of upwards of 600 valuable and choice ORCHIDS, including many Specimen Plants amongst Ærides, Ada, Angræcum, Brassavola, Cattleya, Cœlogyne, Chysis, Cypripedium, Dendrobium, Epidendrum, Helcia, Lelia, Lycaste, Masdevallia, Maxillaria, Meso-pinidium, Miltonia, Odontoglossum, Oncidium, Paphinia, Phalænopsis, Pleione, Promenæa, Saccolabium, Stanhopea, Trichopilia, Vanda, &c.; also over 300 Stove and Greenhouse

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Plants, comprising Amaryllis, Camellia, Cactus, Caladium, Cephalotus, Crinum, Eucharis, Epiphyllum, Fern, Gloxinia, Hibiscus, Lapageria, Pancratium, Tillandsia, Soft-wooded Plants, Empty Pots, Garden Tools, and Effects.

MESSRS. ARTINGSTALL AND HIND respectfully notify the receipt of instructions from the Executors of Dr. R. F. Ainsworth, deceased, to SELL by AUCTION at his late residence, Cliff Point, Higher Broughton, on MONDAY, April 21, 1890.

May be viewed on Friday and Saturday next, from 10 to 4 o'Clock, when Catalogues may be had at the Gardens, or now, together with further particulars, by applying to Messrs. HINDE, MILNE, AND BURY, Solicitors, 7, Mount Street; or to the Auctioneers, 45, Princess Street, both of Manchester.

Mount View, Sheffield.

SALE of the THIRD PORTION of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS formed by the late David Ward, Esq., J.P. The Collection is in the best possible condition, is one of the finest in the district, and includes specimens from several well known collections. The Sale will include Cattleya Lawrenceana, a fine lot of Odontoglossum Roezlii, O. Alexandræ, O. Cervantes, O. Halli, a nice lot of Cypripedium Lawrenceana, C. Godefroyæ, fine Dendrobium thyrsiflorum, D. densiflorum, D. suavissimum, D. Devonianum, D. Parishi, &c.; also a choice lot of Camellias (best varieties), trained on walls.

MESSRS. WILLIAM BUSH AND SON respectfully give notice that they are instructed by the Executors to SELL by AUCTION, at the residence, as above, on WEDNESDAY, April 23, at 11 A.M. precisely.

Catalogues and orders to view may be had of Mr. J. KEELING, the Head Gardener, on the Premises (who is open to another engagement); or, of the Auctioneers, at their Offices, 2 and 3, East Parade, Sheffield.

NURSERY FOR SALE, near London. Well Stocked. Going concern. In thorough working order. Replete with best Heating Apparatus. A fortune for a practical man with about £300.

Apply, GIBBS, Australian Hotel, Langham Street, London.

TO BE SOLD, a NURSERY, containing 10 Houses, all well heated and stocked, with garden ground if required.—Apply, Silver Hall Nursery, Isleworth.

FOR SALE, a Small NURSERY BUSINESS, about ¾ acre well stocked, in rising neighbourhood. Plant Houses, Stock, and everything as it stands, £180.

For further particulars, apply by letter to R. S., 1, Fullerton Road, Addiscombe, Croydon.

To Florists and Others.

FOR SALE, with immediate possession, Long LEASEHOLD PREMISES and GOODWILL. Capital House, eight rooms, fitted Bath, &c.; three large Span-roof Glass Houses, with improved Heating Apparatus, Cold Frames, Potting Shed, &c., all in excellent order; long frontage to main road. Rapidly increasing suburb, with opportunities for unlimited trade. Present owner retiring. Stock optional.

Terms of Messrs. JOSHUA BAKER AND SON, 106, High Road, Kilburn, N.W., and 13, Poultry, E.C.

To Nurserymen, Gardeners, and Others.

TO BE SOLD, the Lease of a well-established NURSERY, 11 Greenhouses, well-heated Pits, good Stabling, Sheds, &c., in all covering about 1 acre. First-class Jobbing Connection, with or without Florist Shop in main thoroughfare. Price £100.

Apply on premises, Waverley Nursery, Waverley Place, St. John's Wood, N.W.

FLORISTS'—prominent position, large, fashionable watering place. Handsome Show Conservatory and good Nursery on long Lease. Price, including four excellent Houses and good Stock of Plants, £800, or valuation. Part can remain. Premium waived to immediate buyer. First-rate chance for practical man.

B. POMFRET, Valuer, Tunbridge Wells.

London, W.—To Small Capitalists.

COMPACT NURSERY, DWELLING-HOUSE, and several GREENHOUSES, in good neighbourhood. Rent only £40. Price for Glass on application. No stock to take to.

Particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

TO BE LET or SOLD, Aylestone, near Leicester, a valuable and most eligible FREEHOLD and FLORIST'S NURSERY, consisting of a well-built Bay-windowed Villa Residence, 7 large Greeenhouses, and a good Garden well-stocked with Fruit Trees, having a river frontage, and situated 2 miles from Leicester on the main road to Lutterworth, known as Aylestone Park. Rent £40 per annum. No Stock. Trams pass the door every 10 minutes.

Apply to S. WALKER, Aylestone Park; or HARRISON AND SONS, Seed Merchants, Leicester.

TO BE LET or SOLD, a first-class NURSERY, glass only. 6000 square feet of Glass in full working order, and now doing a good trade. Rent £35; valuation £150. A first-class opportunity. Fuller particulars from F. W. HODSON, Groveleigh Retford.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. - Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), Limited.

Have an immense stock of newly imported ORCHIDS, and are constantly receiving importations from various parts of the world. They have also a very large and fine collection of Established Orchids, to which additions are constantly being made.

Catalogues, with Prices and particulars post-free, on application to The Vineyard and Nurseries, Garston, near Liverpool.

BARR'S Descriptive LIST of VEGETABLE and FLOWER SEEDS, free.—Full of useful information. SELECTIONS of VEGETABLE SEEDS, 12*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.* and upwards.
SELECTIONS of FLOWER SEEDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 21*s.*, and upwards.
GLADIOLI, TUBEROSES, HYACINTHUS CANDICANS, TIGRIDIAS, ANEMONE FULGENS, &c., for Spring Planting. Descriptive LIST free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

"Now is the Time to Plant Trees."

ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.
The Nurseries, Trinity Road, Wandsworth Common.

EXTRA LARGE PALMS

for Winter Gardens, &c.		
25 SEAFORTHIA ELEGANS,		
10 ARECA LUTEA and A. BAUERII,		
10 KENTIA BELMOREANA,	}	From 12 to 20 feet high, with many leaves.
10 " FOSTERIANA,		
30 COCOS FLEXUOSA and PLUMOSA, &c.		

Also a very fine selection of the above varieties from 6 to 10 feet high, in the most perfect condition for decorative purposes. W. ICETON, Putney Park Lane, S.W.

EVERGREENS.

HARDILY-GROWN. STOCK UNEQUALLED.
Special Prices, with Catalogue, Post Free.

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FERNS A SPECIALITY.

The finest, most varied, choice and interesting collection in the Trade. 1400 species and varieties of stove, greenhouse and hardy Ferns. Partially Descriptive Catalogue, including comprehensive List of useful Gardening Books, free on application.

ILLUSTRATED CATALOGUE (No. 21),
containing 120 Illustrations and much valuable information on the cultivation of Ferns, ONE SHILLING and SIXPENCE, post-free.

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FERN NURSERY, SALE, MANCHESTER.

THE BEST MUSHROOM SPAWN
"DICKSONS IMPROVED."
5 - per bus. *Circular, with testimonials, Post Free.*
DICKSONS Seed Merchants & Nurserymen, CHESTER.

GRAND NEW COLEUS,
"DUCHESSE OF FIFE."

First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3*s.* 6*d.* each ready in May). Post and package free for Cash with Order only. Sent out by the raiser,
G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

DAILY PARCELS EXPRESS SERVICE to the CONTINENT, *viâ* Queenborough, Flushing, Kaldenkirchen.

This Parcels Service, in direct connection with the German and Austro-Hungarian Posts, is specially adapted for the rapid and regular despatch of Plants, Bulbs, &c. No Certificate required for Germany. Tariffs free on application. Goods also accepted for Conveyance by *Petite and Grande Vitesse*.
BEST, RYLEY AND CO., 88, Bishopsgate Street, London, E.C.
Receiving Office at Holborn Viaduct Station.

FORBES' CATALOGUE of FLORISTS' FLOWERS for 1890—(116 pages),

Is the Largest, Best, Most Reliable, and Complete ever issued on Florists' Flowers. It gives accurate descriptions of thousands of varieties of Florists' Flowers that cannot be had elsewhere, besides a very full List giving Colour, Height, Month of Flowering, and Price of nearly One Thousand Perennials and Hardy Border Plants, with a mass of other useful information indispensable to all who would excel in the Cultivation of Flowers.

This Catalogue forms a most useful and convenient Reference Book on all sections of Florists' Flowers that should be in the hands of all who love a Garden. Free on application.
JOHN FORBES, Nurseryman, Hawick, Scotland.

To the Trade.

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H. AND F. SHARPE will be pleased to give Special Quotations for all the leading kinds of MANGEL WURZEL and TURNIP SEEDS, of the finest quality, and raised on their own Farms from picked transplanted bulbs. The prices are very low this season.
Seed Growing Establishment, Wisbech.

STRAWBERRIES.

Warranted the best plants in the Trade.

NOBLE, very fine	... ...	5*s.* per 100, in 500 lots.
KING OF EARLIES ...	...	2*s.* per 100 do.
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BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Evidence of quality. Seed saved from Prize Plants. In illustrated Packets, choice mixed, Single or Double varieties, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. Collections—Single 12 named varieties, separate, 5*s.* 6*d.*; 6 ditto, 3*s.* Tubers, Named Singles, from 12*s.* to 42*s.* per doz.; Unnamed Seedlings, 12*s.* to 21*s.* per dozen; Bedding, choicest, 6*d.* to 9*d.* per dozen; choicest Named Doubles from 42*s.* per dozen; Unnamed, very choice, 24*s.* and 30*s.* per dozen; choicest Mixed, 18*s.* per dozen. Order direct from us, to procure our splendid strain.
CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

POTATOS "Bedfordshire-grown" POTATOS.

Highly recommended to all "who require change of seed." Special cash offer:—Myatt's Prolific Ashleaf, Sutton's Abundance, Beauty of Hebron, New Early Monarch, Schoolmaster, Sutton's Early Regents, White Elephants, Reading Russetts, Early Rose, Imperators (large), and Vicar of Laleham, all at £4 10*s.* per ton, 4*s.* 6*d.* per cwt. Magnum Bonum, "Suttons," 50*s.* per ton, 3*s.* per cwt. Free delivery on to rail (Great Northern Railway). Bags included for cash with orders.—FREDK. GEE, Riverford House, Biggleswade, Bedfordshire.
(Please name *Gardeners' Chronicle* when ordering.)

CLIBRAN'S SEED LIST, Illustrated, 112 pages, free, three stamps.

INTERESTING Best Vegetables and Flowers, including all that is fashionable, Poppies, Gaillardias, &c. Clibran's Tomato is the Best. Try it! 1*s.* 6*d.* and 2*s.* 6*d.* per packet. Herbaceous Calceolaria, a specialty, 1*s.*

PLANT & SEED and 2*s.* 6*d.* per pkt. White Californian Tree Poppy, blooms 5 inches across, 1*s.* and 2*s.* per pkt. CLIBRAN'S PLANT LIST, 160 pages, free, three stamps. A List with prices and descriptions

CATALOGUES. of all wanted for a Garden. Many valuable hints.
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To the Trade.

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H. AND F. SHARPE'S Special Priced LIST of VEGETABLE SEEDS comprises all the best varieties under cultivation of 1889 growth, and of the very finest quality. The prices will be found very advantageous to purchasers.
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PELARGONIUMS.—Extra strong, healthy, bushy plants, showing bud; Show, French, and Decorative kinds, by name, in 48 and 32 size pots, 12*s.* and 18*s.* per dozen; 80*s.* and 100*s.* per 100. Boxes and packing free. Cash with order. JAS. HOLDER AND SON, Crown Nursery, Reading.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15*s.* to £10 per 100, free on rail.
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To Market Growers.

SELECT STOCKS of VEGETABLE and FLOWER SEEDS at WHOLESALE PRICES. Before purchasing elsewhere, send for General Seed CATALOGUE.
B. L. COLEMAN, Seed Merchant, Sandwich, Kent.

The Best Present for a Gardener.

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To the Trade.

FERNS—FERNS—FERNS.—In twenty most saleable sorts—ADIANTUM CUNEATUM, POLYPODIUMS, CYRTOMIUMS, PTERIS, &c., at 12*s.* per 100, packed free for cash. PTERIS CRETICA CRISTATA, few other kinds from stores, 6*s.* per 100, 50*s.* per 1000.—J. SMITH, London Fern Nurseries, 140, Loughborough Road, Brixton, S.W.

R. B. LAIRD & SONS'

CHOICE FLORISTS' FLOWERS.

Our Catalogue for 1890, *is now issued, and will be forwarded on application.*

It includes all the most desirable New Varieties, as well as the older and thoroughly established kinds.

Our Collection of **PANSIES, VIOLAS, BEGONIAS, HOLLYHOCKS, DAHLIAS, ANTIRRHINUMS, PENTSTEMONS, CARNATIONS, PETUNIAS, PELARGONIUMS,** &c., &c., is unsurpassed.

ROYAL WINTER GARDENS, EDINBURGH.

ROSES IN POTS FOR SPRING PLANTING.

WM. PAUL & SON have a very fine stock of the above, for which they solicit Orders at the following Prices:

LEADING HYBRID PERPETUAL, TEA-SCENTED, and other varieties in 5-inch (48-sized) pots, 9*s.* to 15*s.* per dozen; £3 10*s.* to £6 per 100.
HYBRID PERPETUALS, in 8-inch (24-sized) pots, 24*s.* to 30*s.* per dozen.
CLIMBING VARIETIES, in 5-inch pots, 10*s.* 6*d.* to 15*s.* per dozen; in 8-inch pots, 30*s.* per dozen.
" " MARECHAL NIEL and GLOIRE DE DIJON, 8 to 10 feet shoots, in 8-inch pots, 3*s.* 6*d.* to 5*s.* each.

ROSES IN POTS FOR GREENHOUSE CULTIVATION.

H.P. TEA-SCENTED, and others, in 5-inch pots, 12*s.* to 18*s.* per dozen; in 8-inch pots, 30*s.* to 42*s.* per dozen; Larger Plants, 5*s.* to 7*s.* 6*d.* each.
HALF-SPECIMEN and SPECIMEN PLANTS, the largest and finest stock in the country, 10*s.* 6*d.* to 63*s.* each.

"*" These are of magnificent effect in the Greenhouse or Conservatory when in bloom.

Also a fine stock of GRAPE VINES (fruiting and planting canes), LAPAGERIAS, HARDY CLIMBING PLANTS in pots, RHODODENDRONS, and other EVERGREENS for present planting. Priced LISTS Free.

WM. PAUL & SON,

ROSE GROWERS BY APPOINTMENT TO HER MAJESTY THE QUEEN,
PAULS' NURSERIES, WALTHAM CROSS, HERTS.

GENERAL BELGIAN HORTICULTURAL AGENCY. DE HERDT AND STRECKER, Antwerp.
Telegrams—"STRECKER, Antwerp."
Plant-houses for special cultivation of SEEDLING PALMS in store pots, situated at Meirelbeke (near Ghent), Belgium. FR. DE METER, Manager.

Trade Offer.

ARECA BAUERI, 22s. per 100.
,, LUTESCENS, 18s. 6d. per 100.
,, SAPIDA, 7s. 6d. per 100.
CHAMÆROPS FORTUNEI, 22s. per 1000.
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CORYPHA AUSTRALIS, 38s. per 1000.
EUTERPE EDULIS, 30s. per 100.
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KENTIA BALMOREANA, 30s. per 100.
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,, CANTERBURYANA, 60s. per 100.
LATANIA BORBONICA, 30s. per 1000.
PHŒNIX CANARIENSIS, 18s. per 1000.
,, RECLINATA, 37s. 6d. per 1000.
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PTYCHOSPERMA ALEXANDRÆ, 8s. 6d. per 100.
SEAFORTHIA ELEGANS, 7s. per 100.
Samples are only sent per dozen at the wholesale price.

Seed Potatos.

H. AND F. SHARPE have still in stock the following varieties of SEED POTATOS, which they are offering at **very low prices**:—

Sandringham Kidney
River's Royal Ashleaf
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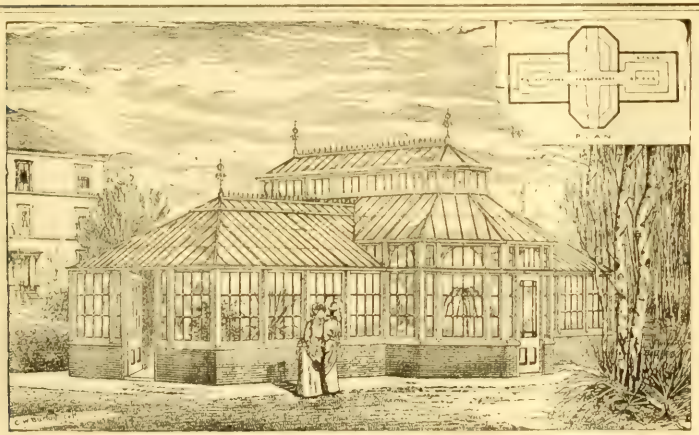
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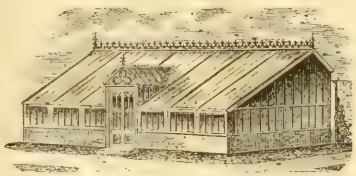
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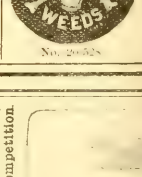
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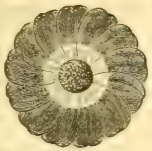
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THE

Gardeners' Chronicle.

SATURDAY, APRIL 19, 1890.

VAGARIES OF VARIATION, WITH SPECIAL REFERENCE TO BRITISH FERNS.

THE causes which lie below the sudden and wide departures from the normal types which occur so frequently in the vegetable world, both under culture and under natural conditions, are such deeply hidden secrets of Nature, that so far no theory has ever been broached to account for the phenomena observed.

In many cases, amongst highly cultivated plants, which by a long course of selective propagation have lost all outward semblance of the original type, the sudden change of form is seen manifestly to be a case of reversion more or less complete to the normal. In these cases the change may be attributed, on the Darwinian hypothesis of Pangenesis, to the presence in the system of the plants of reproductive germs continuously transmitted through many generations from the normal wild ancestor, which germs or gemmules, under favourable circumstances, overpower the influence of the abnormal ones, and reproduce the more natural form whence they originally sprang. This phenomenon takes place the more frequently through the seed or spore, the resulting plant, though derived from a highly modified form, reverting entirely or partially to the original type. Less frequently this reversion takes place in the bud, the result being a branch or offset springing directly from an abnormal parent, and yet devoid of all the characters which long and careful selection through numerous generations had apparently permanently fixed in the parental constitution.

How this may be brought about can be easily imagined by adopting the Pangenesis hypothesis already alluded to, for though in each successive generation of an abnormal form, the proportion of normal gemmules or reproductive molecules, which is transmitted in the blood or sap of the offspring becomes reduced, their complete elimi-

nation is unlikely, hence a fortuitous collection of them at a given centre of growth, may determine a predominance sufficient for the production of the old form instead of the modified one.

The converse cases, however, in which very abnormal forms suddenly appear by bud, seed, or spore variation, to which we are indebted for most of the myriad forms of flower, fruit, and foliage plants which figure in our botanical collections, and to a far greater extent in our florists' catalogues of the present day, permit of no such explanation. In these cases, it may and does happen that a type which has been steadfast for ages, suddenly assumes, through its reproductive centre, a form differing very widely indeed from the normal type. Such forms, moreover, may be and often are endowed with the power of transmitting these newly-acquired peculiarities quite constantly to their offspring, so that a permanent type is produced with the new characteristics. In many cases the metamorphosis is so thorough, that reversion does not appear to occur at all. The abnormal new type, on the other hand, may be only partially modified, the result being not only more or less inconstancy, *i.e.*, partial reversion, but also great diversity in the offspring, of which the majority may be entire reversions.

Much of the difficulty which attends the study of these phenomena, and the deduction of any consistent theory from the result of the observations made, is doubtless due, in the first place, to the enormous area of research; in the second, to the splitting up of that area by the fact that the distinctive features of each tribe of plants are only likely to be properly noted by specialists, who restrict themselves to a comparatively small field, and finally, by the want of some adequate generalising brain to collate the data, and draw the deductions they may justify.

Darwin himself has done this to an unparalleled extent in his *Animals and Plants under Domestication*, in which he brings together a vast host of facts derived from the animal and vegetable kingdoms, in both of which the phenomena of variation run on identical lines. The Fern specialist, however, cannot fail to be very strongly impressed by the necessarily incomplete record afforded by the work in question, when he finds that the very remarkable, and, in some respects, unique powers of variation possessed by the Fern family are summed up in a solitary short remark anent the power of spores taken from abnormal fronds to reproduce the abnormal character. This is the more striking as the thousands of curious instances of sports and reversions which have occurred chiefly under natural conditions, *i.e.*, in wild plants, render it probably a better representative than any other of the manifold phenomena of variation.

With a view, therefore, to the initiation of a record (supplementary, of course, to the data published in the works of the late Mr. T. Moore, Mr. E. J. Lowe, and others), I propose to give an account of the peculiar phenomena of constant and inconstant variation which have come under my own personal experience, trusting that other Fern lovers may add their records thereto, and thus by bringing the various experiences to a focus render palpable some clue to the origin of the peculiarities observed; just as our statisticians, by collecting a mass of apparently unconnected and inchoate figures, often find them arrange themselves into symmetrical groups and curves which reveal laws otherwise undreamt of.

To begin with one of my own finds, Lastrea filix-mas polydactyla, Druery. This plant forms one of the most striking instances of unexpected inconstancy and reversion. It was found in a roadside coppice, near Kilmarnock, in 1884, and when discovered was growing as a single crown in the midst of a dense mass of normal plants. The crown bore four or five fronds, each of full size, *i.e.*, about a yard long, the tips of the fronds and extremities of all the pinnæ being expanded into broad flat tassels, formed of, in many cases, more than a score of slender filaments. All the fronds were perfectly symmetrical, and the pinnæ being longer and slenderer than in the normal form, the weight of the tassels imparted a peculiarly graceful pendulousness. On bringing it home, it was pronounced by the late Col. A. M. Jones, one of our best judges, to be by far the finest polydactylous form found, the next best not being more than half so much divided. As the plant was profusely sporiferous, an immediate sowing was made, from the polydactylous tips only, in order that so charming a form might be perpetuated and distributed. In due course, this being one of the deciduous forms of the species, it died down. The following spring it rose vigorously, but was utterly unrecognisable, though perfectly healthy and robust, the fronds presented no sign whatever of cresting, and were mostly disfigured by a number of depauperate pinnæ, the only abnormal feature distinguishable, save perhaps, a faint trace of slenderness in the pinnæ. Practically, with these exceptions, it seemed a thorough case of reversion. In the autumn a single frond arose with a few pinnæ slightly divided. Since that time, the large majority of the fronds have shown the depauperation only, the rest, with one exception, which was fairly divided throughout, bearing traces only of cresting here and there. From the spores, taken carefully, it will be noted, from the most abnormal portions, viz., the much divided tips, a plentiful crop of young plants resulted, these followed exactly the same course, one or two started very promisingly, showing cresting in all the early fronds; but one and all took eventually to reversion and depauperation exactly like the parents. At my suggestion a second search was made in the coppice, and a second precisely similar plant, with three crowns, was found, one of which was sent to me. This was obviously of identical origin as my own find, as it went through precisely the same course, *viz.*, reversion, depauperation, and spasmodic attempts at reassertion of the tasselled character. One of these three crowns, however, which was retained in Scotland, sent up in 1889 a perfectly symmetrical set of fronds fully equal in all respects to the state it was in when found.

The instability of the abnormal character in this case is very extraordinary, when the perfect thoroughness, symmetry, and extreme development is considered. The depauperation of so many of the fronds, both in the finds themselves, and in the progeny of the first one, is also remarkable, for though it is entirely absent in this case, when the fronds are markedly polydactylous, we find it constantly correlated with another crested form of the same species (L. f.-m. Jervisii), a Staffordshire find, every frond of which is more or less depauperate on one side. Mr. Lowe also chronicles L. p. m. depauperata Monkmanni as a non-crested depauperate seedling from the cristata form, which is very constant and symmetrical. Another crested form (Lowiæ) is also recorded by the same authority as constantly partially depauperate. It is difficult to account for this correlation, as the abnormalities seem essentially opposed in character, one being a deficiency and the other a redundancy. Nor is this apparently a matter as at first sight it might seem to be, of robbing Peter to pay Paul, as there is no extra development of the pinnæ on the opposite side of the frond to the depauperate portions, the occurrence of which seems quite fortuitous. *T. Druery, F.L.S., Fernholme, Forest Gate, Essex.*

(To be continued.)

The Hanbury Institute.—Mr. Thomas Hanbury, of the riches of whose garden at La Mortola we have so often had occasion to speak, has founded, in connection with the University of Genoa, a botanical laboratory and museum, which will be placed under the direction of Professor Penzig. The botanical institute will be open to all properly accredited students, whether connected with the University or not. It is expected that the buildings will be finished so as to be utilised for the Botanical Congress, to be held at Genoa in 1892, in connection with a Geographical Congress and the Columbus festival.

New or Noteworthy Plants.

Eranthemum tuberculatum, *Hook.*

There are many plants cultivated in gardens that have never been referred to a botanist for identification, and have received names without having been described at all, or with a very imperfect description from a botanical point of view, and it is always desirable that these should be identified with known species when possible. One of these botanically little-known plants was sent to Kew recently by Mr. Lynch, the Curator of the Cambridge Botanic Garden, under the name of Eranthemum eboracense, which, on comparing with the Kew Herbarium specimens, I find to be Eranthemum tuberculatum, Hook., described and figured in the *Botanical Magazine*, t. 5405, and the *Floral Magazine* for 1864, vol. iii., pl. 182. On looking for a reference for the garden name E. eboracense, I find it was sent out under this name by Mr. Bull in 1881, who gives a brief description of it on p. 18 of his catalogue for that year. Mr. Bull introduced it from Duke of York's Island, but it is also a native of New Caledonia, Isle of Pines, and the adjoining Loyalty Islands, and in all probability several other of the South Sea Islands. It is a pretty little shrub, with woody stems covered with small tubercles, from which it receives its name. The leaves are exceedingly variable in size, even in the same specimen, ranging from one-third of an inch to 2 inches in length; they are elliptic, elliptic-oblong, or oblong, slightly sinuate on the margin, obtuse at the apex, and narrowed into the petiole at the base. The flowers are freely produced; they are about an inch in diameter, with a tube of the same length, and are pure white. *N. E. Brown.*

Lisianthus.

The plant figured as Prepusa Hookeriana, p. 421 [and which we may here say was flowered at Kew], with the remark that "many of these Gentians, such as Lisianthus, are difficult to cultivate," suggest remarks on their cultivation. It may be taken for granted that many plants of supposed difficult management are easily enough grown, when their cultural requirements have been discovered. The Prepusa referred to was discovered in the first place by Mr. Gardner, and the figure in the *Botanical Magazine* was from a drawing made of native specimens, no clue being given as to how the plants sent over in a living state throve under cultivation. Gardner says he found it on the "summit of the Organ Mountains, at an elevation of 6,857 feet above the level of the sea, growing in large patches in moist exposed places, and flowering in March and April." Here, in a few words, is a valuable clue to the system of cultivation best adapted for this particular plant. It may not be that a too close imitation of the natural conditions under which a plant is found growing is the best, or one that it is possible to follow; but it is well that we should know what they are.

The Asplenium marinum grows freely, exposed to every wind that blows on the rugged rocks overhanging the sea; but if by careful management we may chisel some of them out alive, and transfer them to our gardens, they succeed there best in a warm vinery, under the Vines—conditions the very opposite of the natural ones. In the year 1835, Mr. Drummond sent home some seeds from San Félipe d'Austin, Texas, with the remark that the plants from which they were gathered were not excelled in beauty by any. The seeds were sown, and the plants flowered in 1837, first under the care of Mr. Turnbull, at Bothwell Castle, and then in the Glasgow Botanic Garden, by Sir W. J. Hooker, K.H. The plant was Lisianthus Russellianus, named in honour of the Duke of Bedford of that time, a liberal patron of gardening. The figure in the *Botanical Magazine*, t. 3626, from Mr. Turnbull's plant, shows a remarkably well-grown spray.

Now here is a plant supposed to be difficult of

cultivation, whereas it is easily grown if it gets proper attention, and when well grown is worthy of intense admiration. If good seeds can be procured, that is the chief thing; plants could not easily be obtained in the trade, and even if they could, I advise the purchase of a packet for about a shilling. The seeds are not always good, as not being much in request, they may not always be new.

They are very small, and much like those of Calceolaria. The mode of culture to ensure certain success is this:—The seeds are sown in a pot or pan of fine sandy peat, which has previously been watered and allowed to drain, and is sprinkled over lightly with silver-sand. A piece of glass is placed on the pot, which is shaded from the sun. The sowing may take place in May or June, and I find a good place for the seed-pots is a shelf near the glass in an intermediate-house. If the soil should become dry before the plants appear, it must be wetted by plunging the pot or pan in water for half a minute, or long enough to wet the mould, but not to saturate it; for if the mould be made too wet, the seeds may perish.



Fig. 72.—Narcissus Sir Watkin: perianth canary-yellow, corona deep yellow. (see p. 493)

When the plants appear they will want careful attention, and if water is required, it should be applied as before. When ready to prick off, place three plants round the sides of small pots; they do not grow very rapidly, but they would require to be shifted into 4 or 5-inch pots by September, and would pass through the winter in these pots on a shelf near the glass in a warm house; but the plants have an awkward habit of dying off during the winter, and to reduce the losses, I would still advise dipping the plants instead of watering them in the usual way. [To avoid the necessity for frequent waterings during winter, it has been found to be an advantage to plunge the pots containing them in other and bigger pots, filling in the intervening space with sand, fine coal-ashes, or sandy peat. When growing, the plants may stand in saucers in which is a little water, taking care that the pot is full of roots first. Ed.]

When the plants begin to grow early in the spring, let them be repotted into 8 and 9-inch pots, and in these they will produce their flowers about July and August. I wintered a fine lot of plants some ten or fifteen years ago in a Cucumber-house, where the temperature was seldom below 65°, and they grew into very fine flowering specimens. The plants should also be shaded when they flag in bright sunshine early in the year. I have had single pots of these plants with a hundred flowers upon them; these are of a lilac-purple colour, and resemble those of a small Tulip.

Sixteen years ago, I wrote an article on the culture of this plant for the *Florist and Pomologist*, which brought out another in the next number from that good gardener, Mr. James Barnes of Exmouth, wherein he quite agreed with the above method of culture, and described how well an amateur of small means grew them at Exmouth, he having only a small greenhouse and a two-light pit. This amateur, by name Webber, used 10 and 12-inch pots in which to grow his plants, and a compost of well-decomposed cow-dung, leaf-mould, heath soil or light turfy loam, and plenty of sharp sand to keep the compost open. One point in their culture I noted, that in winter the pots containing the plants were placed in saucers, the reason being that they were never watered on the surface of the soil, "but tepid water is always applied to the saucers." If the surface of the soil, late in autumn and through the winter, is watered, the plants are very liable to shrink off or canker at the surface, and that, too, very suddenly.

When the old plants have flowered, they may be thrown away, unless it is intended to save seeds from them. They are produced freely in a greenhouse. L. princeps is a very desirable plant if we could obtain living plants, and flower them. Dr. Lindley first described this beautiful plant in vol. iv. of the *Journal of the Royal Horticultural Society*, September 12, 1849. But he had not seen a living plant. M. Linden, of the Luxembourg nursery, had raised it from seed, but it had not flowered with him at that time; but it was figured later in the *Flore des Serres*. Dr. Lindley described it as a plant of great beauty, the corolla being 5 inches long, and 1 inch wide in the widest part; the cup of the calyx is half an inch deep, and we now know the corolla is yellow and crimson. It is a native of New Grenada. I remember being present at a sale in Stevens' Rooms some eighteen years ago when a packet of seeds, sent home by some collector, was sold for about £17, Mr. B. S. Williams being the purchaser. Whether any of the seeds vegetated, I do not know; but I have not heard of, nor ever saw, a flowering plant of it. Collectors ought to look out for this fine plant.

In the same year that Dr. Lindley published his account of L. princeps, another rather pretty species, L. pulcher, was figured in *Bot. Mag.*, t. 4424. This

*

species is also of New Grenada, and was detected by Mr. Purdie on the Monte del Moro in October, 1845. It forms a tall shrub, 5 to 7 feet high, and the spikes of flowers are much like a scarlet Pentstemon, with the flowers having a white throat. It grows, Mr. Purdie says, at an elevation of 7000 to 8000 feet, on shelly limestone rocks, which are merely covered with a thin stratum of dry peaty soil. It would be a great boon to many of these two last-named beautiful plants could be freely cultivated; it is not much use writing about them, except to ascertain where and how they are grown. *J. Douglas.*

A HISTORY OF ENGLISH GARDENING.

(*Continued from p.* 418.)

ELIZABETHAN GARDENING.

On either side of the "open" paths of the garden, were often ranged at various distances from one another, columns of stone,* "greate Turkie Jarres," pyramids of wood, or of other material, or "large Carnation pots." The latter, Sir Hugh Platt tells us, were generally pierced "with ranks of sloping holes of the bigness of a man's finger, each rank one inch distant from another," then planted with "Carnations or Lilies," and in every hole was set a plant of Hyssop or Thyme, which was "kept even by much clipping." These Carnation pots, we gather from the same old author, were set upon "fair pillars" in the garden.† "Also," writes Platt, continuing, "you may make either of stone or of wood, pyramids, losinges, circles, pentagons, or any forme of beaste or fowle, in wood, or burnt clay full of slope holes (as before in Gileflower pots); these being planted with hearbes, will very speedily growe greene according to the forme they are planted in. And in this manner, in two years space you may make a high pyramid of thyme or rosemary." ‡

The knots, as we have mentioned in a previous article, consisted of flower-beds (sometimes merely marked off by a border from the same level as the adjoining ground, sometimes raised about a foot above the level of the gravel walks §), edged, as Parkinson observes, with "living herbs or dead materials." "Of herbs," writes Parkinson, "there are many sorts wherewith the knots and beds in a garden are used to be set."

Dwarf Box, which appears to have been introduced into this country by the French gardeners, ‖ was the material most commonly used, though Thrift, we are told, was the "most aunciently received." Gerarde, writing in 1597, remarks that the latter plant was much used for "the bordering up of beds and banks for which it serveth very fitly." It also had a "tendencie to growe thicke and bushie," and "in summer tyme sent forth many short stalks of pleasant flowers which serveth to deck up a house among other sweet herbs." Germander, Hyssop, Marjoram, Savory, and Thyme, "in like manner being sweet herbs," were also used "to border up the beds and knots." ¶ Lavender cotton, being "a raretie and a noveltie," was only used in the gardens of "great persons." ** Slips of Juniper and Yew were also "received of some, and planted because they are always greene." The "dead materials which Parkinson speaks of were," as he says, "verie divers," and consisted of leads, tiles, bones, "round whitish or blue pebble stones of some reasonable proportion and bigness, and such-like things."

The pattern of the knots was strictly geometric, stiff and formal, like the patterns of Arabic tracery, but withal very well adapted for filling in with harmonious colouring. Sometimes the knots were filled with divers coloured earths, but as Bacon remarks, "they be but toys: you may see as good sights many times in tarts." More generally, however, they were thickly planted with flowers. Parkinson mentions an arrangement of spring flowers which, "all planted in some proportion, as neare one unto another as is fit for them will give such a grace to the garden, that the place will seem like a piece of tapestry of many glorious colours, to increase every one's delight." He also tells us that "Tulipas may be so matched, one colour answering and setting off another, that the place where they stand may resemble a piece of curious needlework or piece of painting." Those kinds of flowers which "being strangers unto us, and giving the beauty and bravery of their colours so early, before many of our owne bred flowers, the most to entice us to their delight," were the most generally chosen by the Elizabethan gardeners for filling in the knots. It was one of the chief aims of the gardener to produce a rich effect of colour, and therefore he planted such flowers as Daffodils, Fritillarias, Hyacinths, Saffron flowers, Lilies, Irises, Tulips, Anemones, and a "number of such other flowers, very beautiful, delightful, and pleasant, whereof although many have little scent to commend them, yet their earliness and exceeding great beautie and variety doth so far countervaile that defect, that they are almost in all places with all persons, especially with the better sort of the gentry of the land, as greatly desired and accepted as any other the most choicest, and the rather, for that the most part of these outlandish flowers doe show forth their beauty and colours so early in the yeare, that they seem to make a garden of delight even in the winter time, and doe so give their flowers one after another, that all their bravery is not spent until Gilliflowers, the pride of English gardens, do show themselves."*

Of Daffodils there were almost a hundred sorts, "every one to be distinguished from the other," and many of them bore flowers "so exceeding sweete, that a very few" were "sufficient to perfume a whole chamber." Of Fritillarias or "Chequered Daffodils," there were some "half a score, several sorts, both white and red, both yellow and blacke, which," says Parkinson, "are a wonderfull grace and ornament to a garden in regard of the chequer-like spots that are in the flowers." Of Hyacinths there were nearly fifty sorts, "some like unto little bells or stars, others like little bottles or pearles, both white and blew, sky-coloured and blush, and some starlike of many pretty various formes, and all to give delight to them that will be curious to observe them." Of Crocuses there were only about twenty sorts known to the Elizabethan gardeners. One of these, the "Medowe Saffron," was called "the sonne before the father," but, as Parkinson observes, "not properly!" "Then have wee," writes the same old author elsewhere, "twenty several kinds of Lillies," among which he reckons the Crown Imperial "that for his stately forme deserveth some special place in the garden." This latter plant was a great favourite with the Elizabethans, and is often mentioned in the poetry of the period. Shakespeare, it will be remembered, mentions it in *Winter's Tale*, act iv., scene i.† Many varieties of Martagon Lilies were grown, "both white and red, both blush and yellow," and they were generally set by "themselves apart as it were, in a small round or square of a knot without many other, or tall flowers, growing neare them." The number of sorts of Tulips grown by the Elizabethan gardeners were "so many as to be almost infinite." They were, too, of "such wonderfull variety and mixture of colours," that it was "almost impossible for the wit of man to decipher them thoroughly." The Tulip was introduced into this country probably about the year 1577,‡ and less than fifty years afterwards we read that there was not "one lady or gentlewoman of any worth," in the whole realm, "that was not caught with the delight of cultivating these flowers, or not delighted with them." Anemones or Windflowers were also planted out in the knots because they were "so full of variety and so dainty, so pleasant and so delightsome flowers, that the sight of them doth enforce an earnest longing desire in the minde of anyone to be a possessor of some of them at the least." Another flower grown in the borders was the "Beare's ear," or Auricula, and of it were many varieties of "many differing colours, not unfurnished with a pretty sweet scente which doth add an increase of pleasure to those that make them an ornament for their wearing." Of Irises there were many sorts, and they were much esteemed. "The Greater Flagge," says Parkinson, "well doth serve to decke up a garden and house." "But," he continues, "the chief of all is your sable flower, so fit for a mourning habit, that I thinke in the whole compasse of Nature's store, there is not a more pathetical, or of greater correspondency, nor yet among all the flowers that I know any one coming neare unto the colour of it." The Hepatica was "another flower of account, whereof some are white, others red or blue or purple." The Elizabethan gardeners also cultivated in their knots a number of varieties of Ranunculi and French Marigolds, which made a glorious show for colour."

The "side-beds" of the Elizabethan Gardens—the beds which were laid out immediately inside the garden walls, were generally reserved for the cultivation of what Parkinson calls "English" flowers Among these may be noted: Primroses and Cowslips, "whereof there be many varieties."* Wallflowers, "very delightful to be set under a parlour or chamber window."† Sweet Williams, grown as Gerarde remarks, "more to please the eie than either the nose or the bellie."‡ Snapdragons and Columbines, "single and double, of many sorts, fashions, and colours, very variable, both speckled and party-coloured;" "flowers of that respect that no garden would willingly be without them that could tell how to have them." Pansies or Heartsease, "of divers colours; and, although without scent, yet not without some repute and delight." Double Poppies, "of a great and goodly proportion, adorning a garden with their variable colours, to the delight of the beholders." Stocks, "almost as common as Wallflowers, especially the single kinds, in every woman's garden." Double Daisies, "white, red blush, speckled, and party-coloured." Double Marigolds, Canterbury Bells, Pæonies, double and single; and Carnations and Gillyflowers, "whose bravery, and variety, and sweet smell, joyned together, tyeth everyone's affection with great earnestness, both to like and to have them." Besides these old-fashioned plants, Sunflowers, Hollyhocks, and a few other large-growing ones, not suitable for planting in the knots, were cultivated in the "side-beds." *P. E. N.*

(*To be continued.*)

* Hentzner, writing in 1598, tells us of columns and pyramids of wood and other materials "up and down the garden," at Theobalds.

† Platt, *Garden of Eden*, p. 75.

‡ *Ibid.*, p. 76. In hot weather Platt tell us that these pyramids were to be covered with canvas, and watered now and then by some artificial means.

§ Thomas Hill, *Profitable Art, &c.*, p. 13.

‖ See *Gardeners' Chronicle*, vol. iv., p. 737.

¶ Parkinson's *Paradisus*, p. 5. ** *Ibid.*, p. 6.

* Parkinson's *Paradisus*, p. 8.

† Gerard writing in 1597, mentions that it had been brought from Constantinople among other bulbous roots, and made "a denizen in our London gardens." *Herbal*, p. 154.

‡ See Gerarde's *Herbal*.

* Parkinson's *Paradisus*, p. 11.

† Bacon's *Essays on Gardens*.

‡ *Herbal* (1597), p. 473.

NURSERY NOTES.

CINERARIAS AT FARNHAM ROYAL.

On April 29, 1879, eleven years ago, there was issued with the *Gardeners' Chronicle* a coloured illustration of three of the red-hued varieties of Mr. James's then popular strain of Cinerarias. The production of this plate on the occasion of a recent visit served most admirably to mark time in the onward advance made by Cinerarias when compared with the wonderful flowers of to-day. Taking the plate referred to as evidence of the life size of the blooms at the date named, it is certain that during the past decade Cineraria flowers have practically doubled in average size, and have as greatly advanced in breadth and stoutness of petal. At the recent visit referred to, there was special interest attached to the

presence of one visitor who had been a grower of Cinerarias for market largely some 30 to 35 years ago, and in whose day Weatherill's strain occupied the place of pride. With the recollection of these flowers of old days still strongly lingering in his mind, and full of belief that it was the best strain ever seen, the old grower confessed that he was astounded at what he saw of the Cinerarias at Farnham Royal. If the illustration of but eleven years ago shows by comparison how great is the advance made in that short interval, it is not at all difficult to realise what has been the advance made in some thrice that length of time. But it is not only in size and quality of bloom that advance has been made. There is a remarkable advance in habit evident. A tall leggy plant is never seen at Farnham Royal, although some 2,500 are just now blooming there, yet the front row ranks start at 10 inches, and they rise gradually up to a height of 14 inches, but nothing taller. Thus we find an average of about 12 inches as the natural height of the present good strain of Cinerarias, and those which are taller and leggy in habit should be discarded.

If there be no great variation in colours beyond what were seen in the old days, there is much greater body and more defined markings. It is difficult to define the most pleasing, as the selfs are so rich, whilst the ringed flowers are so lively. There has been a very marked advance in the pure self, indeed these stand out as a specially valuable section, because of the ever-increasing demand for white flowers. Mr. James mentions that the white selfs invariably come very true to colour from seed. Taking the selfs as found in one long house, they start with big blotches of whites, then rich cobalt blues, purples, rosy-reds, and deep reds and crimsons. Whilst the whites are pretty much alike, there is divergence of shade and tint in the other sections, but for seed-saving purposes some half dozen of colours suffices. In a second house are blocked in a similar way the edged or ringed flowers. Of these come first the blues in diverse tints, all wondrously beautiful and effective. Then follow the purple and purplish-red tints, some of the blooms being of inordinate size. The most brilliant section, however, is found in the deep red and crimson-lined edged flowers; these make glorious banks of colour, and, seen in the subdued sunlight, are beautiful indeed. Finally came the light reds and carmine-edged flowers—a very pleasing selection. Some flowers of the best possible form measure from 3 inches to 3½ inches, but the average size is about 2½ inches. The entire show will be in the finest form about the middle of April, and a month later the splendid collection of Calceolarias will be a brilliant show also. A large number of plants in 10-inch pots we may hope to see in London when in full bloom. They are just now the very picture of health. *A.*

Orchid Notes and Gleanings.

BRIDGEN PLACE, BEXLEY.

Worthy of ranking among the leading collections in the neighbourhood of London stands that of Mrs. Arbuthnot. The garden, a fine one, has been laid out with taste and discrimination by her son, F. G. Arbuthnot, Esq., and an excellent selection of Orchids made, which, thanks to the good accommodation provided for them, and the skill of Mr. Mitchell, the gardener, have attained to great vigour and floriferousness.

In every collection there is a leading feature—a something which strikes the visitor more forcibly than anything else; and this feature at Bridgen Place comprises the Cattleyas and the Odontoglossums. At present the latter give the better show, and it is not often that one sees a display more satisfactory than that which is found in the commodious Odontoglossum-house at the present time. There are scores of fine spikes of O. crispum and O. Pescatorei of a very fine strain, all being large-flowered, some prettily spotted, and shaded with crimson and rose, and one is of a very great size and unusual form, the labellum being elongated so as to approach the petals in length. Another exceptionally fine strain is that of the O. Rossii majus, which at Bridgen Place appears in much variety. Let us select the three best. First should come O. Rossii rubescens, a plant with several spikes and flowers, the latter suffused with bright rosy-lilac; then comes a variety with flowers of fine size and substance, the petals and labellum wax-like, and of a clear French white; and the third with an unique crimped labellum, much longer than usual, the callus at the base of the lip bright yellow, and the rest of its surface, and the petals, beautifully veined with pink. In addition to the reddish blotches usually seen on the lower half of the petals, the variety in question has several other large blotches irregularly scattered over the outer half of the petals. These are three charming forms of O. Rossii majus. In the same house, in bloom, were some fine plants of O. triumphans, a noble form of O. Harryanum, O. luteo-purpureum, O. Andersonianum, O. Wilckeanum, O. odoratum gloriosum, the beautiful Oncidium lamelligerum, Masdevallias, and other showy things.

About the staging of this house: it will be well to remark that the close staging for giving off moisture is covered with small coal, the upper open staging being a wood frame covered with half-inch galvanised wire-netting for the plants to stand on, the legs of the upper staging standing in pans of water on the close staging, in order to keep creeping insects of all kinds from having access to the plants. Rain-water is used, and a system of free ventilation believed in and acted upon.

In the other two divisions of the new range of cool-house are, in the first division, magnificent Miltonia vexillaria and Cypripedium hirsutissimum, C. villosum aureum, C. Boxalli, C. callosum, and others, in bloom. In the second division is a splendid piece of Maxillaria Sanderiana with three of its noble white and crimson flowers; a beautiful form of Miltonia cuneata, whose flower segments are yellow or buff at the tips; a pretty Coelogyne breviscapa with many flower-spikes; Odontoglossum hastilabium; some fine species of O. cordatum; Epidendrum prismatocarpum; and here, as in some of the other houses, are some grandly flowering plants of Oncidium sarcodes.

In the Cattleya-houses are some fine forms of C. Trianæ in bloom, also C. Schroderæ, the very handsome C. labiata speciosissima, and, well set with sheaths, some good specimens of C. labiata Warneri, C. Mendelii, and all the other showy Cattleyas and Lælias. In this range, too, is to be seen a fine display of varieties of Lycaste Skinneri; a charming variety of the crimson Broughtonia sanguinea; a grandly flowered specimen of Oncidium Marshallianum with a seven-branched spike; two specimens of Ada aurantiaca, each with eight spikes; Cymbidium eburneum, and some Odontoglossums.

In the East Indian house were Phalænopsis of all the leading species — large, well-flowered plants, some sprays of P. grandiflora and P. Luddemaniana superba being especially good. Here, too, in bloom, are Angræcum citratum and Miltonia phalænopsis, the last-named growing very vigorously, and sending up spikes in profusion, in a corner allotted to it, just within the doorway.

In the stoves and general plant-houses—of which there are many, and all in fine order—were specimen Anthuriums, now well furnished with spathes, and other stove foliage plants with these being the Dendrobes, among which were D. fimbriatum, D. f. oculatum, D. nobile, D. Devonianum, the rare D. chlorops, with twenty to thirty of its yellowish-white flowers on each spike, and others now in bloom. *J. O'B.*

The Kilns, Falkirk.

The name of John Gair, Esq., is familiar to all Orchid growers in Scotland. I had looked forward with pleasant anticipation for some time to a visit I was to pay to The Kilns. The collection has been recently thinned of some of the duplicate and surplus plants, which have been disposed of, but the houses seem to be, in spite of this, as well filled as before Plants of Cattleya Trianæ were making a good show in its varied forms; and the following Cypripediums were in flower:—C. Druryi, caudatum, Sedeni, candidulum, Warneri, Dominianum, and others; C. grande was also showing a fine flower-spike. The delicately coloured Dendrobium luteolum was flowering freely beside its brighter ally, D. lituiflorum, and overhead were two fine pans of Dendrochilon (Platyclinis) glumaceum, at their best—not one of the most strikingly coloured, but certainly one of the sweetest-scented Orchids we have.

Fine masses of Cattleya citrina, on blocks, were growing and flowering freely, as a rule. Mr. Fairbairn told me these plants had been in his charge for some years, and they do not show the slightest diminution in size of plant or of flowers.

Odontoglossum Cervantesi, and var. roseum, were flowering side by side, showing the superiority of the latter over the type. Other varieties of Odontoglossum were well represented by O. crispum, O. triumphans, O. Rossi in variety, and O. gloriosum. A striking object in this house was a compact mass of Sophronitis grandiflora, covered with its brilliant flowers. Of a large number of Dendrobium nobile some were in flower, large pieces of the pure white variety, D. nobile album, being amongst them. These were in bud, and seemed to be quite as free-flowering as the type form. I have seen this variety in bloom, and can speak as to its beauty. It not only flowers freely, but the flowers last a long time.

The work of hybridising has not been neglected here, for I was shown some promising seedling Cypripediums. This, as I have often heard it remarked, is a slow part of the business. Granted that it is; by patience and perseverance good results are sure to come, and no one knows excepting those who have indulged in it, how interesting it is to watch the progress of seedling Orchids.

Other departments at The Kilns are quite in keeping with the Orchid-houses, everything being in the best of order and good keeping. I returned to Loch Long feeling amply repaid for my visit by witnessing the results of Mr. Fairbairn's skill as a gardener. *J. Brown, Arddarroch, Loch Long, N.B.*

Florists' Flowers.

THE HOLLYHOCK.

There were very few raisers of the Hollyhock in England forty years ago. As far as I can recollect, Messrs. Paul, of Cheshunt, were taking them up. Mr. Baron, a shoemaker, and Mr. William Chater, both of Saffron Walden, had been doing good work for some years previously, and had laid a foundation that other men have built upon. It was stated, then, as it has been since, that Chater's best flowers were raised from seeds obtained from foreign sources; but in a communication of his in the *Florist*, vol. i., p. 323, this is denied. He says, "Neither Mr. Baron or myself ever had foreign seeds; they are all true English sorts. I have seen thousands raised from foreign seeds, but never in my life have I seen more than one or two which I considered worthy to rank as first-rate flowers. I procured a variety from Mr. Rivers, of Sawbridgeworth, which, he told me, he raised from German seeds, I call it Turantia; it is novel in its colour, and good in form. At that time the characters of the different varieties had not been fixed, as is now the case; for it is a well known fact, that seedlings raised from a good variety will come as good, and of much the same colour as the parent. There may be 50 per cent. of them below the quality of the parent, but as many will be as good, and some excel it in quality. I fancy Mr. Chater's flowers must have been fertilised by bees, which are very fond of the nectar of the flowers.

Mr. Chater remarked that "some sorts have a

peculiar propensity to sport into opposite characters; for instance, Black Prince will always produce some of a creamy-white, as well as black, and this I am quite certain from the same plant, and I believe from the same seed-pod. Reds again, will produce yellows; and yellows, reds, as well as various tints and shades." The Saffron Walden flowers of Baron and Chater were of good form, high in the centre, but rather small. The Scotch flowers are large and flat, with wide guard petals, like Tam o'Shanter bonnets. One of the raisers of Hollyhocks was Mr. John Laing, of Dysart, now of Stanstead Park Nursery, S.E., who was constantly looking out for what he could improve. He tried to cross the Tam o'Shanter bonnet type with the small, neat and high centred Saffron Walden Seedlings, and was very successful, and in a few years had almost revolutionised the Hollyhock.

The Hollyhock is hardy enough, but to grow such flowers as may be seen at Newcastle-on-Tyne and other northern exhibitions, they must be wintered in pots in cold frames or in a cool greenhouse. Two classes of plants must be prepared. Those intended to flower from the end of July well into August should be raised from cuttings or single eyes the previous summer or early autumn. The latest flowering plants may be struck from cuttings or root-grafts in the spring; the plants to flower earliest may be planted in April, and the later ones in May. Seedlings are easiest managed, and need no glass protection in winter. Sow the seeds in May, and grow the young plants on in boxes, or on a piece of well-prepared garden ground, until they are large enough to plant out where they are to flower, which will be some time in July. Plant in rows 4 feet apart and 3 feet asunder in the rows; they will flower grandly the following season.

Some good growers in the south have become greatly discouraged, because of the Hollyhock fungus (Puccinia malvacearum) attacking the leaves in every stage of their development. The growers in the north have to contend with this same troublesome disease in their plants, but they are determined to have Hollyhocks in their gardens, and struggle on against it as best they can. A theory has been propounded that the forcing in the spring of grafts and cuttings by means of heat has weakened the constitution of the plants, and made the leaves a fit host for the fungus, which shows itself on the under-sides in the form of brown spots, the leaves being sometimes sparingly, and at other times densely, covered with them. My own experience of the last few years may be instructive, or, at the least, of interest to cultivators.

During the winters of 1887—8 and 1888—9 the plants were left out, scattered about in different positions in the flower-garden; at least a third of them were killed by the severity of the weather, and during two seasons the plants flowered fairly well without showing any trace of the disease. As an experiment, all the plants were dug up in the autumn, planted in pots, and placed in a cold pit. Early in the year I set to work to propagate as many plants as possible by means of cuttings. These were taken with a heel, and planted singly in thumb-pots, rather moist soil being employed, as it is not considered safe to water the cuttings at all until roots are formed. They were placed in gentle bottom-heat in a forcing-house, and, to prevent flagging, they were covered with a close-fitting hand-light. Under this treatment all the cuttings made roots, and as they were taken out of the hand-glass, it was found that some of them had taken the "disease." I am sure I do not know where the resting-spores were during the last two years, or in what subtle way the disease propagated itself under that close hand-glass. I am treating it with flowers-of-sulphur in a dry state this year, and I imagine that we shall arrest its further progress. Of course, a mere dusting of the surface would not have much effect, but a careful workman takes the sulphur between his finger and thumb, rubbing it well into the surface of the affected leaves; also dusting all those leaves not diseased. The Hollyhock stools which were taken up seem to be so far free from fungus, and are ready to be planted out—I left one growth on each stool. The young plants are making good progress, and will be strong enough to plant out where they are to flower early next month. I would here urge the importance of giving the plants very rich deep soil to grow in; the Hollyhock requires rich land, deeply dug, so that the roots may penetrate it easily, which they will do to the depth of 3 feet. A mulching of manure put on the soil after planting is a good aid to healthy growth. I also like to put the permanent stakes to the plants at planting time, so that no injury can occur to their roots by blindly driving them into the soil. It is desirable to place some rich potting soil around the roots of each plant when planting it, especially if the soil be heavy. *J. Douglas.*

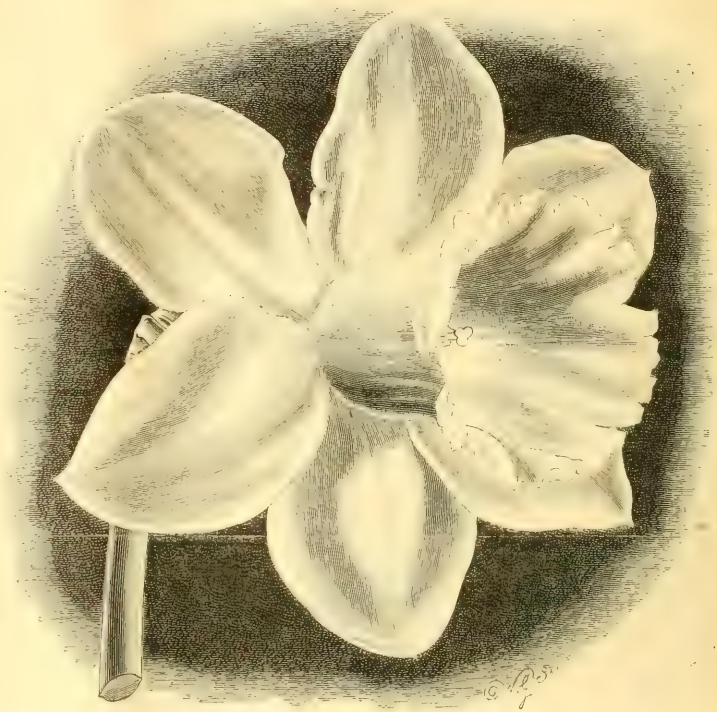


Fig. 73.—Narcissus Glory of Leyden: perianth deep primrose-yellow, corona rich yellow. (see p. 493.)

The Auricula.

We have now passed the middle of April, and whatever turn the weather may take, the season cannot be an early one. The plants in frames, even the earliest of them, are yet in bud, and the cold winds blowing prevent the expansion of the delicate blossoms. Warm nights and moderate sunshine are absolutely necessary for the making of a perfect pip. The edges are always more or less imperfect, and the pips have a poor pinched appearance when the plants are forced or the flowers allowed to open in cold weather. Imperfections, such as serrated edges, arise from excessive cold after the pips are formed, or too much heat to push them into flower; and if they are injured by cold, no after-treatment would develop perfect flowers, although a genial warmth with careful attention as regards ventilation would improve them—but the point to be aimed at in good cultivation is to maintain a growing temperature round the plants from the time the stems of the trusses are visible. Forcing Auriculas into flower in the way that some spring flowers are forced is out of the question; they will not stand it. The only way to apply artificial heat is to place the plants in a position near the roof; the atmosphere should be moderately moist, and the temperature such as will not draw the plants in leaf nor flower stems. In cold weather I do not like the minimum temperature to rise above 40°, and keep the ventilators open a little all night long. All the trusses have strong stems to support them without the aid of sticks, although the natural tendency of some is to push in a lateral direction, owing to their position on the plants. The stems are not weaker than those that are upright; but they do not look well in such a position, and we place neat sticks to them to keep them erect. Auricula fanciers will not mind the trouble involved in thinning out the pips where they are too numerous on the trusses. Many varieties produce immense trusses, with from twenty to thirty pips on each; when this is the case, a number of the centre pips will be below the medium size, a few will be altogether imperfect—these ought to be removed. Many practical gardeners who have no general knowledge of florists' flowers, nor any particular fancy for Auriculas, may smile at all this trouble, as they call it; but it is really no trouble at all, and an Auricula fancier could not stand by and see well-marked pips elbowed out of place by those that are more or less imperfect.

All offsets of the best varieties should be put in

at once, as with careful culture such will make good flowering plants for next year; and those offsets that are rooted should be potted on as they require it, using moderately rich soil, and rather lighter for the young plants than for full-grown specimens. Greenfly I can deal with, either by dipping the plants, or fumigating the house or frames; but the white aphis (Trama auriculæ), is a great puzzle, it not only clings round the necks of the plants, covering every part of it, but pushes downwards amongst the roots, and fills up the interstices in the drainage. Recently it has taken another form, and tiny white things have come up from the roots, and have for a time covered the leaves. They do this during the early summer; but I noticed a plant to-day, a green-leaved variety, thickly sprinkled with it. It is rather unaccountable that no evil effects follow these raids upon the leaves, any more than they do from an attack upon the roots. A florist friend remarked recently that the aphis lodged upon the Auriculas but did not board there, and was met by the pertinent query, "Where did they board, then?" For my part I cannot answer the question, but they resemble very much the white woolly aphis that lives or lodges upon Lettuce roots. I have seen, as others also have seen, the roots of full-grown Lettuces covered with this insect, but the plants were apparently uninjured, and yet they must get their sustenance from the plants in some way, or why should they cling so pertinaciously to them. *J. Douglas.*



Fig. 74.—Narcissus Madame de Graaff: white perianth, cream yellow corona. (see p. 493.)

Flowers in the Scilly Islands. — Two hundred tons of flowers, 800 tons of Potatos, 150 tons of vegetables, 3 tons of Seakale, and 5 tons of Tomatos, were sent last year from Scilly. The rate of carriage to Covent Garden is, says Mr. Brewer, 7*s.* 6*d.* per cwt., and the salesman's charge 10 per cent., if he supplies boxes.

EDIBLE PINE SEEDS.

The seeds of many of the Conifers form an edible nut in very many countries. Those of the Stone Pine (Pinus pinea) are largely used at dessert with wine in Italy, under the name of Pignones or Pine Nuts. The seeds of the following species are edible: P. albicaulis, P. cembra, P. Coulteri, P. edulis, P. Gerardiana, P. Lambertiana, P. Llaveana, P. monophylla or Fremontiana, P. monticola, P. pinea, P. Sabiniana, P. Torreyana.

The seeds of the Pine cones are in many instances in Europe and America preferred to Almonds, in consequence of their more aromatic and delicate taste, and their moderate price, which ranges from £2 10*s.* to £3 per cwt., according to the abundance of the yield. The first quality, Pignones, unshelled, are chiefly consumed in steamboats during long voyages, or for dessert at the principal hotels, either by themselves, or mixed with Sicily Almonds. They are shipped in small cases of half a hundred-weight to 1 cwt.

The seeds of Pinus albicaulis are used as food by the Indians of British Columbia. The nuts of P. Coulteri of California, are nutritious. Those of P. edulis of New Mexico, are produced in immense quantities, and are of a very pleasant flavour.

Of the seeds of the Nevada or edible Pine of Nepal (P. Gerardiana), there is a local proverb, "One tree support a man's life in winter." The seeds are collected and stored for winter use, and largely eaten by the hill tribes as Nuts, especially in Afghanistan and Kafristan; they are brought to India by the Afghan traders. The edible seeds of P. Lambertiana of California, are edible, and much appreciated; so are the large seeds of P. monophylla, of the Rocky Mountains, of an Almond-like flavour, which are consumed in quantities by the Indians, as those of P. monticola. The seeds of P. monophylla, common on the borders of Lower California are gathered by the Indians for food; though rich and good when fresh, they are more digestible when roasted, in which condition they are made into a palatable bread or mush. The interior of the young cones is also eaten. The harvest commences as soon as the cones begin to open. The children gather the cones from the ground, and women pluck them from the trees, lowering their collection from time to time in a net. To facilitate the opening of the cones, they are thrown on hot ashes for a few minutes; the seeds are then removed, put into an earthen pot over a slow fire, and after a few stirrings, are sufficiently parched to render the husk brittle, so as to be easily removed.

The nuts of P. Torreyana, a very rare Pine, growing only on the hills in Southern California, are also used as food by the Indians near by. An average cone will contain about 130 large and wholesome seeds, weighing 3 ounces.

The Pinus pinea is cultivated for its edible seeds, which has a taste resembling Sweet Almonds. They have, when kept, a resinous though not a disagreeable taste, and should be left in the cones until they are about to be used, as otherwise they speedily become rancid. They only ripen in their third year.

In Switzerland the seeds of the Stone Pine are used both as food and an article of luxury. The shell being very hard, and requiring time and skill to separate it from the kernel, the doing so forms an amusement for some persons in the long winter evenings.

The clustered heavy cones of P. Sabiniana of California and the Rocky Mountains attain a length of 1 foot. The edible seeds are produced in great profusion, and constituted formerly a large proportion of the winter food of the native tribes.

The large cones of Araucaria Bidwelli shed their edible seeds, which are 2½ inches long by three quarters of an inch broad. They are sweet before being perfectly ripe, and after that resemble roasted Chestnuts in taste. They ripen in the month of January every three years; the natives prefer them to any other food. They are known as Bunya Bunyas.

The Pinones of the imbricated-leaved Pine of Chili are a chief article of consumption among the Indian tribes. As the seeds will keep long, they are often imported into the southern districts of Chili from the Cordilleras, and are eaten by the country people either raw or cooked. The seeds are buried by the Indians for winter use. *P. L. Simmonds.*

THE APIARY.

A NEW SUPER CLEARER.

Novices have often had much trouble in clearing supers. If they are removed entirely away from the hive, the bees will often get so frightened, thinking that their honey is going to be taken away, that they will have a good feed before they start. They will open a lot of the cells, and partly empty them of honey. Sometimes they will tear open more cells than necessary for their purpose, and thus many sections would be spoilt; and if the honey is in some large super, and required for show, it would be unfit for the purpose. Under these circumstances, it is pleasant to welcome a new automatic super-clearer, which will, doubtless, be advertised in due course. Its great advantage consists in the fact that the rack of sections is emptied in the hive, and when empty it is only necessary to go and lift it off, and carry your honey triumphantly away. It requires to be seen to be thoroughly understood; but, to be brief, it consists of a half-inch board, with passages for exit. If the bees had the sense given to some animals, they would be able to return into the super; but though bees seem to have marvellous powers in some respect, they are very stupid in others. For instance, if a hive is removed only a few (2 or 3) yards away, the bees cannot find

their way back to it, and blunder hopelessly about, till entering other hives, they are killed. In this super clearer the bees can easily find their way out, but cannot find their way back again. They can hear the hum of the bees, and try to enter the super by impossible ways, only to be frustrated. Thus the super may be raised in the morning, the clearer put underneath in position, and in the evening you could go and fearlessly remove your supers, carrying them away without a bee, and perfectly sealed.

It will be necessary to see that robbing does not commence, as when it once commences it is very difficult to stop it. The cause is generally opening the hives to feed, and perhaps spilling a few drops of syrup about. One very good plan has lately been mentioned in the *American Bee Journal*, but it is not new, as I have frequently tried it myself. It is to put a piece of glass in front of the hive being robbed, so that the bees can come out at the sides. The robber bees will not be able to discover the way in, but will keep giving themselves bumps against the glass, and will finally give up the attempt in disgust. *Bee.*

The Alpine Garden.

SAXIFRAGA RETUSA.

Every week in early spring we read praises of S. oppositifolia, which I admire very much, but I never see S. retusa (Gouan) mentioned. Its cultivation is similar; hot sun and drought must be avoided, and plenty of finely broken stone given above and below ground. It flowers far more densely than any form of S. oppositifolia, and arranges itself more elegantly, and is more compact in habit, every shoot being crowded with flowers from the base to the tip. It flowers here about a fortnight later than S. oppositifolia.

Primula amœna.

To save trouble, as this plant is so often confused with P. cortusoides amœna (see p. 272), it may as well be stated that the two plants are widely distinct in nearly all their parts. P. amœna of Bieberstein, the Caucasian plant, about which I enquired, has entire leaves, like those of the common English Oxlip; in fact, some botanists have considered it a purple variety of the European Oxlip, P. elatior. The varieties of P. cortusoides, or P. Sieboldii, all have incised pinnate or lobed leaves, and an entirely different habit of growth. Max Leichtlin, of Baden-Baden, had P. amœna once, but I am afraid he has lost it. Hot and dry lowland summers, and red-spider, are deadly enemies of these rare forms of Primrose. *C. Wolley Dod.*

Colonial Notes.

DURBAN.

The Report of the Natal Botanic Garden for the year 1889 has reached us. In it Mr. Medley Wood chronicles for the fifth year in succession a deficiency in the rainfall, which amounted to 29.2 inches, an amount which, in this country, we should deem adequate, but which is 11 inches below the average in Natal, where the temperature and light are so much more potent than with us. The consequence is, that Palms and other fine trees have greatly suffered, and some are dead. The report in question also contains a descriptive list of the most useful economic plants grown in the garden, with notes on their probable use in the Colony.

Cape Town.

Professor MacOwan's report is tinged with bitter disappointment, as it well may be. "To run the garden on the principle of one-third grants and two-thirds earnings, was not a dignified way of keeping up a public institution," but it was a possible one when the garden had the practical monopoly of the trade. But now the garden has six trade rivals competing with it, and taking from it the profits with which it was kept going. Under these circumstances it is no wonder that the garden profits are decreasing, and that there is little hope of remaining solvent, "unless expenditure can be brought down within the lean ribs of income. . . . There is only one way of doing this: it is by confessing that the Cape Colony does not care to carry on the gardens as a scientific establishment, throwing overboard the director, the salesman, and the seed shop, and leaving the head gardener with his native labourers to do what he can with the place as a pleasaunce of common flowers and gravel walks." "I regret most bitterly that after having for nine years fought the place clear of debt, amid anxieties no tongue can tell, I cannot honestly predict any better future than its dropping out of the list of scientific establishments through sheer poverty and grovelling on as a mere pleasure-ground for the town children and chance visitors." It would seem from other passages in the report, that the best way is to clear out from the present garden, and establish a new one for purely scientific economic and experimental purposes elsewhere. To compete with the nursery trade is unjust to the traders and to the ratepayers, and a waste of energy on the part of the managers of the garden.

Plants and Their Culture.

The Stove.—The inmates of this house should be making good progress, and, if easterly winds prevail, much care will require to be paid to the ventilation and shading. By using the shades judiciously, currents of dry parching air need not be admitted. The temperature may be increased slightly as the days lengthen, and may range from 70° to 80° during sunny weather, but the minimum should be reached in dull weather; and 65° to 70° at night. At closing time the house may be allowed to run as high as 90°, closing early in the afternoon and syringing freely. Every minute that can be spared at this time of year should be given to keeping the plants free from mealy-bug, for should this insect increase with rapidity as it will with higher temperature, a liberal use of the syringe will check the spread of thrips and red spider; and frequent fumigation is also desirable. More attention will be necessary to check the overheating of the apparatus during the early part of the day, so as to utilise the sun-heat fully at an early hour, and thus save the fuel. Hard firing at night during cold weather should be avoided, and the blinds should be made use of to this end, and securely fastened down on cold nights. Many plants, as their pots fill with roots, will take weak liquid manure, made of Clay's Fertiliser or other. Palms and other strong growers which remain for years without being re-tubbed, should be assisted occasionally in the same way.

The early-flowering Allamandas and similar plants which should be growing freely now and forming their flower-buds, will require a few loose tyes to keep them away from the roof-glass but giving full sunshine. Ixoras making rapid growth will require looking over diligently, to prevent mealy-bug making headway, as it is impossible to clean these plants entirely of the insects when the flowers are formed. The autumn bloomers should be started, shortening them back and placing them on mild bottom-heat. Cuttings of Gardenias should be propagated, taking off large healthy shoots for this purpose.

Anthuriums will soon be in full bloom, and should be kept drier overhead to preserve the spathes and their high colour. Caladiums should be potted into small pots, and placed in bottom-heat to start; and the stock of tubers may be increased by taking off the young growth with a heel and potting them. Basket plants should be planted so as to give the plants time to establish themselves, shading them for a time only, that is, till the new growth is able to bear the full light without flagging. Cuttings of Coleus may be put in, destroying the old plants as soon as enough young ones have been secured. Furnishing plants should be struck in quantity, such as Ficus, Selaginellas, Panicum variegatum, Tradescantias of sorts, Fittonias and Cyprus. Plants of Cissus discolor should be shortened back, and placed in a warm moist house; this plant looks well grown in any way, and especially if grown in small pots. The cuttings soon make nice

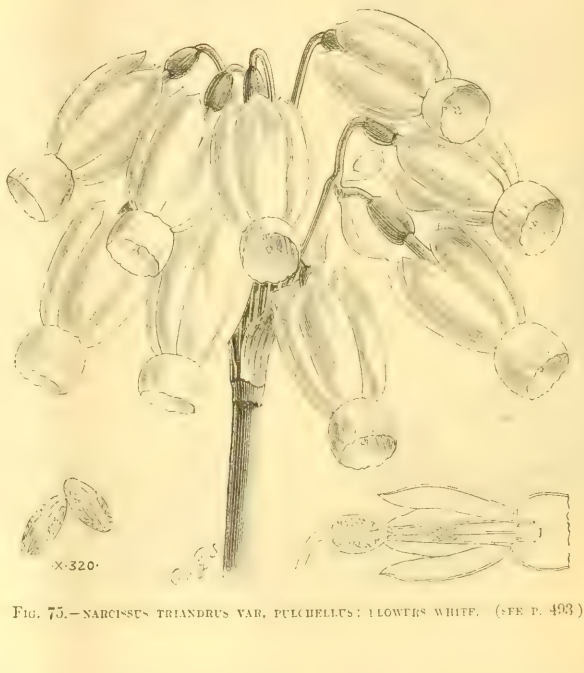


Fig. 75.—Narcissus triandrus var. pulchellus: flowers white. (see p. 493)

plants if taken off with a heel, and placed in a light compost in bottom-heat, in a case. The old plants are useful for covering bare walls, in shady corners, on a trellis, and as basket plants; the cuttings will also strike freely when cut at a joint. Gloriosas should be placed near the light to prevent weak growth, and any tubers not yet started should be repotted and placed in a moist temperature of 70°. Achimenes started as previously advised will be ready to transfer to pans and baskets, and in doing this the young tender roots must all be preserved. Any of which there is a deficiency should be increased by cuttings made of the tips of the young plants put into sandy peat in a warm pit, and closely shaded. Another lot of tubers should be started for later blooms. Seedlings in pans should be pricked off into small thumbs or pans before they get drawn, and placed near the light, for if neglected in their earlier stages, they seldom make good plants afterwards. *Geo. Wythes, Syon House, Brentford.*

The Orchid Houses.

If the Pleiones are now filling their pots with roots, and the plants are growing strongly, a little manure-water may be afforded them. Guano and diluted cow-urine will encourage growth, but they must be given with caution, as too strong an application will be certain to do injury. Odontoglossum grande will now be showing root activity, and plants that may require to be repotted should be taken in hand. This plant resents being disturbed at the root, but it must be done at least once in two years. They do well in a compost consisting of fibry peat, with the fine particles of soil knocked out of it, and sphagnum moss. Vanda cærulea may now be syringed overhead every fine morning, and placed near the ventilators, where there is a free circulation of air, as anything approaching a close atmosphere causes the plants to "spot" badly. The later plants of Miltonia vexillaria will now be pushing up their flower-spikes, and may safely have weak guano-water applied to the roots, that is, at the rate of 1 oz. of guano to 1 gallon of water. This stimulant should not be given oftener than once a week, clear rain-water being given at other times. The temperature may now be 60° at night, with a rise of 10° by sunheat. Shading should receive careful attention. A few years ago, Orchids were always killed by having too much shade given them, and now grave errors are made in the contrary direction. *A. G. Catt, Parkfield, Worcester.*

The Flower Garden.

Lawns.—The grass has commenced to grow freely, and mowing must be followed up regularly, if the lawns are to be kept in fine order. The edgings of walks, flower-beds, and borders should be clipped weekly, after having once pared the edges with the edging iron, thus lessening the chances of increasing the number of weeds on the walks or beds by the edging grasses going to seed.

Walks.—Where weeds are few, hand-weeding is best; but where they abound, the gravel, if loose, may be hoed and raked. For walks of binding gravel, an application of common salt, or one of the advertised weed destroyers, will be successful; in every case taking care to prevent any of the mixtures used from touching the evergreen edgings or turf.

Trees and Shrubs newly planted, more especially on light sandy soils, should receive a thorough watering, and be well mulched with leaf-mould, rotten strawy manure, or the like.

Gladioli.—Make the principal planting of these roots, to be followed by successional plantings at intervals. Those that were planted at first are now showing above ground, which should be kept frequently hoed and stirred.

Annuals.—Seeds of the following may be sown:—Mignonette, Godetias, Clarkias, Larkspurs, Marigolds, Candytufts, Nemophila, Linums, Collinsias, Convolvulus, Coreopsis, Escholtzias, Saponarias, Salpiglossis, Nasturtiums, Poppies, Hibiscus, Mimulus, Viginian Stock, and Venus's Looking-glass. From the above species, selections may be made of nearly every colour, and which will give pretty effects during the summer months. Sow now, Wallflower, Antirrhinum, Silene, Canterbury Bells, Sweet William, Polyanthus, Primrose, in the open borders, for blooming next spring.

Perennials are best sown in pans, boxes, or frames, and transplanted to the open borders; such are Pentstemons, Phloxes, Geums, Campanulas, Carnations, Pinks, Picotees, Delphiniums, Aquilegias, &c.

Make another sowing of Sweet Peas and Asters. Sunflowers sown now singly in pots will be advanced enough to plant in the open in May and June.

As Polyanthuses and Primroses finish flowering, having first noted their colours, they should be taken up, divided, and planted in their summer quarters in the reserve garden. As the plants in the spring flower garden go out of bloom, the beds should be prepared for their summer occupants, so that when the season and weather permit these may be planted. *D. C. Powell, Powderham Castle, Devon.*

Fruits Under Glass.

Vines.—The operations previously described as being requisite, must now keep pace with the increased demands of the Vines; these include thinning the bunches and berries, training-in leading shoots, tying laterals down to the wires, great care being exercised with Black Alicante, Gros Colmar, Lady Downes, and other brittle kinds, these being best brought into positions a little at a time, doing the work in the course of a fortnight; at the same time the points of the shoots must be kept from touching the glass, but beyond this it is better to leave the shoots free till the setting process is completed, and when they will be less liable to break. It is prudent to keep some dry pollen of Black Hamburgh Grapes for artificial fertilisation of Black Morocco and other shy setting varieties, for if, owing to any cause, this variety once fails to set a crop, the wood becomes so strong that there is a very great difficulty in keeping the Vine in order. With Black Morocco, the syringe, even when boldly used on the Vines in flower does not always accomplish the setting of the flowers; at the same time I would recommend its use for Muscats, provided the foliage can be perfectly dried again before nightfall, and sufficient fire-heat employed to maintain a circulation of air and a temperature of 70° during the night, a few degrees lower in frosty or windy weather doing no harm. The day temperature may range from 80° to 90° with sun and air; and a moderate supply of atmospheric moisture may be afforded in the forenoon.

Figs.—In the early house fructification will now be nearly completed, and the forwardest Figs will be swelling rapidly. Atmospheric moisture must be slightly reduced when the period of ripening approaches, or the flavour will be poor. Take advantage of favourable opportunities to thoroughly syringe the trees at intervals, or red-spider will get a footing—a pest most difficult to eradicate. Stop a few shoots occasionally, with the object of getting fruit in succession; and do not train shoots too rigidly, but allow of some degree of freedom and extension. *W. Crump, Madresfield Court, Malvern.*

The Hardy Fruit Garden.

The Blooming of the Fruit Trees.—Under the impression that a late spring is the one thing needful in securing a bountiful crop of fruit, we are apt to rejoice when the opening of the blossoms is retarded beyond what is usual. Seldom have fruit trees been later than this season, and yet, on the whole, the winter was a mild one. The Apricot, which is the first to open its blooms, is followed closely by the Peach and Nectarine, and I have noted that they have shed many more blossoms before opening in such a season as the present, than when the weather has been less favourable, and yet have retained just enough for a crop. A continuance of low temperature will, I am afraid, do mischief by hindering the flow of the sap at a time when its circulation should be unrestrained.

Disbudding is an operation that should be done in piecemeal fashion at intervals of a few days, so as to avoid any great check to growth. Green and black aphis are sure to be troublesome at this stage of growth, and particularly if the wind continues to blow from the east or north. Remedial measures must be taken the moment these aphis are perceived; and tobacco powder applied by means of a puff or dredger is one of the best. Pinch the points of the lateral shoots of Apricots at the second joint, and practice a moderate amount of disbudding, otherwise the close clustering together of spurs tends to shade the fruit and young wood too much, and the latter, if immature, does not set its bloom the coming season. The fruit should be thinned at an early stage of growth, and as it usually forms clusters, these, if not thinned early, produce many deformed fruits.

Morello Cherries are liable to be overrun with black aphis, and sometimes this will occur before they open their blooms. This disaster may be prevented, and labour saved, if the walls and trees have a thorough syringing of soap-suds, and robust growth encouraged by liberal supplies of manure-water to well-established trees.

Strawberries.—The mulching which was applied some time ago should now have a good sprinkling of soot, to ward off the attention of slugs. Place hand-lights, frames, cloches, or other glass protection over the earliest varieties, so as to avoid gaps in the supply, if these be feared. The earliest forced plants, if protected and innured gradually, will now be ready to plant out, and this kind of work should not be delayed if good crops are looked for next season.

Grafts will require an occasional examination, filling up the cracks in the clay, and rubbing off all shoots coming from the stocks. The cold winds have had a retarding effect on the leafing of Apples, and these may still be grafted. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

Broccolis and Kales.—The main crop of Broccolis and Kales should now be sown on beds, made moderately firm after sowing, to induce strong healthy growth; and a poor soil should be avoided, as it not unfrequently produces root-clubbing with its attendant evils. If the plants are to remain in the seed-beds till planted out, the sowing should be done thinly in drills of half an inch deep. The position of the beds should be open to the sun. White Sprouting Broccolis, early and late Purple, are invaluable in spring, and should be sown at this time. Asparagus and tall Scotch Kale are the only two varieties of Kale that we grow, and the latter is preferred to the former. Broccolis now turning in should be examined daily, breaking the leaves over the forward heads.

Chicory, Salsafy, and *Scorzonera* should be sown; the ground for these should have been trenched and enriched, but not recently. A distance of 12 to 14 inches should be allowed between the rows—the plants, when large enough, being thinned to 8 inches apart.

Cardoon seed should be sown in trenches, heavily manured if the soil be light. The seed may be dropped in patches of threes, 15 inches apart, and the plants thinned out to one in each patch. If more than one row is required, the rows may be 4 feet apart.

Cauliflowers.—Plant out those wintered in frames, and if Autumn Giant is among them, it will form a succession to the Early London and Walcheren varieties; but now there are so many early dwarf sorts of the Erfurt type for early summer use, the Autumn Giant is not so much called for. Those raised in heat and potted off will require abundance of water and good ventilation. If in proper condition to plant, some of these may be planted out on warm borders, protecting them against frost and wind with inverted flower-pots or some other means.

Onions for pickling may now be sown, and on almost any soil that is not rich, but is firm and well exposed; sow the seeds somewhat thickly, broadcast fashion, and allow all plants to remain to mature. The flower-heads of Tripolis must be cut off as soon as they appear, and by so doing the plants will bulb readily. Keep the hoe plied amongst the plants, and if large bulbs are required, leave plenty of space for each to grow. Dustings of soot, and a little guano afforded occasionally, will hasten growth.

Turnips.—The Snowball and Veitch's Red Globe varieties may be sown on well-prepared borders, but do not sow large breadths, as these early sowings often get a check from frost, and run to seed without forming a bulb. *H. Markham, Mereworth Castle, Maidstone.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, April 22 { Royal Horticultural Society: Fruit, Floral, and Scientific Committees, and Lectures on Primroses and Auriculas, by Rev. C. W. Dod and Mr. Henwood.

SHOWS.

TUESDAY, April 22 { National Auricula Society, in conjunction with the Royal Horticultural Society.

WEDNESDAY, April 23 { Royal Botanic Society: Second Spring Show. Ancient Society of York Florists.

SALES.

TUESDAY, April 22 { Established Orchids, at Protheroe & Morris' Rooms.

WEDNESDAY, April 23 { Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms. Clearance of Glass Erections, Turf, &c., at Northfields, Battersea Rise, by Protheroe & Morris.

THURSDAY, April 24 { Imported Orchids, from Mr. F. Sander, at Stevens' Rooms.

FRIDAY, April 25 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—49°.3.

The Daffodil Conference.

When compared with the highly useful Vegetable Conference, and the very popular Chrysanthemum meetings of last autumn, the Daffodil Conference held at Chiswick during the present week, although more numerously attended by the public, and by amateurs, takes a second place in the estimation of gardeners. The exhibition was, on the whole, excellent, but scarcely so large as it was expected to be, partly because many of the kinds had passed their best; partly because, among professional gardeners, as contrasted with amateurs, there is less interest felt in Daffodils. The gardener proper is naturally keenly interested in fruit and vegetables; the Grape Vine has inexhaustible interest for him, and he waxes enthusiastic in the ardour of his delight over the "mum." To a less extent a similar difference between the taste of the expert and that of the amateur is observable in the case of Roses. Every one likes Roses; but we must look among the ranks of the country gentlemen—and of the provincial clergy in particular—for that burning passion which leads them to speak of the competitions of the exhibition tent in language that would befit the historian of Sedan or Gravelotte. We cannot pretend to explain this difference between the taste of different classes of plant lovers. Its existence is at once a good thing for horticulture, and an excellent illustration of the catholicity of gardening, and its suitability to the tastes and fancies of all conditions of men.

The Daffodil exhibition, opened by H.R.H. the Duchess of Teck, in the presence of a large number of visitors, is reported on at length in another column, where it will be seen that a small number of exhibitors contrived to fill the large area of the conservatory at Chiswick. Among the exhibitors were Messrs. Barr, Walker, Veitch & Sons, R. Veitch, Poupart, Wilks, and the authorities of the Royal Gardens, Kew. The representation of forms and varieties was very complete for the season. Mr. Barr had the good taste to inaugurate an innovation by showing the foliage with the flowers. This practice is objected to by some, on the ground that the removal of the "grass" impairs the strength of the bulb, and prevents its flowering so well as it would otherwise do in the following season. But, as was well said, if the bulbs are so few in number, or so weak as not to permit of the removal of the small number of leaves required, they are not, except under special circumstances, fitted for the exhibition table. The exhibition of the "grass" with the flowers may be advocated, because in no other way is the beauty of the flower so well shown, in no other way can the delicate gradations of tint and the exquisite harmonies of colour be shown. Again, the differences between the flowers as cut and displayed on the exhibition table are often infinitesimal, and yet, when seen growing alongside of others, and even when a few are associated with the flowers, the difference becomes obvious. To the physiologist, the study of these minor variations and minute differences in connection with the history of the plants is of very great interest and importance, and from this point of view we cannot conceive any more instructive exercise, than the careful study of all the varieties side by side, as they may be seen in the collections of the principal growers.

But whilst the botanist is specially interested in these variations, and in the lessons they teach, it is certain that the amateur, and the ordinary lover of flowers, are right in their contention that there are too many forms submitted now-a-days for public approval, and that the differences between them are too infinitesimal. From this point of view the Narcissus Committee is doing good service by refusing to place upon its register forms which are not considered by the members as sufficiently different from others, or

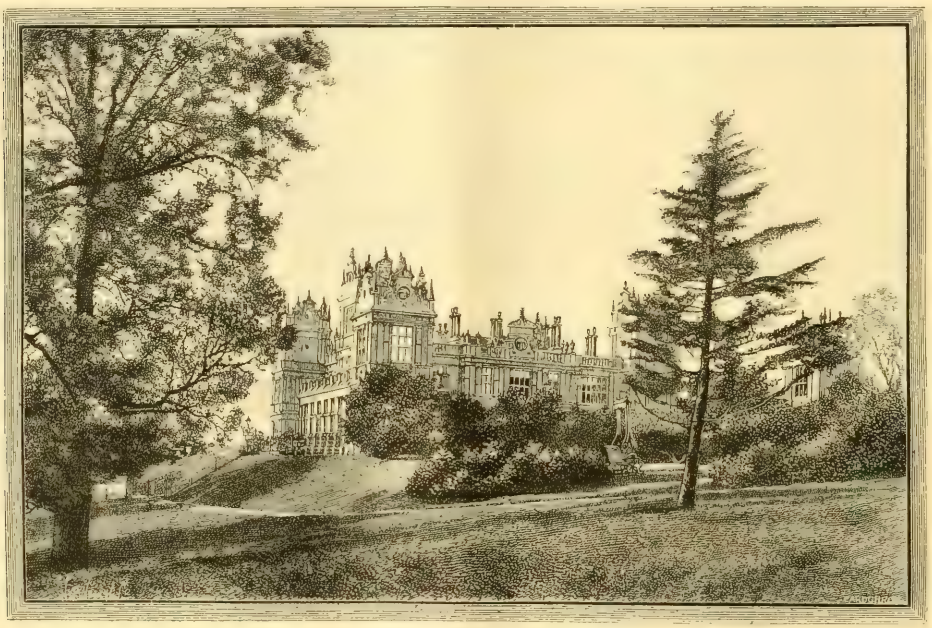


Fig. 76.—Mentmore, Leighton Buzzard. (see p. 489.)



VIEW IN THE PLEASURE GROUNDS AT MENTMORE.

which are not decided improvements upon other forms. The committee is not one whit too severe in its process of expurgation. Indeed, it is to be desired that no permanent Certificate should be awarded till the plant has been actually tested in more than one locality, and its adaptation to particular purposes ascertained. To award a Certificate to a single flower placed on the exhibition table is an unsatisfactory procedure, at best. In place of registering it at once, it would be better to select such forms as were thought promising, and to recommend them for trial at Chiswick and elsewhere. The "Certificate of Recommendation" would be a sufficient encouragement for the exhibitor in the first instance, and this Certificate might be followed next season by a more permanent mark of approval, but until this ordeal has been gone through, the plant should not be permanently registered. Some such process is the more desirable, as it is unquestionable that some of the forms are not "fixed," in the gardener's sense, but are subject to degenerate, and to hark back to the original type.

Another point in which the Narcissus Committee might exert its influence very advantageously is by encouraging raisers and hybridists to exercise more accuracy and care in their procedures, and especially in their records. The history of not a few of the hybrids is obscure, or even only a matter of guess-work. Many of these obscurities, and much of this conjecture, could, as was well shown by Mr. Engelheart, be dispelled in two or three seasons by a few well-devised and properly chronic'ed experiments. Haphazard cultivation and promiscuous fertilisation may be very pretty and very amusing, but for real progress we must look to cultivation and to experiments based on sound physiological and cultural principles.

The Conference proper was opened on Wednesday by Professor Michael Foster, who alluded to the progress that had been made since the former Conference in 1884, and specially to the circumstance that that meeting was held under depressing conditions, whereas now the Society was meeting in its own garden, and under the shade of its own Vines (at least, under such shade as their present nearly leafless condition permitted). Dr. Foster alluded to the work the Narcissus Committee had set itself to do in adjusting the nomenclature of natural and of artificial forms, counselling that only those forms that are really distinct should receive separate names, and that the names given should be such as could be easily written and pronounced, and, if possible, have some relation to the things signified. Alluding to the discussion originated by Mr. Dyer, in these columns, as to empirical as compared with scientific knowledge in matters of cultivation, Professor Foster said that all real knowledge is of use if rightly applied, and that no knowledge is of use if applied wrongly. The Chairman then distributed the awards made by the committee, as reported in another column.

Mr. Scrase Dickens, the Secretary of the Narcissus Committee, reviewed the objects of the Committee, and the work accomplished by it since its formation in 1886. He pointed out that considerable additions had been made to our knowledge of the natural history of Daffodils, and of their cultivation, and that several new introductions had been made. Experiments had been made to test the allegation that single Daffodils could be changed into double ones as a result of cultivation, with the result that it was proved that double Daffodils might be produced from the same bulb that produced single flowers, and that seedlings from the double produced some single, some double varieties. The root disease was commented on, and allusion made to the register which now contained the names of fifty-four varieties, recognised by the Committee as the best of their class in constitution and other characteristics.

Mr. Burbidge followed with a paper on the history of the Daffodil, and of those workers chiefly concerned in its production. The substance of this is given in another column. Some discussion arose, in the course of which Mr. Wolley Dod said that, according to Aristotle, bees only visit one kind of flower at one time, but this was traversed by Mr. Wilks, who mentioned that he had seen in his orchard-house, bees visit Pear blossoms after Peach blossoms, and *vice versâ*.

Mr. Engelheart then favoured the Society with an extempore statement referring to seedling Daffodils, which proved to be of very great value and interest. He pointed out how the origin of various crosses and hybrids once unknown or uncertain, had now been proved by actual experiment. He alluded to a cross made by Prof. Foster between a white hoop-petticoat Narcissus and one of the triandrus group. Mr. Engelheart further stated that the results of crossing a trumpet Daffodil with the pollen of a Jonquil has resulted in the production of a "tridymus" form in which the flowers were clustered, and fragrant as in the male parent, and, like it, yellow. The Narcissus incomparabilis had been supposed to be a cross between a Trumpet Daffodil and N. poeticus, and the truth of this supposition had been proved experimentally by Mr. Engelheart. When N. poeticus var. ornatus is employed as one of the parents, a more shapely flower is produced than where the original poeticus is employed. From a cross between a double white cernuus, fertilised with the pollen of a single Trumpet Daffodil, Mr. Engelheart had produced an early white creamy Daffodil, as well as other forms. As to the origin of ornatus, Mr. Engelheart supposed it to be a selected form of poeticus, as seedlings from it revert to poeticus. Seedling raising is tedious work at first, as the operator has to wait four or five years before seeing any results, and when he did see them, not more than 1 per cent. were improvements on the old forms. Details were given as to the method of impregnation, and the raising of seedlings. Mr. Engelheart's impromptu discourse was one so practically and scientifically valuable that he will, it is to be hoped, be induced to commit his remarks to paper, in order that they may be printed in the Society's *Journal*.

Of the proceedings on Thursday we are unable to give any account this week, as we go to press on that day. We can only add, that it was pleasant indeed to see such a goodly company in the old garden at Chiswick on the two first days. On the first day, as has been stated, the Exhibition was visited by the Duchess of Teck and her daughter, while among the visitors on the second day was the Baroness Burdett Coutts.

Mentmore, Leighton Buzzard (See Supplementary Sheet).—Mentmore, a palatial mansion and large estate, the residence of the Earl of Rosebery, came to him by marriage with Miss Hannah Rothschild, daughter of Baron Meyer Rothschild. The mansion, of which we reproduce a view of the south front (fig. 76), is situated on a low hill, an offshoot of the Chilterns. From the broad terrace-walk, which extends round the south, west, and north-west sides, extensive views are had of the rich and fertile Vale of Aylesbury. In this vale are situated some very extensive orchards of Plums and Damsons, and in the fruit season many tons are sent off weekly from Cheddington and the adjoining stations, to London and other markets. The mansion, a large and magnificent structure of Ancaster stone, is built in the Italian style, from designs furnished by Sir Joseph Paxton, and carried out in detail by his son-in-law, Mr. George H. Stokes, architect. The building was erected by Mr. George Myers, of London, and was begun in 1851. On the southwest front are situate the "Fountain Gardens." The design of these consist of a series of water-canals with stone edgings; and Box with grass round the beds which are of large size, and are always filled with plants whose flowers are of one colour. Round this garden are placed large vases of marble, and a sloping bank; which is planted with Mahonia aquifolia kept dwarf by being cut back every year. This is surrounded on three sides by a hedge of Yew, also kept in order by the shears. At the western end of the terrace an "Italian flower garden" is placed, with edgings of Box round the beds, and of Ivy and turf next to the walks. A sloping bank surrounds this garden, and is planted with H.P. Rose, General Jacqueminot, whose shoots are pegged down to the soil, and sheltered by a Yew hedge on two of its sides. One side of this garden is screened from view of the offices by a tall hedge of Irish Yew. There are numbers of marble and bronze vases placed in this garden. Near these gardens are two large mounds wholly planted with Aucuba japonica, which here forms a striking mass of bright-coloured foliage. On the south side there are no flower-beds, only lawns, and large beds of evergreen and flowering shrubs. Here are large beds planted with many hundreds of Golden Yews, whole beds being of nothing else; also large beds of Berberis Darwinii, Mahonias, Japanese Acers, Rhamnus, and other dwarf shrubs. The Myrtle-leaved Portugal Laurel grows well here, and forms fine masses of dark green foliage. Near the east front of the mansion is a high bank planted with Juniperus chinensis and Mahonias; behind these, higher up, is a line of Thujopsis borealis, interspersed with Laburnums, Lilacs, and other flowering and evergreen shrubs. At the end of this bank, nearest the mansion, are planted large masses of Pinus austriaca and P. laricio, which grow remarkably well. The view seen in the Supplementary Illustration is one that was taken in the subtropical garden, which is from 2 to 3 acres in extent, and surrounded on all sides by a tall belt of Scots Pines, having a thick undergrowth of common Laurels and other shrubs. The surface of the ground is undulating, and is surrounded by high banks of evergreen and flowering shrubs. We can only find space to mention a few of the many plants growing here, viz., splendid groups of evergreen Oaks, of large size; Bambusa gracilis, which have been planted out more than fifteen years, and are now conspicuous masses of graceful foliage; B. metake, also grown now into large masses; Osmanthus ilicifolius, which flowers freely; large Acer negundo variegatum, A. polymorphum rubrum, and other Japanese varieties; Thujopsis dolobrata, which grows freely; Liquidambar styraciflua, Aralia Sieboldii, Cupressus Lawsoniana erecta viridis, and many others.

Great Horticultural Exhibition at Berlin: April 25 to May 5.—*Apropos* of this exhibition, which is to open on Friday, April 25, Professor Dr. L. Wittmack, Secretary-General, advises all who are interested in grand shows to go and see it. There will be not only a large number of fine plants and products from Germany, Belgium, the Netherlands, Austria, Italy, and England, but especially a splendid architectural and artistic display; the chief purpose being to show how gardening architecture and art may be united, the exhibits in this section consisting of decorated rooms, balconies, verandahs, staircases, &c. There will be nearly 600 exhibitors, and the space required 7200 square metres, 5600 of which will be under cover. Twenty-nine thousand marks will be expended in prizes, and many honorary and State prizes are offered. The Emperor, who is protector of the Horticultural Society of Prussia, has given a large Gold Medal; the Minister of Agriculture, Honorary President of the Exhibition, 500 marks. Science, in its connection with horticulture, will likewise be represented.

KEW AND COLONIAL APPOINTMENTS. — We are sometimes asked how appointments in the Government Gardens of our Colonies and India are to be obtained. They are invariably filled by the Kew authorities, who select suitable men from among the young gardeners employed at Kew. The positions to which these men are appointed are often of great importance, some of the most valuable servants of the Governments of the Colonies and of India having been originally young gardeners at Kew. We have been favoured with a list of the appointments made since the beginning of 1888. The training the men receive whilst at Kew is such as will enable them to discharge the duties of these appointments satisfactorily. Lectures and the use of a library rich in botanical, horticultural, and other scientific works, together with the practical training they get whilst performing their daily duties, afford excellent opportunities to young men who wish to get on, and who are not afraid to work to that end. Applicants for admission as gardeners into the Royal Gardens, Kew, must be between 20 and 25 years of age, must have good testimonials, and must have been employed not less than five years in good private gardens or nurseries. The following young gardeners have been sent from Kew to Colonial and and Indian appointments since January, 1888:—

A. Shaw, March, 1888, Assistant Curator, Melbourne, British Government.
W. E. Broadway, June, 1888, Assistant Superintendent, Trinidad, British Government.
W. Chadwick, July, 1888, Superintendent, Cinchona Gardens, Jamaica.
R. Proudlock, December, 1888, Assistant Curator, Calcutta, British Government.
G. Woodruff, February, 1889, Head Gardener, Niger Territories.
A. Hartless, March, 1889, Assistant, Darjeeling.
W. Thomson, July, 1889, Superintendent, Kingston Gardens, Jamaica.
H. Bartlett, August, 1889, Head Gardener, Niger Territories.
D. Yeoward, August, 1889, Curator, Fiji Botanic Station.
A. G. Tillson, September, 1889, Curator, Antigua Botanic Station.
C. Plumb, September, 1889, Curator, St. Kitts Botanic Station.
W. Crowther, January, 1890, Curator, Accra Botanic Station, Gold Coast.
H. Powell, April, 1890, Curator, St. Vincent.

THE STOTT INSECTICIDE DISTRIBUTOR was to be seen in action in the Royal Horticultural Society's Gardens at Chiswick during the Daffodil Conference. The distributor consists of a metal cylinder, which is divided into several cells by means of perforated partitions. Into these cells the manure or insecticide, in solid or liquid form, is inserted. At each end of the machine is a length of tubing, one end being attached to the water-tap or garden-pump, and the other to an ordinary hose-pipe, and the water being forced through, becomes impregnated with the composition in the cells. The strength of the solution is regulated by the filling of one or more cells of the apparatus. A special form of spreader is fitted to the hose, which ensures a perfect spray. The apparatus is likely to prove of much service, and cannot well get out of order. An insecticide, "Killmright," supplied for use in the machine, is of a soapy consistency. The spray can be used for the the destruction of such pests as green-fly, thrips, black-fly, &c.

"BOTANICAL MAGAZINE."—The April number contains coloured illustrations and descriptions of the following plants:—

Prestoea Carderi, t. 7108.—A graceful Palm, with long pinnate foliage, the pinnæ linear lanceolate acuminate. The flowers are minute, arranged in loose branching pink panicles. It is a native of Guatemala, where it was discovered by Mr. Carder, and is the Geonoma Carderi of Bull's Catalogue for 1876.

Sicana sphærica, t. 7109.—A creeping glabrous perennial Cucurbit, with cordate, roundish, three to five-lobed leaves; lobes sharply pointed; flowers bell-shaped, with a tubular calyx, with five ovate, pointed, spreading green lobes, and a large bell-shaped creamy-yellow corolla, also divided into five broad hairy segments. It was discovered in Jamaica by Mr. Morris, but is supposed to have been introduced from some other country.

Peliosanthes albida, t. 7110, a botanical curiosity with tufted plicated lanceolate-stalked leaves, and long straight spikes thickly studded with small greenish-white six parted flowers like those of Ophiopogon. It is a native of the Malay peninsula.

Iris orchioides, t. 7111, a species with foliage like that of the Day Lily, Hemerocallis, and with yellow flowers. The flowers are yellow, outer segments erect, spreading at the apex, beardless, inner segments very much smaller; spatulate deflexed. It is a native of Central Asia.

Vanda Kimballiana, t. 7112.—This is the very beautiful Vanda, originally described in *Lindenia*, t. 204, and afterwards alluded to at pp. 165 and 294 of our last volume. It is near to V. Amesiana, but differs in the very narrow leaves. This plant is also figured in the *Garden*, for April 5; but the latter figure, though more artistic, shows none of the peculiarities of the lip.

"THE JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY."—The contents of the part just issued comprise an interesting account of the foundation of the Society, which dates from 1837. This is followed by an article entitled, "Fifty Years' Progress of British Agriculture," by Sir James Caird. Mr. John Dent Dent contributes a paper on Agricultural Education at Home and Abroad. The food of our agricultural crops is treated of by Sir John Lawes. Mr. Carruthers details the results of further experiments and observations made by him on English pastures, and reiterates his opinion that Rye-grass should be excluded.

CYRTANTHUS PALLIDUS. — Mr. O'Brien has favoured us with a flower of this species, which is of great beauty. The numerous flowers are umbellate on the top of a long slender cylindrical stalk. Each flower is about 1½ inch long, with a small cylindric ovary, and a tubular flower abruptly deflexed just above the ovary. The limb is divided into six equal rounded, shallow lobes. The colour of the flower is of a delicate orange-pink. The stamens are in two rows, growing in attachment to the perianth tube at different levels, and shorter than the long three-fid style. The plant is much to be recommended for grace of form and delicacy of tint.

AGRI-HORTICULTURAL SOCIETY OF INDIA.—The annual report shows that the Society has lost during the last twelve years 20,000 rupees, while the receipts have not been equal to the expenditure. This is owing entirely to the depreciation in the value of the rupee.

OLEARIA LYRATA.—To Mr. Gumbleton we are indebted for a specimen of Olearia lyrata. The slender purple young shoots, as well as the under surface of the lance-shaped leaves, are covered with white meal. The individual flower heads are small, but arranged in close branching clusters at the ends of the branches. The ray florets are very narrow, strap-shaped, and surrounded by an involucre of numerous very narrow linear bracts. Mr. Gumbleton informs us that with him, near the sea, in co. Cork, the shrub is quite hardy, and at this season covered with bloom.

FRITILLARIA ACMOPETALA. — Mr. Gumbleton obliges us with a flower of this species, to show how much larger the flower becomes under cultivation than was the specimen figured at t. 6321 of the *Botanical Magazine*. The specimen before us has the upper leaves, linear lanceolate, the bell-shaped flower drooping nearly 2 inches in length, 1½ inch across the mouth. The outer segments are narrowly lanceolate, green, broad at the base, recurved at the tips. The inner segments are narrow at the base, broadly obovate, with a reflexed acumen, green flushed and finely streaked with purplish-brown. Owing to the disproportionate width of the outer and inner segments respectively, the broad and coloured inner segments occupy the wide intervals between the narrow green outer segments, so that the flower appears to be striped with alternate bands of green and purple. The inner surface of the segment is glossy. It is one of the prettiest species of the genus.

"CARTER'S PRACTICAL GARDENER."—The fourteenth edition has been issued, and as it contains a variety of practical articles on the management of different departments of the garden, it may be safely recommended.

"DAYS AND HOURS IN A GARDEN."—A seventh edition of this dainty little volume, by "E. V. B." has just been issued by Elliot Stock, in dainty fashion. The substance of the volume, it may be remembered, was published in these columns, and no greater commendation is needed than the fact that it has passed through so many editions, and given delight to so many readers.

CHRYSANTHEMUMS.—No fewer than a thousand varieties are cultivated in the Jardin des Plantes. These are studied carefully year by year for the purposes of classification, rejection of synonyms, &c.

THE GHENT HORTICULTURAL MEETINGS.—M. Oct. Bruneel, the Secretary of the Syndicate of Belgian nurserymen, has just issued a complete list of the plants premiated at the periodical meetings of the Society since its establishment six years ago, and which will form a useful work of reference to those who wish to keep *au courant* with horticultural progress in Ghent.

SPRING FLOWERS.—Messrs. Van C. G. Van Tubergen, of Zwanenburg, send us a box of flowers which is very tantalising, as they evidently were once interesting and beautiful, but they were "wrecked" in transit, and the names were not attached.

THE HORTICULTURAL CLUB. — The usual monthly dinner and *conversazione* took place on Tuesday, April 8, at the rooms, Hotel Windsor, Victoria Street. The chair was occupied by the Rev. W. Wilks, and there were present besides the Rev. E. Handley, Messrs. Cousens, Druery, Walker, &c., Mr. W. Ingram being the guest of the Club. Afterwards a most interesting paper was read by Mr. C. T. Druery on the "Wonders of Fernland." It was illustrated with some excellent diagrams and some beautiful specimens of dried fronds. The paper dealt very carefully with the germination of Ferns. It was stated that in the case of all Ferns, whether the gigantic Tree Ferns of New Zealand, &c., or the delicate Maidenhair, the spores from whence the plants proceed are absolutely microscopic. He then showed the various methods of propagation, the ordinary one by spores, and the abnormal ones of bulbils and apospory. It was shown that of all the species of British Ferns there were to be found tasselled or crested forms, and Mr. Druery believed that if the habitats of the foreign Ferns were searched as carefully as our own land has been, similar departures from the normal growth would be found. The paper was a model of what such papers should be—severely correct as to its botany and scientific side, yet delivered in language that any intelligent hearer might understand, even although previously unacquainted with the subject. A cordial vote of thanks was given to Mr. Druery for his valuable paper. We may add that Messrs. W. Thomson of Drumlanrig, and Mr. Bruce Findlay of Manchester, will be the guests of the Club at a special dinner on the 22nd, on the occasion of their receiving the Veitch Memorial Medals, and a large gathering of the members is anticipated.

"MALESIA."—The last part of Signor Beccari's valuable publication contains a history of the genus Pritchardia. Nine species are admitted, some natives of Fiji, others of the Hawaiian Islands. The genus Phœnix is also monographed, ten species, with their synonyms being described. Two plates, showing the

structural peculiarities, are given. No one interested in Palms can afford to disregard these monographs. An index completes the part, which terminates the third volume, and which is also, we are sorry to add, announced as volume iii. "et ultimo."

Linnean Society.—At the meeting of this Society on April 3, Mr. Carruthers, F.R.S., President, in the chair, Mr. John Love was admitted, and Rev. J. T. Scott elected, a Fellow of the Society. Professor P. Martin Duncan exhibited a transverse section of a coral Caryophyllia clavus, showing septa and irregular theca between them. Mr. B. D. Jackson exhibited some seeds of Mystacidium filicorme, an epiphytic Orchid forwarded from South Africa by Mr. Henry Hutton, of Kimberley. The meeting adjourned to April 17.

Stock-taking: March.—The usual returns are to hand, and do not present an over-encouraging aspect. There is a check to both production and export, but this is not of necessity an unmixed evil. The great industry of cotton import, manufacture, and export has been checked by serious over-production; the manufacturing section of the industry has been disarranged at home by the coal-trade dispute, bankers are holding their hands, political disturbances creep in to widen the "rent within the commercial lute," which will doubtless be to some extent prevented from "broadening down" by a season of enforced inactivity—rather, of lessened activity. Some lessons are to be learnt from these returns, which, however, it is not our place to teach; those most deeply, or immediately, interested will have taken them to heart by this time. The following excerpts from the general summary of imports from foreign countries and British possessions will be found of interest to our readers

	1889.	1890.	Difference.
	£.	£.	£.
Total value of imports	[illegible]	[illegible]	[illegible]
§II.—A.) Articles of food and drink—duty free	10,947,240	11,021,638	+74,398
(B.) ... dutiable	2,001,210	2,007,907	+54,691
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	9,912,345	8,469,330	1,442,015
§VII. Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper making, &c.)	2,645,150	2,665,443	+2,293
§IX. Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,150,130	1,006,502	143,628
(B.)—Parcel Post ...	2,854	26,126	+3,272

Fruit and vegetable growers will be interested in the annexed figures—in the "plus" items especially:

		1889.	1890.	Difference
§II. Fruit—				
Apples, raw ...	... bush.	347,396	89,736	−257,660
Unenumerated, raw ...	,,	10,289	16,289	+6,000
Onions	,,	295,091	147,000	−148,091
Potatos	cwt.	34,821	18,064	−16,757
Vegetables, raw, unenumerated	Value	£ [illegible]	£2,591	£15,763

The Genera of Pomaceæ.—Dr. Emil Koehne has recently published a monograph on this subject. He admits twenty-two genera, and keeps up Malus as distinct from Pyrus. The whole paper is in German, but two lithographic plates give details of structure intelligible to observers of all nationalities.

The Weather and the Crops of 1889.—Mr. Mawley has contributed to the *Journal of the Royal Meteorological Society* a detailed account of the weather of the past year in relation to vegetable life. The year is taken to begin in September. In October premature frosts checked vegetation, but in November growth started again, and continued more or less up to March, when severe frost was experienced (as in 1890). May and June were very favourable months, whilst July and August were wet and cold; on the whole, the year "proved an unusually gay and bountiful one."

Sporting Daffodil.—For the specimen whence our illustration (fig. 77) is taken we are indebted to Mr. Walker. Two distinct varieties



Fig. 77.—Sporting daffodil.

sprang from one parent bulb, the one being the double N. incomparabilis, the other Silver Phœnix. The only plausible explanation of the occurrence is that it is due to the sudden separation of previously mixed characters, such as happens so often in Chrysanthemums. The bulb, with its offset still attached, and enclosed within one bulb-scale, will be planted to see what happens another season.

United Horticultural Benefit and Provident Society.—The quarterly meeting of the above Society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening last, Mr. Nathan Cole in the chair. The Committee are very pleased to report that the Society is making very satisfactory progress, fifteen new members having been elected at this meeting, making a total of thirty-two during the quarter. Messrs. Lane & Sons, of Berkhampstead, have also joined the list of honorary members. The sick-list has been a heavy one, chiefly due to the influenza epidemic, £31 7*s.* 8*d.* having been paid to sick members during the quarter, but at the present time there is but one member on the sick-list. A convalescent fund is being established, to assist members to get a change of air after illness.

"Kew Bulletin."—The April number of this publication contains information concerning a new tanning material called *Canaigre, alias Gonagra, alias Ganagra*. It appears that this substance consists of portions of the root-stock of Rumex hymenosepalum, which is found in abundance in the sandy soil on both sides of the Rio Grande, and northward over a large portion of Western Texas and New Mexico. The root resembles gambier in its action. The plant might probably be readily cultivated in hot, dry, sandy localities, and at the present price of gambier would be a valuable addition to the resources of the tanner. Other articles relate to the cultivation of the Pistachio nut in Cyprus, and to the production of sugar in India.

"L'Orchideenne."—At the last meeting on April 13, the following awards were made.—Diplôme d'Honneur of the first class, for Odontoglossum triumphans var. Hyeanum, from M. J. Hye-Leysen; Diplôme d'Honneur of the second class for Odontoglossum crispum var., from M. Peeters. Certificate of Merit of the first class for Odontoglossum vexillarium var. splendidum, from M. Linden; for Odontoglossum sp., from M. Warocqué; for O. Rossi var. purpureum, from M. Van Imschoot; for O. nebulosum, from M. Peeters; for Cattleya Mossiæ var. Madame Arthur Warocqué, from M. G. Warocqué; for C. Mendelii, from M. J. Hye-Leysen; for Oncidium sarcodes, from M. le Dr. Capart; for Lycaste Skinneri alba, from M. Peeters; for Cœlogyne cristata alba, from M. Peeters; for Epidendrum Wallisi, from M. Peeters. Certificate of Merit of the second class for Cattleya speciosissima var. Regina Olga, from M. le Prince Mestchersky; for Miltonia Warscewiczii, from M. Van Imschoot; for Odontoglossum triumphans, from M. J. Hye-Leysen; for Odontoglossum sp., from M. J. Hye-Leysen. Certificate of Culture of the first class, for Odontoglossum luteo-purpureum, from M. G. Warocque; for Ada aurantiaca, from M. Peeters; for Cypripedium hirsutissimum, from M. Peeters. Certificate of Culture of the second class, for Odontoglossum Reichenheimi, from M. G. Warocqué; for O. Edwardi, from M. Linden; for Cymbidium eburneum, from M. Peeters; for Ada aurantiaca, from M. Linden.

The Process of Fertilisation.—M. Guignard, in papers presented to the French Academy of Sciences, shows that the process of fecundation in plants [and in animals], consists essentially in the fusion of two nuclei, one derived from the male or pollen-parent, and one from the female. No union takes place between the male and female chromatic segments. The process consists therefore in an amalgamation of soluble matter derived from the nuclei, and the nucleus of the female or egg undergoes no change until the male nucleus has undergone a special change.

Late-flowered Chrysanthemums.—Mr. Fickd, East Hendred Gardens, Steventon, sends a few blooms and buds of Chrysanthemum Fair Maid of Guernsey. It is an interesting fact that plants of this variety have been blooming since Christmas. The plants, he tells us, had their shoots stopped last October, and were wintered in a cool vinery.

Home Correspondence.

ACER PLATANOIDES, THE NORWAY MAPLE.—The Acers are a favourite class of deciduous trees to plant in the garden and park. Most of the Japanese varieties require shelter from the cold quarters, and are liable to injury by frost; but the Norway Maple A. platanoides, the sycamore A. pseudo platanus are splendid trees, developing into large specimens when planted in suitable soils and positions. At this date (early April), we have examples of A. platanoides in full bloom, the trees being lovely objects in the landscape, covered with greenish-coloured flowers in great profusion. The trees are from 40 to 60 feet high. I do not remember the trees to be so early in bloom as this season, and so well covered. These trees at Syon are sheltered from the quarters whence come the cold winds, but are not favoured with a good soil, and they are planted near to the water in a soil that is heavy and wet, but notwithstanding these disadvantages the trees grow well. A. platanoides is a rapid grower, and it is not very particular as to soil and position, as it will exist and grow vigorously in the most exposed situations, but when it is sheltered from easterly winds it becomes very beautiful and is always admired. Acer is a large genus, all do not grow so large as the variety I have named. Some of them are useful for small gardens, being of low growth, besides being distinct from other trees. The great variety shown by the fading leaves in autumn adds much to the effect of shrubberies and groups. The varieties of A. palmatum are well adapted for garden planting, the fine-cut foliage and diversified colour rendering them excellent trees for this purpose. They must be afforded ample room to grow and show off their crowns to advantage, and the shelter afforded by neighbouring shrubs just suit them. *G. Wythes, Syon Gardens, Brentford.*

TUBEROUS-ROOTED BEGONIAS.—Where a great number of these are bedded out, I find it best to start them into growth in cold frames, the growth being in these places more robust than in warmer ones. In getting the frames ready, one foot in depth of warm dung is put at the bottom, trodden firm, and then sandy soil to the depth of six inches, in which the bulbs at 6 inches apart are planted. Until growth begins, very little water is required, but the syringe is used to sprinkle the bed twice or thrice daily, the frames being kept close until growth has attained a height of two inches, after air is admitted freely, and tepid water afforded them. By the beginning of June the plants are fit to put out in the open air. The beds should be deeply dug, but not too deeply, and a good dressing of rotten manure incorporated with the soil. Seedlings of this species of Begonia raised this season may be pricked off as soon as they can be handled, in pans of sandy compost made firm and watered beforehand. Keep the pans in gentle warmth for a time. *H. Markham.*

THE ANNUAL PRIMULA FESTIVAL. — The prospects of a good exhibition of Auriculas at the Drill Hall on Tuesday next are decidedly satisfactory. The Auricula exhibitor is now practically independent of weather. No one who sets out with the intention of becoming an exhibitor of the fine show Auriculas, would erect a house for the purpose without providing the means of artificially warming it when required. It has become a necessity for those who exhibit in the third week in April. In unheated houses Auriculas have come forward with surprising slowness, owing to the cold winds and low temperature. The quickest to move into blossom are the selfs; they expand their pips in much less time than the stately greens; they move with a kind of majestic slowness, as becomes the highest order of the floral aristocracy. A gentle artificial warmth by night, so as to maintain to some extent the solar warmth by day, helps the expanding pips materially, not only is time gained, but the floral advance assumes finer proportions also. A week's soft genial weather previous to the show cold-house the temperature rules so low by night that the slowly expanding pips appear almost to halt and would be found of the greatest advantage. In my rest. A northern aspect at flowering time is doubly retarding; happy are they who, devoid of artificial heat, can yet give their plants a change to a southern aspect during the months of March and April. I have a truss of George Lightbody that has been expanding its pips for a fortnight, but with such a funereal slowness that fully another ten or twelve days will be required to have them fully opened. The alpines are quicker in developing their flowers, but the texture of their petals is not so solid. I imagine we shall have a very fine display of alpine varieties; they will not only be very numerous, but thoroughly good. One of the finest seedling I have ever raised has just expanded a large and finely-formed pip, maroon ground, with a broad shading of bright mauve. It came from Mrs. Dodwell, crossed with George Lightbody; it has the large size and stoutness of the former, with something of the colour of the pollen parent; but, alas! the anthers which should form the flower-eyes at the top of the tube are low down in it, and the pistil rises above them; but it will make an excellent seed parent, though some raisers take exception to the employment of a pin-eyed flower for breeding purposes. The remaining members of the Primula family should be well represented, though it has been a very trying time for Primroses and Polyanthuses in the open. Dust covered, and nipped by frost and drying winds, they have experienced the rigours of our inhospitable spring climate. Warm southerly rains and kindly sunshine will greatly help the flowers, and enable them to be seen in their best character. *R. D.*



Fig. 78.—Hybrid Tazetta Narcissus: perianth white, cup yellow; fragrant. (See p. 493.)

STANDARD-BEARER CELERY.—Mr. Wythes, in *Gardeners' Chronicle*, p. 459, in speaking of this Celery, claims for it superiority over others on his light soil, and I may venture to say that it is the best we have had for late use. We are now (April 15) using it daily, and it is in good condition. Our soil is very stiff, and especially where the Celery has been. My opinion is that this variety and Major Clarke's Red are the two best late Celeries in cultivation. *W. A. Cook, Compton Basset.*

FOGS AND PLANTS.—The sad story told by Mr. Wythes of the evil effects of local fogs upon plants and fruits at Syon, does but serve to emphasize the fact that the culture of various plants, including many hardy ones, is becoming exceedingly difficult within the metropolitan fog radius. If I think these visitations are as harmful on the western side of London as anywhere, it is because low cold depressions in the air usually produce them, and the low depressions which create fogs invariably come from the east: thus we get on this side of the metropolis not only the fog, but all its worst concomitants in the shape of sulphureous smoke, the fog being laden with foul and destructive gases. Shutting out ordinary daylight for many hours is bad enough, swamping the plants literally in a bath of cold vapour is bad enough; but when that vapour is permeated with pernicious gases, and even substances, soot especially, then is the case of the plants bad indeed. Well enough may a gardener, coming from the comparatively pure air of Worcestershire, wonder at the failures arising from fog which he found at Syon. A few years since one could grow garden Anemones here in beautiful form. The fogs now destroyed every portion of leaf made during the winter, and in the spring the plants are so weakened in consequence, that they bloom very sparingly. As to the effect of the fogs on the Violets here, that is a matter to be viewed with considerable alarm by growers. There is some doubt as to whether a fungus is operating to destroy leafage, as the evil has shown itself considerably in rural districts; but the blame of the defoliation which now almost invariably follows upon November fogs, is very naturally attributed to the fogs. Where scores of acres of single Violets are grown for bloom-production, this loss of foliage is a serious matter, and one leading to the fear that ultimately Violet culture near London may become impossible. Such a result would indeed be a misfortune to our market gardeners. *A. D.*

HARDY SHRUBS IN FLOWER AT DROPMORE.—It is surprising that we do not find Andromeda floribunda more often met with, coming into flower as it does very early in the season — this year in February—and lasting so long in flower. In the shrubbery border it has been an object of beauty for the past two months, and has withstood 20° of frost without injury. Its clusters of Lily of the Valley like flowers are useful, when cut, for vases, and look fresh for a considerable time. The plant will grow freely in any light soil that suits the Rhododendron. Plants of Magnolia conspicua are just at the present time unfolding their flowers, which are of pure white. It is hardy, and of somewhat slow growth, and is well adapted, therefore, for such a position as the centre of a large bed of herbaceous plants. The flowers have endured 8° of frost without being injured. Berberis Darwinii is a shrub of great merit as a simple specimen on the lawn, or in the shrubbery border. It is, at the present time, very showy, the long and somewhat pendulous branches being festooned with its orange-coloured flowers, and these contrast well with the small dark foliage. Of Rhododendrons several early-flowering varieties have been in full beauty for some weeks, and although we have experienced frosty nights they have escaped without much injury, being planted in sheltered situations. One specimen of R. Dauricum, with purple-pink flowers, is about 12 feet high, and flowering profusely. The leaves are large and handsome, and they are covered with a chocolate-brown tomentum on the under side. Some varieties of R. Nobleanum are also very showy, and several others of lighter shades, probably seedlings, a few of which I have forwarded. *C. Herrin, Dropmore.* [The small trusses of several seedlings sent bear out our correspondent's statements. Ed.]

EXPORT OF FLOWERS FROM THE ISLAND OF SCILLY.—On Tuesday, the 1st inst., 2500 packages of flowers were sent to the various markets in England and Scotland; in this consignment were included upwards of 100,000 bunches of ornatus; 30,000 alone were sent from the Abbey Gardens Narcissus Farm, Tresco, belonging to the lord proprietor. J. A. Dorrien-Smith, Esq. *H. Tomkins.*

MONTBRETIA POTTSII.—The treatment we give our plants perfectly agrees with "J. U., Mid-Sussex." We allow it to spread, and never lift or interfere with it, save to give a slight forking-in in early spring, and top-dressing. It flowers well every summer. *Hon. Mrs. Hope, Belmont, Murrayfield, N.B.*

THE BIRMINGHAM PRIMULAS.—In a few remarks you were pleased to insert last week, you refer to the flowers and foliage sent to you as showing indications of coarseness, and in a communication to you I stated that both were from nearly exhausted plants now set aside for seed. In a younger state the flowers are smoother and finer, and challenge beating on all points. At Messrs. Pope & Sons, King's Norton Nurseries, these fine Birmingham raised varieties are to be seen, amongst them some new varieties. Princess Louise stands out prominently amongst whites for its good habit, throwing the flowers well out of the foliage, and of large size and remarkable substance. A seedling variety not yet sent out is a great advance upon the scarlet section, of which Chiswick Red and Brilliant are types. The flowers of this seedling are much larger,

bright crimson scarlet with large yellow centre. Pink Queen is deeper in colour than Her Majesty, and is in colour very like Sutton's Pink, but with the distinct foliage and large flowers of The Queen. The King, Fern-leaved, is what may be called a red variety of The Queen, with flowers of the size of Marquis of Lorne, but brighter in colour, and a very fine variety. *D. S. H.*

RAPID APPLE STOCK BUDDING.—Remembering an article which appeared in your paper of September 21, 1889, upon the above subject, in which is recorded a wonderfully quick piece of work, viz., the budding of 1,850 Apple Stocks in one day by Mr. A. Hagger, the foreman at Messrs. W. & J. Brown's Nurseries, Stamford, I thought I should like to know the result of this feat; accordingly, I asked Mr. Hagger what was the result of his rapid work, and he at once invited me to inspect them, and count the deaths for myself. As the stocks upon which the buds had failed were cut down for grafting, it was an easy matter to count the failures. To my surprise, I found there were only 75 deaths in the 1,850 worked Stocks, being a fraction under 4 per cent. of deaths. I then examined the live buds, and found them to be all plump, and ready to burst into growth. I thought the result of the above-mentioned piece of work might be interesting to some of your readers, especially those who noticed the article of September 21 last, and who, like myself, might wonder whether quantity and quality were combined, or if the latter, was sacrificed. There are many thousands of fruits and Roses budded at this nursery every year, and the same results characterise the whole—that is, where the stocks are young and healthy. *Arthur Wm. Edwards, Elmeslae Garden, Stamford.*

CALLA ÆTHIOPICA.—I should be glad to know if there are two varieties of this plant, a large and a small flowered one. Amongst the plants of Calla grown here, are fine, strong, healthy plants, which only throw up very fine spathes; they receive a greenhouse temperature, and are well fed with manure-water, &c. *F. Kerr.* [What treatment do the plants receive? Ed.]

CONFERENCE TOMATO.—I was surprised to read in your notice of Mr. Walker's farm at Ham, p. 453, mention of Conference Tomato as not "to be depended upon outdoors." Mr. Walker, if he has grown this variety outdoors, has doubtless been favoured with an advance packet, as the variety was distributed from Chiswick only during the past winter. With regard to its outdoor properties, I took careful stock of the variety as grown outdoors at Chiswick last year, and found it to be a remarkable fruiter, the fruits hanging on the plants literally like ropes of Onions, as there was no deception about it, and a large number of kinds were being grown at Chiswick at the same time; Conference being especially numerous. The trial was a fair one, and this variety stood in the front rank of croppers. I mention this to encourage the growth outdoors of a variety which has come into commerce under such promising conditions. Its parentage is so good, and the place of its production the one of all others where ample trials of all possible varieties are afforded. As I have found the seed of the variety furnished to me to have germinated without heat, and in a not very warm greenhouse so profusely, whilst seed saved from home-grown fruits has not come so well by one-half, I am tempted to inquire, seeing that so much of the Conference fruit was produced outdoors at Chiswick, whether it is in the experience of others that outdoor ripened seed germinates more readily than do house-grown seed. I base this query on the assumption that my Chiswick seed was from outdoor plants. Still, it may not have been, therefore the remarkably free germination found would seem to be rather attributable to the variety. The point, all the same, is worth raising. Does outdoor-grown seed germinate more freely than do seed grown under glass? *A. D.*

ANEMONE FULGENS IN THE ISLANDS OF SCILLY.—The growth of Anemone fulgens in the islands is of recent date, but so much has it found favour, that it has increased fifty-fold, some growers cultivating as many as 50,000 roots. On being first introduced, cultivated roots were in great demand, but at the present time collected roots have the preference. Cultivated roots cannot be depended on after the second year, but collected roots will do fairly well for twice the time, and are less in price. The quantity of flowers produced from roots not more than 1 inch long and a little thicker than the stem of a tobacco-pipe, is almost incredible; such roots yield from six to eight blooms each during the season, which extends for three months. Good cuttings can be made twice a week during that period. I have been cutting from beds ever since the early part of January, and while I am writing they are in full bloom. Some of the blooms I have cut have measured 3¾ inches in diameter, or over 10 inches in circumference. I know of no other plant that is so productive of flowers, which always find a ready sale at prices varying from 9*s.* to 2*s.* per dozen bunches of one dozen blooms in a bunch. I am rather inclined to think that the profusion of blooms is the cause of premature decay. Hitherto no attempts have been made to raise them from seed, but trials are to be made this season. *J. C. Tomkins, St. Mary's, Isles of Scilly.*

LARGE CROWN OF SEAKALE.—Accompanying this I have sent you a very large crown of Seakale, which weighs 3 lb. 14 oz., and is the largest I have ever seen. I shall feel obliged if you can find room in your paper to mention this. It was grown by me, at Millshot Farm, Fulham. *Wm. Bagley.* [The crown sent was very large, and bore ten good-sized offsets, besides numerous smaller examples. Ed.]



Figs. 73 NARCISSUS MAJUAL, PERIANTH WHITE, CORONA ORANGE (SEE P. 494).

SOCIETIES.

ROYAL HORTICULTURAL.

THE DAFFODIL CONFERENCE.

April 15, 16, 17, 18.—This meeting, which was held in the Society's Gardens, Chiswick, was opened on Tuesday last by H.R.H. the Princess Mary, Duchess of Teck, who was received and conducted round the conservatory, by the Rev. W. Wilks (Secretary). A large and elegant bouquet of Daffodils, made by Mr. Garcia, Covent Garden, was presented to Her Royal Highness, on her arrival, by Miss Frances Thiselton Dyer.

As a floral display, the show fell short of expectation, the entries being few. Two Silver Challenge Cups were offered for amateurs, but these brought forth only two exhibitors, referred to below and, indeed, the display proper was made by the grand representative collections of Messrs. Barr & Son, Mr. J. Walker, Messrs. J. Veitch & Son, Mr. Poupart, and the collection from Kew Gardens. Mr. Wilks' collection in the competition must be accorded praise, as displaying evidences of high cultivation. The method of staging the large collections was a happy innovation, the varieties of each section being placed together, and thus a capital opportunity for the comparison of the merits of the numerous varieties was afforded. The last great Daffodil Conference, which was held in 1884, evoked more interest than the one just past, and the exhibits were more numerous, but the six years which have intervened have allowed many valuable additions to be made to the list of Daffodils, many of which deserve to be largely grown; this is especially the case in the Barri and Leedsi sections.

The attendance on the first two days, when the weather was fine and warm, was very satisfactory.

The Daffodil Show.

Messrs. Barr & Son, King Street, Covent Garden sent an extensive collection, representing all classes. There were 200 varieties represented, but were shown several times over, which added much to the display. The bunches were arranged with a sprinkling of their own foliage, which relieved the glare of colour generally produced by a collection of Daffodils and Narcissi. We select the most conspicuous flowers for size and colour. The Glory of Leyden, which made a certain sensation when first shown at South Kensington some few years ago was very striking (fig. 73). It is a bloom of much substance. Golden Spur, Emperor, Captain Nelson, Countess of Annesley, Johnstoni, Mrs. G. Cammell, Spurius, Henry Irving were also well represented. Of the Ajax bicolors, Dean Herbert, and the pale delicate J. B. M. Camm. Among the pale coloured Ajax forms, the chief was Madame de Graaff (fig. 74), with a delicate rich cream trumpet. Albicans and tortuosus were also good.

The flowers grouped in the Incomparabilis, Barri, and Leedsi sections (which were grouped together) made the brightest display of any, the rich orange-red of the smallish cup being very pleasing. Gloria mundi (a novelty last year) was very fine; Queen Sophia, Frank Miles, Sir Watkin (fig. 72), Beauty, Barri, Crown Princess, and several bunches of Barri conspicuus, showing how the perianth is deep yellow in the young flower, fading as it ages. Maurice de Vilmorin should also be named.

In Leedsi forms, Duchess of Westminster, Palmerston, Mrs. Langtry, and the almost white Gem were the best; Burbidgei, Baroness Heath, Princess Louise, Constance, Falstaff, Nelson, C. J. Backhouse, Backhousei, and Crown Princess, were also shown; and of other sections, Capax plenus, Codlings and Cream, Eggs and Bacon, &c., with various tazetta types.

Mr. J. Walker, Ham Common, Surrey, contributed a collection of over 100 varieties set up in large bunches without foliage. The flower was large and bright. This was a lot of the most useful varieties for general work, and of these the best shown were Aurantius, Nelsoni, Sir Watkin, Beauty, Cynosure, Princess Mary, Minnie Hume, Mrs. Langtry, W. Ingram, Barri conspicuus, Maurice de Vilmorin, Beatrice Murray, Falstaff, ornatus. The various double Incomparabilis, the numerous flowers of the Emperor, Empress, and maximus types, were very fine, with large flowers of good substance. The delicate J. B. M. Camm, cernuus pulcher, and Leda (tortuosus), were also fine.

Mr. Poupart, Twickenham, sent a smaller collection of very good quality blooms, including Madame de Graaff. Among the more numerously represented were Orange Phœnix, Incomparabilis fl.-pl., Maximus Horsfieldi, grandis, Emperor, Poeticus ornatus, Beauty, Duchess of Brabant, Titian, M. de Vilmorin, conspicuus, Princess Mary, Cynosure, Campernelle, M. M. de Gaaff, and Sir Watkin.

Messrs. R. Veitch & Son, Exeter, had a few varieties represented. There were several N. moschatus, Horsfieldi, Emperor, Triandrus alba, Cynosure, and Sir Watkin.

From Messrs. Jas. Veitch & Son, Royal Exotic Nurseries, Chelsea, came a considerable number of varieties, the distinguishing feature being a group of about fifty Tazettas; among them were Queen of the Netherlands, white, with gold-yellow cup, large flower—an uncommon variety; Soleil d'Or, dark yellow and red-orange cup, very distinct by reason of the colour of the cup; Princesse de Metternich, like

the Queen of the Netherlands, but darker cup; Adonis, large flower, petals broad, deep, yellow, and cup rich orange; Grand Monarque, Bathurst, Gloriosa, White Pearl, Intermedius, Bifrons, &c. The Tazettas are very pretty forms, but, unfortunately, are not quite hardy in England. Among the larger-flowered section the best were Golden Spur, Maximus, Countess of Annesley, Henry Irving, Empress, Horsfieldi, Emperor, albicans, cernuus, Barri conspicuus, C. J. Backhouse, aurantius, Stella, Sir Watkin (fig. 72), Katherine Spurrell, poeticus poetarum and p. ornatus, odorus, trilobus, and the double Incomparabilis.

The Royal Gardens, Kew, had a representative collection of 150 varieties. They were well grown, fresh, and bright, and comprised a selection of the best sorts. The following were among the best as shown. There were the favourite large trumpet forms, and pallidus, præcox, Cynosure, Gog, Queen Sophia, King of the Netherlands, Albert Victor, C. J. Backhouse, Beauty, Splendens, and Sir Watkin of the Incomparabilis section; conspicuus, Maurice de Vilmorin, Duchess of Westminster, Duchess of Brabant, Madame M. de Graaff, and W. Ingram of the Barri and Leedsi section—all very showy; Mad. M. de Graaff (fig. 74) having a short expanded pale cinnamon-yellow cup; and other noticeable forms were Hume's Giant, W. Wilks, Nelsoni, Backhousei, Burbidgei, poeticus ornatus, p. angustifolius, triandrus albus; and of Tazettas, States General, gloriosa, and Etoile d'Or, with the popular doubles.

The schedule comprised twelve classes, representing the various groups. Some of these are distinct, and easily recognisable, while others merge one into another by so many and such slight gradations, that it is difficult and sometimes impossible to define them in words. If this is the case in the main groups, much more so is it in the case of the individual forms, which are now reckoned by hundreds. In the following notes we have selected several of the best as illustrations, specimens having kindly been placed at our disposal by Mr. Barr, Mr. Walker, Mr. Hartland, and others. Very great differences exist in the "grass," or foliage, of some of the varieties, but of this we have rarely been able to take note, as the specimens were mostly exhibited without the leaves. Many fine varieties are necessarily unrepresented, so that the absence of a note upon a particular variety must by no means be taken as an indication of inferiority. We could only take note of what was before us. The only way to study the forms efficiently is to pay a visit to a named and classified collection like Mr. Barr's, at Surbiton, and note the variation on the ground.

Class 1. The Corbularia section includes the Hoop-petticoat Daffodils of popular phrase. They all belong to the species Narcissus Bulbocodium of Linnæus. The species grows wild in Spain, Portugal, South-west France, and North Africa, varying to such an extent that several of the forms have been considered worth specific names. The white variety, N. Bulbocodium var. monophylla is the most interesting of them, but requires to be grown under protection. It is reputed difficult to be cultivated, albeit of such vitality that a bulb in Mr. Munby's herbarium was found to have retained its vitality after an incarceration of a quarter of a century.

Among the other forms, conspicua is notable for its size, citrina for the pale sulphur-yellow of its crown, nivalis for its small flowers. All these flower early, and exhibit every gradation in size and colour.

The Ajax section of the schedule comprises the Daffodils proper, with the large trumpet-like corona as long as the segments, or nearly so. The varieties of this section, which corresponds to the Narcissus pseudo Narcissus of Linnæus and of Baker, are beyond computation. They differ in size, from the tiny minimus to the giant Emperor; they vary in colour from pale sulphur to orange. In the programme, the division is made into self-coloured forms (class 2), bicolor forms (class 3), white or sulphur-coloured forms (class 4). In the following enumeration we have included some forms which, technically, do not belong to this section, but which resemble them closely.

Class 2. The Trumpet Daffodils (Ajax group): Glory of Leyden and Madame de Graaff are described elsewhere. Among the best are:—

Countess of Annesley, a form with flowers some 4 inches across, with a pear-shaped, elongated, grooved seed-pod, a broad, funnel-shaped, yellow tube, and ovate-oblong segments of a canary-yellow, often somewhat twisted. The corona is bold, tubular, expanding into a reflected, lobulated border, the lobes regular, rounded, and often more or less overlapping by one edge.

Maximus, though an old variety, is one of the very best, for the deep yellow colour of its twisted segments, and the very deeply-lobed and reflected edge to the corona.

M. J. Berkeley is similar to the last, but with more flimsy segments.

Emperor.—A robust form, with the ovary inversely cone-shaped, not contracted at the top, as in the three preceding; tube short, greenish-yellow, flat; segments spreading, flat, broadly ovate, oblong acute, canary-yellow, with a bold tubular corona of a deeper colour, slightly reflected and lobulate at the margin. The foliage, or "grass," of this form is very bold.

Henry Irving is very similar, but smaller in all its parts.

Golden Spur is in size and shape like Countess of Annesley, but with a more slender tube and narrower segments, the outer somewhat darker in colour than in the form previously mentioned. A very fine variety.

John Nelson.—Ovary scarcely contracted at the top; tube very short, relatively greenish; segments spreading, somewhat twisted, oblong obtuse, pale primrose; corona tubular, boldly lobed; lobes large, rounded.

John Bright.—Ovary slender, cylindric, ovoid; tube relatively long, greenish-yellow; segments spreading, flat, narrow, oblong-acute, shorter than the broad, tubular corona, whose edge is divided into bold, oblong, slightly reflexed lobes.

Hume's Giant, a hybrid, has a short cylindric ovary, a very long yellow tube, oblong-ovate, acute spreading segments, of a pale primrose colour, and a deeper yellow, somewhat funnel-shaped corona, with a plicate and lobed edge not reflected.

Mr. J. G. Baker and *Mrs. J. G. Baker* have medium or small-sized flowers of similar form. Mr. Baker has nearly self-coloured flowers, with the corona reflected, and only slightly lobed at the edge. Mrs. Baker has her crown of a deeper colour, and the edge more deeply lobed.

Bastemil is one of the maximus type, with cylindric ovary, narrow funnel-shaped tube, spreading, twisted, narrow segments, and a cylindric corona, divided at the edge into six bold rounded lobes. This form was collected in Spain by Mr. Barr.

Stansfield has the appearance of a hybrid. It has a cylindric ovary, star-like perianth, with narrow oblong flat segments and a straight tubular corona, divided into rounded lobes.

Hume's Concolor, a hybrid, is similar to Hume's Giant, but smaller in all its parts.

Mrs. H. J. Elwes.—A medium-sized flower, with short, deep yellow, funnel-shaped tube; spreading oblong obtuse, rich yellow segments, shorter than the boldly-lobed cup, the edges of which are slightly reflected.

Ard Righ is a fine Irish variety belonging to this section, and which flowers early.

Huthwas has a small well-shaped flower, with broadly ovate canary-yellow segments, and a broadly expanded tube of a darker shade.

Among this section is a striped variety, *Regina Margarita*, in which the segments are milky-white, with a central yellow stripe. The corona is clear yellow, plicated, the margin irregularly lobed with blunt lobes.

Mrs. George Cammell (Johnstoni section).—A very remarkable form, collected by Mr. Barr in Spain. The ovary is cylindric, curved; the tube yellow, trumpet-shaped, the segments narrow, oblong, somewhat reflexed, clear yellow, corona as long as the segments, and of the same colour, tubular, cylindric, entire. The flower has a resemblance to a large Cyclamineus.

Class 3 (Ajax bicolors): a group in which the segments of the corona are whitish, while the corona is rich yellow.

In this section, Empress takes the lead. Her Imperial Majesty has flowers 4 inches across, a short thick germen, a short broad yellowish tube, broadly oblong obtuse apiculate pale sulphur-coloured segments, and a bold clear yellow corona, dividing at the spreading border into shallow broad rounded lobes.

Horsfieldi is very similar to Empress, but rather smaller and with narrower segments, flushed with yellow in the centre. Both are very fine forms.

Harrison Weir and *Dean Herbert* again resemble Horsfieldi, but have smaller flowers, the segments channelled (not flat). As they lie on the table before us, after having been gathered some days, we can detect little or no difference, but no doubt on this ground the variations are more apparent.

Daniel Dewar also belongs here. It has a narrower and more slender ovary, and the segments, are flushed at the base with deep yellow.

Class 4 (Ajax, white or pale sulphur).

F. W. Burbidge has the largest flowers of this class, at least as far as our material goes. The ovary is oblong ovoid, the tube very long, relatively funnel-shaped, yellowish; segments narrow oblong acute, twisted, as long as the cylindric tube, pale sulphur coloured, which has a reflexed border divided into rounded lobes.

Mrs. F. W. Burbidge is similar to the preceding, but the tube and segments are broader, and the crown shorter and broader.

Albicans is very like F. W. Burbidge, especially in its long corona, which, however, is paler in colour and more slender.

Exquisite is a large flower with yellowish tube, oblong twisted segments, and bold corona, with a reflected irregularly-lobed border.

Cernuus, Tortuosus, Colleen Bawn, and *W. Goldring*, are all similar, showing minor variations in the colour and lobing of the corona. They are all elegant and differ one from the other in the time of flowering.

Duchess of Connaught apparently belongs to this section, but the flowers are not reflexed, and the colour, both of the segments and of the corona, is a pale lemon yellow of great delicacy.

Classes 5, 6 and 8 partly:—

The peerless Daffodil, N. incomparabilis, is taken by Baker to be a wild species, having the cup about half the length of the segments. It is native of Spain and South-western France, and is the parent of innumerable seedling forms and hybrids. Herbert was of opinion that the peerless one is itself a hybrid between N. pseudo-Narcissus (Daffodil) and the poet's Narcissus, he, as well as others, having raised a form indistinguishable from the wild form of incomparabilis. As to the origin of the Leedsi group, nothing is known for certain; Mr. Barr, however, inclines to the opinion that poeticus and cernuus were the parents of this section, while poeticus and incomparabilis furnished the Barr group. The Bernardi group is yielded by the combination of variformis and poeticus.

Even with the specimens before us, we cannot profess to be able to refer them all with certainty to their appropriate sections. The true incomparabilis section has the corona large in proportion to the segments; the Barri forms have the corona small in proportion to the segments; the Backhousei set have the coronas as long as the segments, or nearly so. The best course open to us seems to be not to attempt to follow the schedule entirely, but to throw the specimens together into two main groups—(1) those having yellow segments, with yellow or orange cups; and (2) those having white segments, with whitish or yellow cups.

(1.) Forms with Yellow Segments and Yellow-orange Corona.

Sir Watkin (fig. 72) is too well known to need description. Its interesting history has lately been the subject of discussion in our columns.

Lady Watkin is of dwarfer habit, has a somewhat smaller flower, and a corona of deeper orange-yellow.

C. J. Backhouse is noted as a "good doer," and is a fine flower, with cylindric ovary, a long cylindric tube; spreading, star-shaped perianth, with oblong obtuse lobes; and a deep orange, funnel-shaped, lobed corona, not reflected at the margin.

E. Hart has a sub-angular ovary, surmounted by an elongate slender tube; and spreading, oblong, apiculate, clear yellow segments; the corona broadly cup-shaped, folded, lobulate, of a rich yellow.

Splendens.—Ovary cylindric; tube long, slender; perianth spreading; segments oblong-acute, sulphur-yellow, with a deep cup, yellow at the base, and with an orange border.

King of the Netherlands is like the two preceding, but the perianth is paler sulphur coloured, and the corona more spreading at the top, deep yellow, not orange.

Gloria Mundi has a smaller flower than the two preceding. The perianth segments are deeper yellow, and the cup a rich orange, and nearly half the length of the segments.

Autocrat has a relatively short ovary, a curved tube, a large flat perianth; with spreading, narrow, oblong, sulphur-yellow segments, and a broad open cup of deeper yellow.

Cynosure is one of the favourite flowers of the day. It has a long, slender, trumpet-shaped tube, with oblong obovate pointed segments of a creamy-yellow colour; with a broad, cup-shaped, orange corona, plicated, and with a lobulate edge.

Frank Miles is a fine variety, with large flat flowers of a canary-yellow colour; with a cup-shaped, plicated corona of a deep yellow, with shallow lobes at the margin.

Beauty, a large form, with oblong ovoid sulcate ovary,; curved, slender tube; spreading oblong segments sulphur-yellow, flushed with deeper yellow at the base; cup broadly funnel-shaped, plicated, divided at the margin into oblong rounded lobes.

Princess Mary, like the preceding, but with a broader and cup-shaped, deep yellow corona.

Baroness Heath, a small form with sulphur-yellow, ovate oblong segments, and a wide orange cup, one-third the length of the segments.

Barri conspicuus.—A flower of medium size, with elongated, furrowed ovary, rather thick straight tube; broadly ovate, oblong acute segments; crown cup-shaped, one-fourth the length of the segments, plicated, with an orange-coloured lobed border.

Queen Sophia has a relatively short cylindric germen, a long greenish sulcated tube, the segments oblong ovate acute, whitish, flushed with sulphur; the cup basin-shaped, rich yellow, deeply lobed and plicated half the length of the segment.

Semipartitus×, a very distinct form, with flowers of medium size; segments oblong acute, twisted, pale primrose-yellow; the corona one-third the length of the segments, broad, saucer-shaped, divided at the margin into six well-marked rounded lobes, as in odorus

Backhousei.—(Backhousei × type) seems intermediate between incomparabilis and Pseudo-Narcissus. It has an oblong ovary, funnel-shaped tube, spreading broadly; oblong segments of a pale yellow or sulphur colour; and a corona broadly tubular, lobed at the edge, canary-yellow, and of the same length as the segments.

W. Wilks (Backhousei) is similar, but has a darker yellow corona, more tapering at the base than in the former case.

Wolley Dod (Backhousei section).—A medium-sized flower, with very short, ovoid, truncate ovary; tube funnel-shaped, yellow; segments spreading, oblong, ovate, obtuse, apiculate, primrose-yellow, about the same length as the broad corona, which is deep yellow, with a boldly lobed edge; lobes rounded, erect.

Duchess of Albany (tridymus section).—Flowers in threes, or in pairs; ovary oblong, not furrowed; tube narrow, trumpet-shaped; flowers medium-sized; segments oblong, primrose-coloured; cup cylindric, folded two-thirds the length of the segments, rich canary-yellow, entire at the margin.

Duke of Albany belongs to the same section, and has rather larger flowers than the Duchess; the corona of a deeper yellow, and rather more expanded at the margin.

Princess Alice (tridymus), similar to the preceding; flowers small, primrose-coloured; segments oblong-acute; corona tubular, rich yellow, entire, two-thirds the length of the segments.

Odorus (the Jonquil type).—Very distinct in its quill-like foliage, its medium-sized fragrant flowers, clear yellow corona, half the size of the oblong segments, and of the same colour, but somewhat deeper; deeply and regularly six-lobed at the margin.

Rugulosus is very like the preceding, but has larger flowers, with broader segments, deeper, and of the same colour as the corona, which is less deeply divided than in odorus.

(2.) Forms with White or Nearly White Segments, and White or Pale Yellow Corona (Leedsi × type), and Others.

Beatrice may be described as like a white incomparabilis, both the oblong lanceolate segments and corona being of a pure white; the corona is about half the length of the segments, tubular, cup-shaped. A very distinct and beautiful variety.

Gem is similar, but the segments are narrowed at the base, and expanded towards the top.

Hon. Mrs. Barton (incomparabilis).—Flower of medium size, segments oblong acute; corona trumpet-shaped, half length of the segments, white, slightly lobed at the edge.

Minnie Hume.—Segments, oblong white; corona pale sulphur-coloured, spreading, lobed and folded.

Katherine Spurrell.—Segments broadly oblong, apiculate, pale sulphur-coloured; cup primrose-yellow, plicated, spreading, nearly entire at the margin.

Queen Bess (incomparabilis section).—Segments oblong obtuse, whitish, with an expanded basin-shaped corona, half the length of the segments; clear canary-yellow, folded and lobed at the margin.

Acis (incomparabilis Leedsi).—Flower medium-sized; segments oblong, whitish; corona spreading, tubular, half the size of the segments, folded, scarcely lobed at the margin.

Grand Duchess.—A white Leedsi form, remarkable for its very expanded basin-shaped corona, frilled at the edge. The corona is described as stained orange, but in the specimen before us (hort. Barr), the crown is nearly white without any orange colour.

Madge Matthew.—Flower of medium size; ovary elongate, tube relatively short; segments narrow, oblong, obtuse, slightly twisted; corona white, half the length of the segments, plicated, spreading, and slightly lobed at the edge.

Duchess of Westminster (incomparabilis Leedsi).—Segments narrow oblong, somewhat acute white; corona creamy-yellow, half the length of the segments, tubular, slightly expanded at the top, border dividing into very shallow lobes.

Stella (incomparabilis type), flower large; ovary long, barrel-shaped tube slightly curved, greenish; segments twisted, pale sulphur-yellow, flushed with deeper yellow at the base; corona cylindric, canary-yellow, plicate, lobulate.

Goliath is similar to the last, but considerably larger.

Nelsoni major has the ovary ovoid, surmounted by relatively short thick tube; segments spreading,



Fig. 83. Narcissus Johnstoni flowers yellow.

white, oblong-acute; corona half the length of the segments, cylindric, plicated, slightly lobed at the margin, clear canary-yellow.

Maurice de Vilmorin.—Flowers of medium size; segments ovate-oblong, rounded, whitish, flushed with yellow; corona half the length of the segments, tubular, slightly plicate, orange.

John Barr.—Flower of medium size; ovary cylindric, sulcate; tube cylindric; segments spreading, whitish; corona one-fourth of the size of the segments, cup-shaped, plicated, deep yellow.

Crown Princess.—Flower of medium size; ovary cylindric, sulcate; tube slender, curved; segments narrow, oblong, pale fawn coloured; corona one-third the length of the segments, broadly cup-shaped, plicated, deep orange, not reflected at the margin.

General Murray.—Flower small; ovary oblong; tube greenish; segments oblong-ovate, pale fawn-coloured; corona half the length of the segments, cup-shaped, plicated, orange, slightly lobed at the edge.

Flora Wilson.—Flower of medium size; ovary ovoid-oblong, not furrowed; perianth tube stout; segments broadly oblong acute, pale cream-coloured; corona one-third of the length of the segments; tubular, plicate, with a deep orange border.

Ellen Barr (Burbidgei × group) has flowers of medium size, white, resembling poeticus; the corona a fourth the length of the segments, broadly cup-shaped, plicate crenulate at the margin.

Mary (Burbidgei × group).—Flowers of medium size; segments somewhat twisted at the base, pale cream coloured; corona one-fourth the length of the segments, basin-shaped, lobed rich yellow.

Montanus.—A form with reflexed white flowers, almost always deformed. The flowers look as if they might have originated as a cross between cernuus and poeticus.

Class 7 is represented by the lovely triandrus, fig. 75, and the curious cyclamineus, with its narrow perianth segments reflexed.

Class 8 contains the plants of the sections Burbidgei, poeticus, odorus, juncifolius, and Jonquilla. These have mostly been dealt with under other headings, but ornatus requires mention as an early form of the poeticus greatly in request in the markets at the present time.

Class 9 is devoted to plants of the gracilis, intermedius, and polyanthus, fig. 78, (Tazetta) groups.

Class 10 includes a miscellaneous collection of double Daffodils, from the big Telamonius plenus, a plant that has survived the period of neglect in many a cottage garden, and proves its right to do so by its great effectiveness.

Queen Anne's Daffodil is remarkable for the regular superposition of its segments, the corona not being represented as fully described in a paper in the *Journal of the Linnean Society*.

Odorus plenus is an effective variety, in which the perianth segments and corona are both represented.

Other double Daffodils and their peculiarities are detailed in a paper published in these columns in 1875, April 17 and 24.

Competitive Classes.

A Silver Cup presented to the Society by the Rev. W. Wilks was offered for competition by amateurs, for a collection of Daffodils (Polyanthus excluded.) There were only two entries in this class.

The Rev. W. Wilks, Shirley Vicarage, Croydon, had a collection of vigorous well grown flowers, and was awarded the cup; here Sir Watkin was most noticeable on account of its great size, they were the finest blooms of this variety in the show. C. J. Backhouse, Gloria Mundi, Empress, Baroness Heath, Princess Mary, Primulinus, Cressida, Horsfieldi, double incomparabilis, Orange Phœnix, Barri, conspicuus, Acis, Macleai, fig. 79, Leda, J. B. M. Camm, may be singled out for fine development, but all were large and well grown.

Mr. C. W. Cowan, Valleyfield, Pennycuick, showed a collection of greater size, but the cultivation evidenced was not of so high a order. C. J. Backhouse, Harrison Weir, Countess of Annesley, splendens, Barri conspicuus, Sir Watkin, Ch. Hopper, Princess Mary, Leedsii, elegans, Duchess of Westminster, and Fairy, with several of the moschatus type, were the best; Mr. C. W. Cowan also had exhibits in the following classes, viz, for a Silver Medal, offered for amateurs by Messrs. Barr & Son, for fifty distinct varieties; and again for a medal offered by the same for a collection of twenty-five varieties, showing similarly Sir Watkin, Maximus, and the Leedsii, and Barri forms, looking very bright, and was awarded the medal in each class.

Miscellaneous.

Messrs. Barr & Son showed a small collection of herbaceous plants, including Anemone fulgens vars., Muscaris, Fritillarias, and fine coloured new Tulips; also several Orchids and Ophrys. Messrs. R. Veitch & Son had trusses of Rhododendron gloxiniæflora, white, with crimson-brown spots; also Parma violets. Messrs. Jekyll, Munsted, Godalming, had a collection of grand varieties of Primroses and Polyanthuses, large-flowered, and with vigorous foliage. A box of a dozen splendid Maréchal Niel Roses came from Mr. H. Shoesmith, gr. to — Hodgson, Esq., Shirley Cottage, Croydon—a grand lot of delicate fresh flowers. Mr. Miller, gr. to the Right Hon. Lord Fowley, Ruxley Lodge, Esher, sent a box of Mushrooms. Mr. J. T. Gilbert, Dyke Bourn Nursery, Brighton, sent Anemone fulgens, very bright, single and double; and a box of Camellia reticulata flowers, from the original plant in the Society's Gardens, was also shown.

Captain Nelson, Col. R. Trevor Clarke, Daventry; Mr. G. Greyson, Starkie House, Leyland; Rev. A. Rawson, Fallbarrow, Windermere; and the Rev. T. H. Marsh, each contributed a few blooms to the display; and Mr. T. Ryan, gr. to the Earl of Annesley, Castlewellan, co. Down, sent a fine bunch of his seedling, Countess of Annesley, a showy early flowerer.

Representations of Daffodils came from Mr. C. M. Cowan, Pennycuick, and Mr. J. D. Pearson, Chil-

well Nurseries, Notts, both of whom send a collection of photographs of Daffodils with delicate gradations of light and shade, especially in the first-named; and from Professor Oliver, Kew, came a coloured representation of Narcissus incomparabilis, fl.-pl., drawn by E. D. Ehret, who flourished from 1708 to 1770.

New Forms.

Messrs. J. Veitch & Sons, Chelsea, had, among others, a moschatus form named James Veitch. The trumpet was long, and of a pale pure cream colour—very distinct; Prodigy had a small flower, starry petals and sepals, of a primrose-yellow pointed, the trumpet nearly as long as the perianth segment—rich yellow, cylindric, contracted at the throat; and Prime Minister, with a perianth of soft yellow; the trumpet full yellow, and expanding slightly longer than the segment of the perianth.

Among Messrs. Barr & Son's novelties were the following, all of the Ajax type:—Samson, a large, full yellow flower, the trumpet being a shade darker than the perianth—a striking variety; Wideawake, yellow trumpet, with primrose perianth, the top of the trumpet being very wide; Dante, pale primrose, with a sulphur edge to the corona. Several other forms were also contributed, but were not specially striking.

Awards were made as follows:—

Medals.

Gold, to Messrs. Barr & Son.
Silver-gilt Flora, to Mr. J. Walker.
Silver Flora, to Messrs. J. Veitch & Son.
Silver Banksian, to Mr. Poupart.

Registered Narcissi.

The following is a list of garden and selected varieties of Narcissus, sanctioned up to the present time by the Narcissus Committee:—

Pseudo.—Automedon, Challenger, Troilus, Achilles, Vicar of Lulworth, Golden Prince, and Ard Righ.

Major.—Henry Irving, Emperor, The Czar, Glory of Leyden, Madame de Graaff, Distinction, and Santa Maria.

Bicolor.—Empress, John Horsfield, J. B. M. Camm, Camoens, and Dean Herbert.

Moschatus.—Leda, Minnie Warren, Gladys, Niobe, and Little Nell. These varieties are now under observation.

Incomparabilis. — Sir Watkin, Mary Anderson, Lulworth, C. J. Backhouse, Princess Mary, Autocrat, Queen Bess, and Gloria Mundi.

— — *Backhousei.*—William Wilks.
— *Bernardi.*—H. P. Buxton.
— *tridymus.*—A. Rawson.
— *Leedsi.* — Beatrice, Gem, Minnie Hume, Duchess of Westminster, Acis, and Madge Matthew.
— *Barri.*—Conspicuous, and Maurice de Vilmorin.

To the foregoing must be added the following, which were registered at the Conference, and making in all a total of fifty-four varieties:—From Captain Nelson, the varieties Nelson's Orange (= Nelsoni aurantius), pure white perianth segments, with an orange-red well-expanded cup; and Captain Nelson, a large-flowered canary-yellow Ajax variety, with a wide tube, and somewhat starry perianth. From Messrs. Barr & Son, the varieties P. R. Barr (Ajax), with broad, overlapping perianth segments, bright yellow, trumpet darker yellow, with an expanding edge; and intermedius Sunset, with a dense bunch of blooms, each flower being full yellow, with a bright orange-red cup; and for seedlings raised by M. de Graaff:—Lena (Ajax), moderate-sized flower, bright yellow; Samson, a large bright yellow flower, referred to above; Golden Vase, very deep yellow Ajax, moderate size; Duchess of Teck (bicolor), which recalls Empress; Madame Plemp (bicolor), of fine and bright colours, a wide yellow trumpet, and narrow perianth segments; Mrs. Walter Ware (bicolor), with a short wide trumpet, smaller than Madame Plemp, very broad perianth segments; and Miss White (bunch-flowered Leedsi), rather small flowers, with a white perianth, and lemon-yellow cup.

Scientific Committee.

April 8.—D. Morris, Esq., in the chair.

Scale on Fig Tree.—Mr. McLachlan reported that the scale on the Fig tree was a species new to Great Britain, and named Mytilaspis ficus.

Purple Primrose.—Mr. Wilson exhibited a plant of a Primrose, a seedling from Scott Wilson, showing a greater advance to a deep blue colour than has yet been made. A series of intermediate forms were also shown.

Root Galls on Poa annua.—Professor Marshall Ward showed a specimen of this grass with spiral knobs on the rootlets, due to the irritation of the cortical tissues caused by root-worms, Heterodera radicicola. Mr. Morris alluded to the recent publication of a report on this subject by the American Department of Agriculture.

"Fingered" Orange.—From Mr. Rivers, of Sawbridgeworth, came specimens of Oranges showing a partial dissociation of the carpels similar to the corresponding anomaly in the Citron, of which drawings were recently laid before the committee.

Cytisus Adami ×.—Mr. Wilks showed a flowering shoot of Cytisus purpureus which had been engrafted on a seedling Laburnum. Professor Marshall Ward called attention to the explanation offered by Professor Strassburger, of the occurrence of the famous Cytisus Adami, viz., that it was due to an accidental fusion of two nuclei, one from one species, one from the other.

Diseased Vines.—Mr. Blackmore sent a specimen with the following note:—"The specimen submitted is the entire upward growth of a young Gros Colmar planted in a vinery border, and started into growth some two months since. About three weeks ago it was suddenly struck with this fatal complaint, having, up to that time, been strong and healthy, with richly coloured foliage. I have not examined the roots, but believe that they are quite healthy, as in fifty similar cases I have always found them to be. There are no cold draughts in the house, neither has there been any sudden fall of temperature. Other Vines close by are in luxuriant health and full growth." The specimen was referred to Prof. Marshall Ward for examination and report.

Botanical Certificates.—Awards were made on the ground of botanical interest and novelty to Dendrobium albo-violaceum and Disa sagittalis.

BIRMINGHAM SHOW.

April 16 and 17.—The tenth annual exhibition was held in the Town Hall, Birmingham, the quality of the exhibits throughout being very good. Hyacinths have always been a prominent feature here. There was a falling off in the quantity, but quality was fairly well maintained in the exhibits, and much credit is due to Mr. Cooper, gr. to Charles Showell, Esq., Edgbaston, for his two 1st prize lots of eighteen, in competition for the Society's prize as well as the extra prizes offered by Messrs. Thomson. In these two groups were fine examples of the general show favourites. An excellent display of Tulips was staged, and good Lily of the Valley, some well grown Dielytras, large specimen Deutzias, and Spiræa japonicas were also shown.

The Right Hon. Joseph Chamberlain, M.P., took the 1st prize for four pot Roses, with well grown, medium sized specimens, and the Azaleas—a good display—were medium sized, clean, and well flowered plants, Mr. Grice taking the 1st prize for six plants; Right Hon. Joseph Chamberlain, M.P., 2nd, for six, and 1st for three, and for a single specimen.

Azalea mollis were well represented, and were striking objects. Here, again, Mr. Cowper, gr. to the Right Hon. Joseph Chamberlain, was 1st, with fine specimens.

The 1st prize lot of six Cinerarias, set up by Mr. W. H. Dyer, gr. to Mrs. Marigold, were well done plants, one or two of them reminding us of the old days, when the late Mr. Charles Turner, of Slough, exhibited such glorious specimens.

Sir Thomas Martineau's 1st prize lot of six stove and greenhouse plants not only deserved the position of 1st, but great praise also for admirable culture; these were Anthurium Scherzerianum, Clerodendron Balfourii, Dendrobium nobile, Imantophyllum miniatum, Tracheliospermum jasminoides, and a well-bloomed Hydrangea Thomas Hogg.

Orchids were well represented by many good and rare specimens. The 1st prizes for twelve and six Orchids were awarded to the Right Hon. J. Chamberlain. Amongst them were fine specimens of Cattleyas Lawrenceana, Mendelii, and Schrœderii; Dendrobiums crassinode Barberiana, Wardianum, and Freemanii, Oncidium Marshallianum, Odontoglossum Andersonianum, and a good specimen of Ada aurantiaca. The 2nd prizes in each class fell to Mr. Charles Winn, with fine lots, in which were some fine Cypripediums villosum, Schrœderii, Warnerianum, and venustum, Cattleya Trianæ formosa, very rich in colour; and a fine Masdevallia Harryana. Mr. G. H. Kenrick (W. A. Powell, gr.) also exhibited a fine lot, being 3rd for twelve, and 2nd for three, including a fine Odontoglossum citrosmum, Cymbidium Lowianum, Dendrobium thyrsiflorum, and D. Wardianum.

Auriculas were fairly represented, in competition, amongst them being good examples of Duke of Wellington, Frank Simonite, General Neil, Robert Trail, and John Simonite. Some good alpine varieties were also staged.

The non-competing exhibits were numerous. Mr. Thomas Ware, Tottenham, sent a large collection of cut Narcissi, about eighty varieties.

Messrs. Dicksons (Limited), Chester, staged admirably, fifty varieties Narcissi.

Messrs. Cutbush & Son, Highgate Nurseries, London, sent a quantity of plants, including very fine Cyclamens, Boronia heterophylla, Staphylia colchica, Narcissi, and Crown Imperials.

Messrs. Richard Smith & Co., St. John's Nursery, Worcester, set up a fine display of Rhododendrons and Azalia mollis, berried Aucubas, Japanese Maples, and Clematis.

Messrs. Thomson, nurserymen, Birmingham, showed an artistically arranged group of plants within a circle of Primula obeonica. The same firm also exhibited a large design of an anchor in flowers.

Messrs. Hendith & Co., Solyhull Nurseries, Birmingham, set up a small but effective group, in which Japanese Maples, Lilium Harrisii, and the old hoop-petticoat Narcissus were conspicuous; also a group of hardy Polyanthus, &c.

Messrs. Pope & Sons, nurserymen, Birmingham, set up a group of plants, in which were several plants of the fine double zonal Geranium "Le Bruant," a group of the hardy Primula marginata, some very fine Clematis, and fancy Pansies.

EDINBURGH BOTANICAL.

April 10.—At the meeting of the Society held this evening, there were given several microscopic demonstrations, and an interesting paper by Professor Balfour, in which it was shown that Edinburgh at one time had three small botanic gardens, which have, after nearly two centuries, resulted in the establishment of the present Royal Botanic Garden. Mr. Lindsay, the President, reported on the progress of vegetation at this garden for March, as follows:—

"During the month of March the thermometer was at or below the freezing point on thirteen mornings. The total amount of frost registered for the month was 49°, as against 90° for the corresponding month last year. The lowest temperatures were indicated on the mornings of the 3rd, 20°; 9th, 24°; 18th, 28°; 24th and 31st, 27°. The day temperatures were high, the lowest being 40°, on the 9th, and the highest 64°, on the 16th.

"Rain fell on thirteen days, and snow on two days. There were frequent intervals of bright sunshine, and on the whole the month was a most favourable one.

"Vegetation generally has made rapid progress. Deciduous trees and shrubs, such as Thorns, Lilac, Horse Chestnut, Plane, and Pyrus are already bursting into leaf. The different varieties of flowering Currant are in full blossom. On south walls, the double-flowered Peach, Magnolia Yulan, and Forsythia viridissima are flowering more profusely than they have done for many seasons. Of the forty spring flowering plants whose dates of flowering are annually recorded, the following ten came into flower, viz.:—Scilla bifolia taurica, on March 5; Narcissus pumilus, 8th; Orobus vernus, 9th; Draba æzoides, 9th; Erythronium Dens canis, 10th; Omphalodes verna, 11th; Narcissus pseudo-Narcissus, 15th; Corydalis solida, 20th; Ribes sanguineum, 22nd; Hyoscyamus scopalia, 23rd.

"On the rock-garden seventy-three species and varieties came into flower during the month, being thirteen more than for last March. Amongst the most conspicuous were:—Anemone pulsatilla, Corbularia nivalis, Dentaria eneaphylla and pentaphylla, Narcissus bicolor and varieties, N. incomparabilis gigantea, N. rupicola, Olearia Gunniana, Pachystima Canbyii, Pulmonaria arvernensis, Primula marginata, P. cashmiriana, Saxifraga Burseriana Boydii, S. ciliata, S. imbricata, S. juniperina, Soldenella montana, Synthiris reniformis, Veronica Colensoii, Xanthoriza apiifolia."

Mr. Bullen sent an extract from record of tem-

perature, &c., in the Botanic Garden, Glasgow, for March.

"Frost was registered on eight nights during the month, the lowest reading being on the night of the 2 id, when 10° were recorded. The total frost was only 28°. During March last year the total was 67°.

"Although cold winds were frequently felt, they were mostly from the south and west, and as a consequence it has been comparatively mild, with a moderate rainfall, but a large proportion of dull or sunless days. Hardy vegetation is in a forward state, and neither sharp frosts nor withering winds occurred; it is likely to be a good fruit season.

"Ribes sanguinea and the Japan Quince had expanded leaves at the end of the month, while the leaves of the Balsam Poplar, common Lilac, Elæagnus argenteus, had foliage half-developed, and which is an early date for these plants here. Hardy perennials are also early above ground."

The following exhibits were displayed:—

From the garden, cut flowers from the open air of Magnolia conspicua, double-flowered Peach, Rhododendron Thomsoni, R. ciliatum, R. campanulatum, Erythronium giganteum, E. g. roseum, E. grandiflorum.

From the Rev. J. McMintrie, a fine specimen of Primula viscosa gathered by him in Switzerland fourteen years ago.

HISTORY OF CULTIVATED NARCISSUS.*

Mr. Burbidge remarked how singularly appropriate it seemed to him, this holding of a four days' tournament under the auspices of Queen Daffodil, in the time-honoured and memory-haunted precincts of the Chiswick garden—a garden visited years ago by Haworth and Herbert, Salisbury and Sabine, Lindley, Sweet, Ellacombe, and many others of the former lovers of the Narcissus.

The lecturer then pointed out that a love for these fragrant blossoms was almost as old as human history itself, and gave quotations from the Homeric "Hymn to Demeter" (B.C. 1000), and from the "Œdipus at Colonus" of Sophocles, both of whom mentioned Narcissus Tazetta for its glittering beauty and fragrance nearly 3000 years ago.

Turning from poetry and speculative "guesses at truth," the lecturer next emphasized the fact that Mr. W. Flinders Petrie, the celebrated Egyptologist, had recently discovered—that is to say, in 1888—at Hawara, in Egypt, actual flowers of Narcissus Tazetta, as before alluded to, these blossoms having been deftly woven into funeral wreaths or votive garlands as long ago as the first century before the Christian era. These offerings to the honoured dead are supposed to have been made by Greek residents in Egypt, and are now preserved in the collections at Kew, where they may be seen.

After the poets of Greece, however, in chronological order, come the early Greek physicians, such as Hippocrates, and at a much later date, Galen, both of whom recommended the usage of the poisonous or narcotic roots of Narcissus for anæsthetic and medical purposes.

Theophrastus of Eresus (B.C. 374—286), described the plant, and he appears to have been the first to allude to its increase by means of seeds, which he tells us "were sometimes gathered for sowing," and he further says that the fleshy roots or bulbs were sometimes planted. As a beautiful and variable wild and garden flower in Southern and Western Europe, in North Africa, and in the East, there is no doubt but that this flower has ever been popular, but so far as English gardens are concerned, the Narcissus seems to have first become famous during, or shortly previous, to Elizabethan times, when all the greatest poets mention it; and during the same epoch, both Gerard and Parkinson, the Royal Herbalists of their day, illustrate or describe at least a hundred kinds, and of these old Gerard (1597 to 1633) especially writes that "all and every one of them" abounded in London gardens. No doubt the common yellow Daffodil of the woods and meadows in "Merry England" had been popular as a flower for the making of festive wreaths or garlands long before exotic kinds were introduced and cultivated in gardens, since these are mentioned by Chaucer and other early English poets, just as they were by those of ancient Greece.

When the great wave of early seventeenth century culture spread over Europe, choice Narcissi were imported from Constantinople and the Levant generally, as Gerard quaintly tells us was the fact, along with other bulbed flowers, these latter including the then more attractive Tulip, and no doubt the Hyacinth as well.

Mr. Burbidge next alluded to the old Dutch paintings of garden flowers, dating from 1590 to 1650, and in which many kinds of Narcissi find portraiture. He in particular instanced one picture now to be seen in the Louvre (No. 477, viz., "Triomphe d'Amour," the figures by Zampieri, the wreath of flowers surrounding them being by Seghers; "Le Jésuite d'Anvers," this wreath containing life-size portraits of fourteen or fifteen kinds of Narcissi and of Daffodils, some of which are the rarities of to-day. Other pictures exist in the "Musée des Arts Decoratifs," in our own National Gallery, and other collections public and private, in which these flowers find a place, and even our English Cleopatra, Queen Elizabeth, seems to have been fond of them, since in a portrait of her by Zucchero, hanging in the Examination Hall of Trinity College, Dublin, there is a flower of the purple-ringed, or Poet's Narcissus, painted in a prominent position by her side.

Again, in the rare old folios and other books of the same epoch (1590 to 1650), many species and varieties, including several natural or wild hybrids, are illustrated either by wood engravings (mostly made at the then celebrated Plantin, or Plantin-Moretus press at Antwerp), or by copper-plate etchings or engravings. Especial mention was made of the works of the pre-Linnean botanists, such as L'Obel, Dodoens, L'Ecluse—who was one of the first and best of European plant collectors—Jean Robin, Gerard and Parkinson.

Mr. Burbidge also alluded to some rare works, such as Sweert's *Floribeytum*, the *Hortus Floridus*, of Crispian Passe, junr., *Jardin du Roy* and *Theatrum Floræ*, and to the ill-fated book of drawings issued by the Rudbecks in 1702, the *Campi Elysii*, of which only two or three copies exist, most of the issue, woodblocks, &c., having been burned in the great fire at Upsala in 1702. It was stated that the only complete copy of this last work is that in the Sherardian Library, at the Botanical Gardens, Oxford; but there is also a copy, less perfect, in the Banksian Library, British Museum, which contains all the woodcuts illustrating the Narcissi. It was also stated that portraits of two of the beautiful white Spanish Daffodils were seen by Salisbury (a noted authority on these flowers about a century ago), in the palace at Fontainebleau. Theywere worked in coloured silks on a fire-screen, said to have been given by Henry IV. to La Belle Gabrielle. Salisbury especially tells us in the *Transactions of the Royal Horticultural Society*, vol. i., that these representations were most natural and life-like, the legend worked beneath them being "Coquelourdes Blancs, 1598," or the year before John Gerard the Barber-Surgeon published his famous *Herbal*, which bulky as it was, gave a great impetus to the general study of botany and gardening in England for years and years after it first appeared.

Mr. Burbidge next alluded to the history of the cultivated and wild Narcissi, and to the now numerous and ever increasing garden hybrids and seedlings, as also to the men like Herbert, Leeds, Backhouse, Horsefield, Nelson, &c., who have in the main enriched our modern gardens with the most beautiful forms and phases of this flower.

A considerable and valuable portion of Mr. Burbidge's paper consisted of a chronological history of the genus from the days of Homer to those of Oscar Wilde! In this tabulated list, mention is made under dates of all the principal poets, physicians, philosophers, and botanists, who have alluded to the odour, beauty, uses, &c., of this now fashionable flower, or with whose names it has become connected.

It forms a concise index to the principal men and books, and will, when printed in the Society's *Journal*, be found handy for reference purposes from time to time.

* Abstract of a paper read at the Narcissus Conference held at the Chiswick Gardens of the Royal Horticultural Society on April 16, 1890, by F. W. Burbidge, M.A., F.L.S., Curator of Trinity College Botanical Gardens, Dublin.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for Week ending April 12.	Accumulated Temperature. Above 42°, for the Week.	Accumulated Temperature. Below 42°, for the Week.	Accumulated Temperature. Above 42°, difference from Mean since Jan. 1, 1890.	Accumulated Temperature. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths		In.		
1	4 —	8	30	+ 55 —	82	6 +	75	16.6	25	22
2	2 —	16	28	+ 54 —	68	2 —	59	8.5	37	28
3	3 —	15	26	+ 31 —	91	2	53	5.6	29	24
4	4 —	32	19	+ 4 —	27	0 av.	58	6.1	31	31
5	4 —	30	19	+ 7 —	14	1 —	51	5.6	35	28
6	4 —	30	13	+ 11 —	48	2 —	51	6.1	28	29
7	3 —	29	17	+ 38 —	66	1 —	64	14.4	34	27
8	3	23	12	+ 28 —	70	2 +	61	9.2	38	26
9	3 —	28	9	+ 8 +	26	1	59	9.7	40	33
10	2	30	12	+ 15 —	40	0 av.	68	9.4	48	29
11	1	35	5	+ 14	0	3 —	64	13.2	50	32
12	2 —	29	0	+ 67 —	21	2 —	60	8.5	?	?

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 12, is furnished from the Meteorological Office:—

"The *weather* was generally cloudy and unsettled during the greater part of the week, with frequent showers of cold rain, sleet, and snow. Thunder and lightning accompanied the showers in many parts of England on the 8th. By the close of the period the conditions had become drier and finer.

"The *temperature* has been below the mean in all districts, the deficit ranging from 1° to 3° in the 'Grazing' districts, and from 2° to 4° in 'Wheat-producing' districts. The highest of the maxima were recorded on the 6th or 7th, when they varied from 63° in 'England, E.,' and 61° in the 'Midland Counties' and 'England, N.W.,' to 54° in 'Scotland, N.,' and 53° in the 'Channel Island's. During the latter half of the week the daily maxima were nearly all less than 50°. The lowest of the minima, which were registered either on the 11th or 12th, ranged from 24° in 'Scotland, W.,' and 25° in 'Scotland, E.,' and 'England, N.E.,' to 29° in 'England, S., and 'Ireland, S.,' and to 35° in the 'Channel Isles.'

"The *rainfall* has been more than the mean in 'Scotland, N.,' and 'England, N.W.,' and about equal to it in 'England, E.,' and 'Ireland, N.'; in all other districts, however, the fall has been less than the normal.

"*Bright sunshine* shows a considerable decrease on that recorded last week, but has still been fairly prevalent in the more western parts of the kingdom. The percentage of the possible amount of duration

ranged from 25 in 'Scotland, N.,' and 28 in 'England, S.,' to 48 in Ireland, N.,' 50 in 'Ireland, S.,' and 54 in 'Scotland, W.'"

MARKETS.

COVENT GARDEN, April 17.

Our market has begun to show signs of decided improvement, all classes of goods being now readily cleared, and present prices firmer all round. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ...	1 6– 7 0	Melons, each ...	3 6– 5 0
— Nova Scotia, brl.	12 0–25 0	Pine-apples, St. Michael, each ...	2 0– 6 0
Grapes, new, lb.	5 0– 8 0	Strawberries, lb. ...	2 0– 6 0
Lemons, per case ...	12 0–20 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100	12 0– ...	Mustard and Cress, punnet	0 4– ...
Beans, French, lb. ...	2 0– ...	Onions, per bunch ...	0 5– ...
Beet, red, per dozen	1 0– 2 0	Parsley, per bunch ...	0 6– ...
Carrots, per bunch...	0 6– ...	Rhubarb, per bundle	0 6– ...
Cauliflowers, each ...	0 3– ...	Seakale, punnet ...	2 0– ...
Celery, per bundle ...	1 6– 2 0	Shallots, per lb. ...	0 6– ...
Cucumbers, each ...	1 0– 1 6	Spinach, per bushel...	6 0– ...
Endive, per dozen ...	2 0– ...	Sprue, per bundle ...	1 6– ...
Herbs, per bunch ...	0 4– ...	Brussel Sprouts, per lb.	0 3– ...
Leeks, per bunch ...	0 3– ...	Tomatos, per lb. ...	1 0– ...
Lettuces, per dozen...	1 6– ...	Turnips, per bunch, new	0 4– ...
Mushrooms, punnet	1 6– ...		

POTATOS:—In consequence of colder weather prices for Old Potatos have had a tendency to rise—an advance of 2*s.* to 7*s.* 6*d.* per ton in many instances. Arrivals of New fairly heavy, and late prices have been maintained. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Ferns, in var., doz.	4 0–18 0
Arum Lilies, per doz.	9 0–18 0	Ficus elastica, each	1 6– 7 0
Aspidistria, doz. ...	18 0–42 0	Foliage plants, various, each	2 0–10 0
— specimen plants, each	7 6–10 6	Genista, per doz. ...	8 0–12 0
Azaleas, various, each	2 0– 3 0	Heliotrope, per doz.	6 0– 9 0
Cineraria, per doz....	6 0–10 0	Hyacinths, p. doz. ...	6 0– 9 0
Cyclamen, dozen ...	6 0–18 0	Hydrangeas, doz. ...	12 0–18 0
Cyperus, per dozen	4 0–12 0	Lily of the Valley, p. doz. pots ...	18 0–24 0
Dielytra, per doz. ...	9 0–12 0	Marguerites, doz. ...	6 0–12 0
Dracæna terminalis, per dozen ...	30 0–60 0	Palms in var., each	2 6–21 0
— viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen ...	6 0– 8 0
Erica Cavendishii, per dozen ...	18 0–48 0	— per doz. ...	18 0–24 0
— ventricosa, doz.	15 0–24 0	Roses, various, doz.	12 0–24 0
Euonymus, in var., per dozen	6 0–18 0	— (Fairy), per doz.	8 0–10 0
Evergreens, in var., per dozen	6 0–24 0	Solanums, per dozen	6 0–12 0
Ericas, various, doz.	8 0–24 0	Tulips, doz. pots ...	6 0– 9 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun. ...	2 0– 4 0	Maiden Hair Fern, 12 bun.	4 0– 9 0
Azaleas, doz. sprays	0 6– 1 0	— French, per bun.	1 6– 2 0
Bouvardia, per bun.	0 8– 1 0	Marguerites, 12 bun.	3 0– 6 0
Calla æthiopica, 12 bl.	3 0– 5 0	Narcissus, various, doz. bun.	1 6– 6 0
Camellias, white, per dozen	2 0– 4 0	Pelargoniums, scarlet, 12 spr.	0 4– 0 6
— various, per doz.	1 0– 2 0	— dozen sprays...	0 9– 1 0
Carnations, 12 blms.	1 0– 2 0	Primroses, 12 bun. ...	0 6– 1 0
Crocuses, 12 bun. ...	1 0– 2 0	Primulas, double, 12 sprays	1 0– 1 6
Cyclamens, 12 blms.	0 4– 0 6	Roses, Tea, per doz.	1 0– 3 0
Daffodils, 12 bunches	3 0– 6 0	— coloured, dozen.	2 0– 4 0
Eucharis, per dozen	4 0– 8 0	— French, dozen ...	1 0– 2 0
Gardenias, 12 blooms	2 0– 4 0	— red, per dozen ...	3 0– 5 0
Heliotropes, 12 spr.	0 6– 1 0	— Safrano, dozen...	1 6– 2 6
Hyacinths (French), per bunch	1 0– 2 0	Spirea, doz. sprays...	0 6– 1 0
— (Dutch), in boxes, white, per box ...	2 0– 4 0	Stephanotis, 12 spr.	4 0– 6 0
— (Dutch), in boxes, various, per box ...	1 6– 3 0	Tuberoses, 12 bnns....	1 6– 2 0
Lilac, white, Fr., bun.	4 0– 6 0	Tulips, doz. blooms...	0 4– 0 6
Lilium, var., 12 bl....	2 0– 6 0	Violets, 12 bun ...	1 0– 2 0
Lily of the Valley, doz. sprays ...	0 6– 1 0	— French, bunch ...	1 0– 2 0
		— Parma, bunch ...	3 0– 5 0

ORCHID-BLOOM in variety.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure, for the week ending April 12:—Wheat, 29*s.* 9*d.*; Barley, 29*s.* 9*d.*; Oats, 18*s.* 6*d.* For the corresponding period in 1889:—Wheat, 29*s.* 11*d.*; Barley, 25*s.* 2*d.*; Oats, 17*s.* 8*d.*

SEEDS.

London: *April* 16.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that a steady sowing demand now prevails for farm seeds. Red Cloverseed is cheap and abundant. Trefoil and White are also very moderate in price. Choice Alsike is scarce. Perennial and Italian Ryegrass sell freely on former terms. Low rates are quoted for French Sanfoin. Lucerne is unchanged. For Mustard and Rapeseed the tendency is upwards. Blue Peas meet an improved sale. Remarkably low quotations are current for Canaryseed. There is no alteration in Hempseed.

FRUIT AND VEGETABLES.

Spitalfields: *April* 16.—Good supplies of fresh vegetables. Moderate supply of fruit. Large quantity of Potatos at market. Demand very slow at bad prices. Fair demand for fresh vegetables and fruit. Prices:—English Apples, 4*s.* to 8*s.* per bushel; American Apples, 15*s.* 6*d.* to 24*s.* per barrel; forced Rhubarb, 1*s.* 3*d.* to 3*s.* 9*d.* per dozen bundles; natural ditto, 1*s.* 6*d.* to 3*s.* do.; Cabbages, 6*s.* to 8*s.* per tally; Spinach, 2*s.* to 3*s.* per bushel; Turnip-tops, 1*s.* to 1*s.* 6*d.* per sack; Swede-tops, 1*s.* to 1*s.* 6*d.* do.; Sprouting Broccoli, 1*s* 9*d.* to 2*s.* 6*d.* do.; Cauliflowers, 1*s.* 6*d.* to 3*s.* per dozen; Seakale, 1*s.* 3*d.* to 1*s.* 9*d.* per punnet; Curly Kale, 4*d.* to 8*d.* per bushel; Greens, 3*s.* to 6*s.* per dozen bunches; Turnips, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 6*d.* to 2*s.* do.; Spring Onions, 2*s.* to 3*s.* do.; Parsley, 2*s.* 6*d.* to 3*s.* do.; Horseradish, 1*s.* to 1*s.* 4*d.* per bundle; Parsnips, 4*d.* to 6*d.* per score; Beetroots, 4*d.* to 8*d.* per dozen; Endive, 1*s.* 3*d.* to 1*s.* 9*d.* do.; Cos Lettuce, 1*s.* 6*d.* to 3*s.* do.; Cabbage do., 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress, 1*s.* 6*d.* to 2*s.* per dozen baskets; English Onions, 14*s.* to 15*s.* per cwt.; Bordeaux do., 9*s.* 6*d.* to 11*s.* per case; Belgian do., 9*s.* to 10*s.* per bag of 110 lb.; Dutch do., 9*s.* 6*d.* to 11*s.* do.; Carrots, 10*s.* to 24*s.* per ton. Potatos: Magnums, 30*s.* to 50*s.* per ton; Regents, 60*s.* to 70*s.*; Champions, 40*s.* to 45*s.*; Imperators, 40. to 70*s.*; Beauty of Hebrons, 30*s.* to 45*s.*

NOTICES TO CORRESPONDENTS.

*** **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

Agaricus: *H. G. S.* The appearance is due to the outgrowth of a second fungus from the top of the first, in an inverted position. Such deformities are very common, but it is difficult to give any satisfactory explanation. Several similar cases have been figured in our columns from time to time.

Books: *X. Garten Buch für Jederman* (*Garden Manual for Everyone*) is published by Parey, Berlin, price 6 mk.

Bordeaux Mixture: *X.* Six pounds of copper sulphate, 4 lb. of lime, 50 gallons of water. Use with a spray-pump.

Celeriac: *M. B.* In its early stages the cultivation of the plant is identical with that of blanched Celery. It is almost too late to have fine roots from seed sown at this date. When they are 6 inches high, plant them at 15 inches apart on well enriched flat beds 4 or 5 lines on a bed; water in dry weather, keep clean with the hoe, and in August or September pull off a few of the lower leaves, to let in the sun. They grow better in beds than in lines, the foliage shading the land and preserving its moisture better. Manure-water is a great help in producing big roots, but big roots, it must be remembered, are often hollow or cracked. Earth over on the approach of winter, or store in an open shed. In no case remove the heart-leaves, or the roots will decay.

Corrections. — In the list of Orchids exhibited by F. Wigan, Esq., at the meeting of the Royal Horticultural Society, April 8, *Cypripedium Swanianum* was printed "suavissimum;" and in the list of medals awarded, "F. Wilson" instead of F. Wigan. —The following errors occurred in the official list of medals supplied to us:—Messrs. J. James & Sons, Silver-gilt Banksian Medal, instead of Silver Banksian; and Messrs. Paul & Son, Silver-gilt Banksian, instead of Silver Banksian.

Gentianella: *F. W. R.* The plant needs a moist situation in rather heavy soil, rendered porous by the addition of coarse sand and broken limestone. Full sun will do good, but a dry site is harmful. A few porous stones should be placed round the plant to assist in retaining moisture about it.

Fenugreek: *Sharpe & Co.* This belongs to rather an extensive genus of herbaceous leguminous plants inhabiting tropical and subtropical countries. Its seeds are much used in flavouring cattle foods and condiments, and in disguising the flavour of bad hay. The English climate is unsuitable to it.

Fungus: *E. A., Stanstead.* Polyporus adustus.

Grapes, Buckland's Sweetwater and Foster's Seedling: *S. W.* Neither wants much heat; the former may be planted at the part of your house which is the warmer, but the fruit must be eaten as soon as ripe, as it spoils rapidly. The latter will ripen perfectly in a cool house. Why not try a Frontignan or a Muscat of Alexandria at the warmer part of the vinery?

Lawn-mower: *W. B.* We have no practical experience of the machine that you name.

Lily of the Valley: *H. R.* The flowers are of poor quality, the produce perhaps of roots that were a long time out of the ground before being potted, or that were ill-grown.

"Maggots": *C. R.* Your so-called maggots are worms, not likely to be injurious; probably they were introduced with the manure.

Melons: *J. S.* The plants may have suffered from insufficient ventilation during bursts of sunshine, or from noxious fumes from tar, sulphur, and the heating apparatus. You should give details of management. There is no apparent disease present.

Mustard and Cress for Market: *A. O.* The old Mushroom beds you mention will not do; but the materials, if well mixed together, and then run through a screen or a coarse sieve, with some garden soil added in sufficient quantity to render it capable of retaining water without having need to apply water frequently whilst the crop is growing, would make the beds. These may be made in a vinery, or other forcing-house (at work), or in frames. Make the beds about 2 feet deep at the back, and slope the surface towards the sun, taking care that the incline is not so sharp that water would run off when applied to it. Sow on the surface, and do not cover the seeds, but beat them into the soil lightly with the spade, and cover with mats until germination begins—not a moment longer. The surface should be renewed after each crop is removed.

Names of Fruit: *Otley.* Impossible to recognise the specimens of Apple now. Send when at their best.

Names of Plants: *F. H. C.* 1, Kerria japonica; 2, Primula capitata; 3, Retinospora plumosa aurea of gardens; 4, Thuya (Thuiopsis) dolabrata; 5, Picea excelsa var. clanbrassiliana; 6, Elæagnus pungens.—*S. W.* Ribes coccinea.—*J. B.* 1, Forsythia viridissima; 2, Spiræa prunifolia, double flowered var.; 3, the Judas Tree (Cercis Siliquastrum).—*W. H. D.* 2, Tecoma capensis.—*H. May.* Árides crispum; Lycaste costata.—*C. L. C.* Epidendrum atropurpureum.—*Neve Bros., A. W.*, and *P. R. Davidson.* Next week.

Seakale: *T. Houchin.* It is now late to prepare sets from the thongs of the roots—one of the best ways of getting up a stock of forcing-roots. The work should be done in December or January, and consists of cutting the small roots into pieces of 5 inches in length; the lower cut being aslant, and the upper square across, so as to tell the planter which is the sprouting end of the set. These sets are put into boxes of light soil, in a cool place, and when growth commences, planted in lines 2 feet apart, and 1 foot from set to set. Seed may be sown at once, and if it be good seed, fine plants may be got in one season, but the crowns must be reduced to one. Sow in drills as for sets, or sow in boxes in a cool frame, which is better, and transplant.

Tomatos: *A. M.* Probably; but the specimen was smashed. Please send another, well packed.

Volumes of "Gardeners' Chronicle" from 1844: *Thos. Taylor.* You should advertise them in our columns.

Communications Received.—Professor Willmack, Berlin.—W. B.—B. B.—P. C.—C. W.—A. G. C.—R. D.—W. H. D. (next week).—U. D.—J. J. W.—P. L. S.—R. A. R.—W. D.—W. H. Robbins.—W. S.—C. H.—F. R.—W. C.—Merryweather & Sons.—W. C.—E. W. B.—J. A.—J. C. S.—C. van T.—C. de B.—J. A.—R. D. B.—J. R. J.—J. H.—A. C.—B. O.—H. M. W.—W. D.—L. L.—G. H.—P. W.—J. C. & Co.

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LIQUID MANURE ESSENCE, Inodorous, for Greenhouse and Garden, 5s. per gallon—will make from 50 to 100 gallons.

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ANTI-MILDEW, 10s. per gallon.

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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

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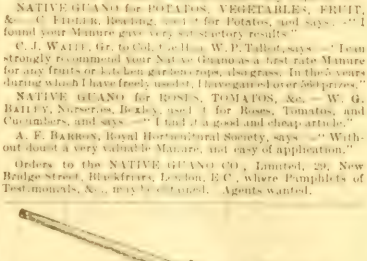
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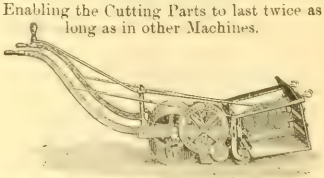
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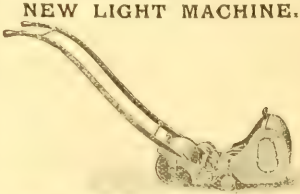
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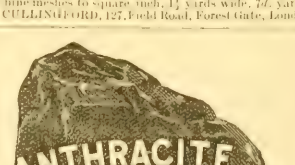
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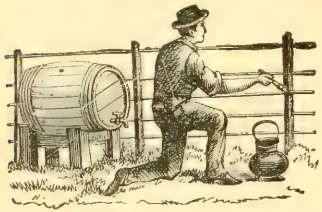


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No. 74.—THREE-QUARTER SPAN GARDEN FRAME.

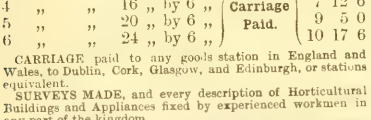
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1 Light Frame,	4 ft.	by 6 ft.		£2 15 0
2 ,, ,,	8 ,,	by 6 ,,	Cash	4 7 6
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20×14	24×18

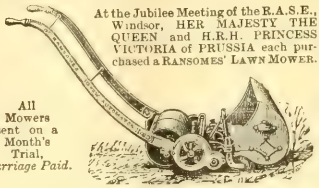
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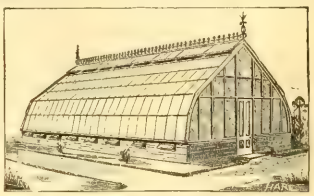
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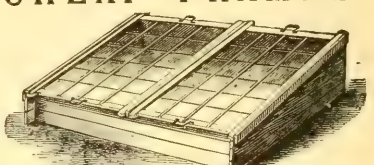
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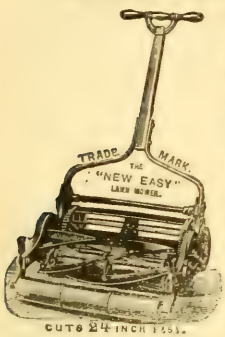
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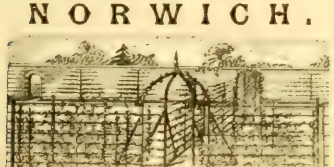
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Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," *of June 9, says*:—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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☞ **ROYAL GARDENS, WINDSOR, January 28, 1890.**

To Messrs. GREEN & SON, Limited.

Dear Sirs,—In sending you the enclosed order for Lawn Mowers, I think it may be interesting to you to know that I am still using the Horse Machine you supplied in the year 1856; it is in perfect order even now, which is a proof that the workmanship is first-class, and speaks for itself. As to your "Hand Silens Messor," no Lawn Mowers could give greater satisfaction either to myself or to the men who work them—they are unequalled. During the season I have them daily in use in the Royal Gardens here, and never have the slightest trouble with them. Your machines are also the only ones I have in use at the Private Gardens, Hampton Court Palace; the Royal Lodge, Windsor Great Park; Cumberland Lodge, and the Royal Pavilion Grounds, Aldershot. I shall feel a great pleasure in recommending them to all my friends.

I remain, dear sirs, yours very truly, THOMAS JONES.

☞ **Mr. J. R. STIRLING,** of the **ROYAL GARDENS, BUCKINGHAM PALACE,** writing under date Feb. 24, 1890, says:—"As regards the work your 42-inch Horse Machine does (which two years ago took the place of the one you supplied in '64), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your 'Hand Silens Messors' also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

Bathersden, Ashford, Kent, June 14, 1878.
Gentlemen,—Your "Silens Messor" Mower, 20-inch, works splendidly. It is a most perfect machine, and beats the old 20-inch one that for so many years did my work without repairs. I recommend your machines, and never see any doing such good work and with so little power. You may refer anyone to me, and I will then show them the S. M. at work, and I shall show it to all I can. I am, yours truly,
Messrs. Green & Son. W. H. MOLD.

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Sirs,—I shall be glad of a list of your Lawn Mowing Machines priced. I am glad to mention that I bought one of your 14-inch machines 22 years ago. It has had hard and rough usage *every year since*, and only on Monday was it put quite out of use by the snapping in two of the driving wheel under the hammer. It is surprising to think of the work it has done, and done well. Yours faithfully,
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I am, gentlemen, yours truly,
DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).
Cottingham, Hull, February 13, 1890.
To Messrs. Green & Son, Limited, Leeds.
I am instructed by Arthur Harrison, Esq., of Northgate House, Cottingham, near Hull, who has had one of your 36-inch Horse Mowers in use over 20 years, and ask whether you think it advisable to send it for repair or have a new one, for it is as you may suppose now getting worse for wear. Kindly say per return, and enclose Price List.
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JOHN BAYNTON.
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The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, Free of Cost to the Purchaser.

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THE GARDENERS' CHRONICLE, Vol. VI., Third Series, JULY to DEC., 1889.
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GREAT SUMMER EXHIBITION of PLANTS and FLOWERS, on SATURDAY, May 10.
Entries Close on May 5. Forms and Schedules post free on application to Mr. W. G. HEAD, Superintendent, Gardens Department, Crystal Palace, S.E.

ROYAL AQUARIUM, Westminster.
SECOND SPRING EXHIBITION.
TUESDAY and WEDNESDAY, April 29 and 30.
AURICULAS, POLYANTHUS, CLIVIAS, &c. Schedules of WILLIAM HOLMES,
Frampton Park Nurseries, Hackney, London.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
SPRING FLOWER SHOW in the Town Hall, Manchester, on TUESDAY, the 29th inst. National Auricula Society's Show (Northern Division), on the same day.
The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1890 will open on MAY 23. Schedules may be had from the undersigned BRUCE FINDLAY.
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See large Advertisement, March 22, page 376.

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MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67and 68, Cheapside, London, E.C., on TUESDAY NEXT, April 29, a large quantity of ORCHIDS in Flower and Bud, from various collections. Also about 80 lots of ESTABLISHED ORCHIDS, from a Private Collection.

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Eltham.—Expiration of Lease.

CLEARANCE SALE of GLASS ERECTIONS HORSES, CARTS, GREENHOUSE PLANTS, by order of Mrs. Tolman whose lease is expiring.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Eltham Nursery, Eltham, Kent, about a mile from Eltham Station, on WEDNESDAY and THURSDAY, April 30 and May 1, at 12 o'Clock precisely each day, the ERECTIONS of 9 GREENHOUSES, and several PITS and GARDEN BOXES, with the Brickwork, Hot-water piping, and Boilers, the whole of the GREENHOUSE PLANTS, 3000 Ampelopsis and Irish Ivies, in pots; 350 Golden Euonymus, in pots; 1500 pots of Conifer cuttings; strong CART HORSE, 3 COLTS, Roan HORSE, 16 hands, 5 years, quiet to ride and drive, has been hunted; Chesnut Mare, 7 years, 16 hands, quiet to drive and good hunter up to 14 stone; PONY, DOG-CART, 2 light spring CARTS, spring VAN, Tumbril CARTS, WAGGON, Pony CHAISE, several sets of HARNESS, 100 loads of MANURE, CHAIN HARROW, HAY SHAKER, GARDEN ROLLERS, MOWING MACHINES, TROLLIES, and numerous other EFFECTS.

May be viewed the day prior, and mornings of Sale. Catalogues may be had on the Premises; at the principal Inns in the neighbourhood; and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C., and Leytonstone, E.

Friday Next.

IMPORTED and ESTABLISHED ORCHIDS.
ODONTOGLOSSUM ROLZLI
PESCATOREI KLABOCHORUM.
ODONTOGLOSSUM CRISPUM.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Charlesworth, Shuttleworth & Co., of Heaton, Bradford, and 190, Fork Road, Clapham, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 2, at half-past 12 o'clock, a large consignment of ORCHIDS, consisting of Odontoglossum Roezli, just received in splendid condition and health; also a few remaining plants of EPIDENDRUM FRIDERICI GUILLEMI, the first lot we intend offering. These plants are now perfectly safe, and just beginning to root, every plant being furnished with a young growth.

The Sale will also include a fine lot of ODONTOGLOSSUM CRISPUM from the best Pacho districts, O. CITROSMUM, the sweet scented CATTLEYA CITRINA, a few plants of the valuable PESCATOREI KLABOCHORUM, ONCIDIUM KRAMERI, O. WELTONI, and MASDEVALLIA POLYSTICTA.

Also a private collection from Gloucestershire, about 100 lots, including CATTLEYA MOSSIÆ GIGANTEA, which received a Certificate at Bath Show, and several other very fine specimens, and a consignment of GREEN TREE FROGS.

On view morning of Sale, and Catalogues had.

Friday, May 2—Established Orchids.

A PRIVATE COLLECTION from Gloucestershire, about 100 Lots, including CATTLEYA MOSSIÆ GIGANTEA, which received a Certificate at Bath Show; and several other very fine specimens; also a consignment of GREEN TREE FROGS.

MESSRS. PROTHEROE AND MORRIS will INCLUDE THE ABOVE in their SALE on FRIDAY, May 2.

Exeter.

HIGHLY IMPORTANT Three Days' UNRESERVED SALE of particularly well-grown STOVE and GREENHOUSE PLANTS, by order of Messrs. Lucombe, Pince & Co., who are relinquishing their business.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Exeter Nurseries, Exeter, on TUESDAY, May 6, and two following days, at 12 o'Clock precisely each day, without the slightest reserve, the first portion of the extensive and valuable Stock of STOVE and GREENHOUSE PLANTS, comprising 200 specimens, such as Stephanotis, Lapagerias, Azaleas, Orchids, Kentias, and other Palms; 2000 Stove Plants, including Crotons, Anthuriums, Dracenas, Hoyas, Ixoras, Allamandas, &c.; 4000 Greenhouse Plants, consisting of Lapagerias, Rhododendrons, Roses, Azaleas, Begonias, Ericas, and numerous others; 600 Orchids, including Cattleyas, Cypripediums, Cologynes, Cymbidiums, Dendrobiums, Odontoglossums, Lælias, Vandas, and others; 2000 Show and Regal Pelargoniums, 3000 Exotic and Hardy Ferns, 1500 choice Carnations, Pentsets, and 10,000 Herbaceous Alpine Rock and Bedding Plants.

N.B.—The NURSERY to be LET or SOLD on very advantageous terms. Particulars forwarded on application to the Auctioneers.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Land Agents, and Valuers, 67 and 68, Cheapside, London, E.C.

Preliminary Notice.
Important to Orchid Fanciers and Others.
The unique and singularly beautiful COLLECTION of Life-size WATER-COLOUR DRAWINGS of ORCHIDS, by Durham, comprising 286 Drawings in 22 handsomely bound volumes, formed by the late John Day, Esq., of Tottenham, and painted specially for him at great cost, the whole forming undoubtedly the most valuable Collection of Orchid Paintings extant.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions to SELL the ABOVE VALUABLE COLLECTION by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, June 6, 1890, at 2 o'Clock precisely, in one lot.

May be viewed at the Auctioneers' Offices two days prior to the Sale, or at any previous time by appointment. Descriptive Catalogues are now ready, and will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Wednesday Next.

Fine named RHODODENDRONS in bud; ORNAMENTAL SHRUBS and CONIFERS, STOVE and GREENHOUSE PLANTS in variety; a fine COLLECTION of BORDER PLANTS, GLADIOLI, LILIUMS, BERLIN LILY of the VALLEY Crowns, and other BULBS and ROOTS in great variety.

MR. J. C. STEVENS will SELL the above by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 30, at half past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Thursday, May 1.
Valuable ORCHIDS in Flower and Bud.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 1, at half past 12 o'Clock precisely, valuable ORCHIDS, in Flower and Bud, consisting of, amongst other fine things, the following:—

Masdevallia Armini		Phalænopsis Imperatrix	
,, Leonteglossa		,, superbiens	
,, Shuttleworthii		Phajus Humbloldii	
,, Chelsoni		Dendrobium Schroderæ	
,, Veitchii		,, Thwaitesiorum	
Cypripedium Hookerianum		Odontoglossum crispum, fine forms	

Cattleya Mendelii, choice varieties, &c.

On view morning of Sale, and Catalogues had.

Thursday, May 15.
SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his next SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 15, at half past 12 o'clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for THIS SALE will please SEND LISTS AS SOON AS POSSIBLE.

FREEHOLD for SALE, Six-Roomed House, Large Garden, Outbuildings. Good common rights. Price £185.
Apply to D. BATCHELOR, Westcott, Guildford.

To Gardeners and Nurserymen.

TO BE SOLD, without reserve, the Lease of a First-class NURSERY, situate within easy distance of London, and in the first-class residential neighbourhood, where there is an excellent opening for good men, having been in the hands of the present occupier for a period of nearly 30 years. The premises comprise an old-established nursery and garden, with three Glass Houses (one over 80 feet long), all fitted with Heating Apparatus, Tool house, Potting Sheds, &c. Apply to FURZE AND ALDRIDGE, Auctioneers, 1, Railway Buildings, South Norwood.

To Nurserymen and Florists.—London, W.

TO BE SOLD, a First-class NURSERY, within 7 miles of Covent Garden, comprising about 1 acre of Land, with two Cottages and eight large Green houses thereon, all well stocked, and heated with hot-water. Lease 15 years. Terms moderate.

For particulars apply to W. E., 130, Percy Road, Shepherd's Bush, W.

NURSERY FOR SALE, near London. Well Stocked. Going concern. In thorough working order. Replete with best Heating Apparatus. A fortune for a practical man with about £300.
Apply, GIBBS, Australian Hotel, Langham Street, London.

TO BE LET or SOLD, FREEHOLD NURSERY; 6 acres Land, Seed Business combined; doing good Trade. Splendid supply of water. Capital investment. Particulars, apply BRYANT, Nursery, Chippenham.

London, W.—To Small Capitalists.

COMPACT NURSERY, DWELLING-HOUSE, and several GREENHOUSES, in good neighbourhood. Rent only £15. Price for Glass on application. No stock to take to.
Particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

Ponder's End, Middlesex (8½ Miles from London).

TO BE LET, 1 to 50 Acres of Meadow and Arable LAND, on Lease for 21, 60, or 80 years. Rent from £8 to £12 per acre, with the option of Purchase of the Freehold within the first nine years. Immediate possession can be had.
Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Horticultural Builders, &c

HOUSE, with large back premises TO LET, a splendid position for the above Trade, ground overlooked from rail and platforms of FOREST HILL Railway Station. Apply, RICHARD DEAN, Forest Hill.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

GREAT INTERNATIONAL SHOW will be held in the Waverley Market, Edinburgh, SEPTEMBER, 1891, when PRIZES of ONE THOUSAND POUNDS will be offered. Special Prizes will be received up to June 1, 1890, when the Prize List will be sent out.

SUBSCRIPTIONS ALREADY INTIMATED:—

WILLIAM THOMSON AND SONS, Clowenfords	£20	0	0
DICKSONS AND CO., 1, Waterloo Place, Edinburgh	10	18	0
JAMES GRIEVE, Waterloo House, Edinburgh	10	10	0
MCKENZIE AND MONCUR, Upper Grove Place, Edinburgh	10	10	0
IRELAND AND THOMSON, Edinburgh	10	10	0
JAMES DICKSON AND SONS, Edinburgh	10	10	0
THOMAS METHVEN AND SONS, Edinburgh	10	10	0
R. B. LAIRD AND SONS, Edinburgh	10	10	0
LITTLE AND BALLANTYNE, Carlisle	10	10	0
JOHN DOWNIE, 144, Princes Street, Edinburgh	5	5	0
ANGUS M'LEOD, Superintendent Public Parks and Gardens, Edinburgh	2	2	0
DOBIE AND CO., Seedsmen, Rothsay	16	0	0
STEWART AND MEIN, The Nurseries, Kelso	7	0	0
Mr. BROWN, Gardener, Gosford	2	0	0
Mr. CAMPBELL, The Nurseries, Blantyre	1	1	0
Mr. D. ROBERTSON, Helensburgh	1	0	0
Mr. BRYDON, Tweed Bank	1	0	0
Mr. MCINTYRE, The Glen	1	0	0
Mr. PRIEST, Gardener, Eglinton Castle	1	1	0
Mr. GORDON, Gardener, Nidderie	1	1	0
Mr. MCKINNON, Scone Palace	1	1	0
Mr. SMITH, Gardener, Hopetoun House	1	1	0
Mr. T. CULLEN, Cullen Castle	1	1	0
CANNELL AND SON, Swanley, Kent	5	5	0
Mr. METHVEN, Blythwood	1	1	0
Mr. MORRISON, Archerfield	1	1	0
Mr. H. DICKSON, Belmont, Belfast	2	2	0
Mr. MCINDOE, Hutton Hall	2	0	0
Mr. HUNTER, Lambton	2	2	0
Mr. SHARP, Freeland	10	6	
Mr. JAMES BRYSON, Helensburgh	10	10	0
Mr. SMITH, Cullen Garden	1	0	0
Mr. MCKINNON, Melville Castle	2	0	0
Mr. POTTER, Seacliff	10	0	
Mr. LUNT, Ardgowan	1	1	0
Mr. BOYD, Callender	1	1	0
Mr. GRASSART, Oswald House, Edinburgh	2	2	0
Mr. DUNN, Palace Garden, Dalkeith	3	3	0
GEORGE BUNYARD AND CO., Maidstone Kent	2	2	0
Mr. ERSKINE, 81, George Street, Edinburgh	1	1	0

WM. YOUNG,
18, *Waverley Market, Edinburgh.*

50,000 LOBELIA, Emperor William, warranted true from cuttings JOHN SOLOMON offers the above in thorough good stuff at 2s. 6d. per 100, 20s. per 1000, for cash with order, package included.
Queen's Road Nursery, Walthamstow, E.

20,000 LAXTON'S NOBLE. Strong STRAWBERRY PLANTS, warranted true, 30s. per 1000 for cash
W. BELLINGHAM, Betsham, Southfleet, near Gravesend, Kent.

BEDDING GERANIUMS for Sale, Henri Jacoby, 200; Vesuvius, 500; Bonfire, 50; Tom Thumb, 150; Mrs. A. Mills, 100; Wonderful, 150; Bijou, 250; Waltham Seedling, 50. All good strong plants in 60-pots. For particulars apply to
W. WINMAN, Hackleton Gardens, Doncaster.

WE are happy to announce that we have PURCHASED the

ENTIRE ORCHID COLLECTION
OF
DE WITT SMITH, Esq.,
of Lee, Mass., U.S.A.,

which is noted for the fine specimens and varieties of all the finest and most popular Cypripediums in existence. They are all in the best possible condition and health, and were always considered the best grown lot of Cypripediums known.

Catalogues, with descriptions and prices, will be mailed on application to

A. J. MANDA,

THE UNITED STATES NURSERIES,

HEXTABLE, SWANLEY, KENT.

TWO LARGE TREE FERNS (Alsophila excelsa), for Sale, 7 feet high, nine and ten fronds, in round tubs 2 feet in diameter, 1½ feet deep.
G. TRINDER, Dogmersfield Gardens, Winchfield.

New Chrysanthemums for 1890.

JAMES CARTER AND CO. have one of the largest and most perfect stocks in the country. For full particulars, see Carter's beautifully illustrated CATALOGUE, Gratis and Post-free to intending Customers.
Royal Seedsmen by Sealed Warrants.
237 and 238, HIGH HOLBORN, LONDON, W.C.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."
First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plant 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser,
G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

EXTRA LARGE PALMS
for Winter Gardens, &c.
25 SEAFORTHIA ELEGANS,
10 ARECA LUTEA and A. BAUERII,
10 KENTIA BELMOREANA,
10 " FOSTERIANA,
30 COCOS WEDDELLIANA and PLUMOSA, &c.
} From 12 to 20 feet high, with many leaves.
Also a very fine selection of the above varieties from 6 to 10 feet high, in the most perfect condition for decorative purposes. W. ICETON, Putney Park Lane, S.W.

CLIBRAN'S SUPERIOR DAHLIAS, Superb Shows, Charming Fancies, Best Bedding, Pretty Bouquet, Exquisite Singles, Lovely Cactus, name 1 and distinct, special sorts, 12 vars., 3s. 6d.; 50 in 12 vars., 12s. 6d.; 100 in 50 vars., 21s. See List, free.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

"Now is the Time to Plant Trees."

ROBERT NEAL begs to call the attention of Gentlemen, Local Boards, Builders, and others who intend planting this season, to his large and varied stock of Shrubs, Standard, Ornamental, and FOREST TREES, FRUIT TREES, ROSES, CLIMBING PLANTS, &c., which, being well transplanted, are in fine condition for removal, and having been grown in the vicinity of London, are especially adapted for town and street plantings. Special quotations for large quantities, delivery free within a radius of six miles of the nursery. Inspection of the Stock solicited. CATALOGUES free on application. Also to offer extra fine forcing SEAKALE and RHUBARB.
The Nurseries, Trinity Road, Wandsworth Common.

BARR'S Descriptive LIST of VEGETABLE and FLOWER SEEDS, free — Full of useful information. SELECTIONS of VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s. and upwards.
SELECTIONS of FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.
GLADIOLI, TUBEROSES, HYACINTHUS CANDICANS, TIGRIDIAS, ANEMONE FULGENS, &c., for Spring Planting. Descriptive LIST free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

POTATOS "Bedfordshire-grown" POTATOS. Highly recommended to all "who require a change of seed." Specially selected from Myatt's Prolific Ashleaf, Sutton's Abundance, Beauty of Hebron, New Early Monmouth, School master, Sutton's Early Regents, White Elephants, Reading Russets, Early Rose, Improved Argyle, and Vicar of Lakeham, all at 42s. per ton, 4s. 6d. per cwt. Magnum Bonum, "Sutton's," 50s. per ton, 5s. per cwt. Free delivery on to rail (Great Northern Railway). Bags supplied for cash with orders.
FREDK. KOSE, Rosefield House, Biggleswade, Bedfordshire.
(Please name *Gardeners' Chronicle* when ordering.)

BEGONIAS a SPECIALTY.—Awarded Four Gold Medals. Evidence of quality. Seed saved from Prize Plants. Illustrated Packets, choice mixed, Single or Double varieties, 1s., 2s. 6d., and 5s. per packet. Collections: Single, 12 named varieties, separate, 5s. 6d.; 6 ditto, 3s. Tubers, Named Singles, from 12s. to 42s. per dozen. Unnamed Seedlings, 12s. to 24s. per dozen. Bedding, choicest, 6s. per dozen. Double, choicest Named Doubles from 42s. per dozen. Unnamed, very choice, 18s. and 24s. per dozen; choice Mixed, 18s. per dozen. Orders direct from us, to procure our splendid strain.
CATALOGUES gratis.
JOHN LAING AND SONS, Begonia Growers, Forest Hill, S.E.

CLIBRAN'S BRILLIANT BEDDING DISPLAY, produced by Clibran's Special Tuberous Begonias, wonderful colours, unequalled habit. Single — seed, 1s. per packet; tubers, 4s., 6s., 9s., and 12s. per dozen. Doubles, magnificent forms and hues — seed, 2s. 6d. per packet; tubers, 9s., 15s., 24s., and 30s. per dozen. Centaurea candidissima, charming silvery foliage, 3s. per dozen. Lobelias choice and whites, Alternantheras, Iresines, and other bedding plants supplied cheaply. 42s. 6d. per dozen. Also a large number of beautiful carpet Bedding Plants. See Catalogue, free.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

To the Trade.

FERNS—FERNS—FERNS.—In twenty most saleable sorts—ADIANTUM CUNEATUM, POLYPODIUMS, CYRTOMIUMS, PTERIS (&c., at 12s. per 100, packed free for cash. PTERIS CRETICA CRISTATA, few other kinds from stores, 6s. per 100, 50s. per 1000. J. SMITH, London Fern Nurseries, 140, Loughborough Road, Brixton, S.W.

FORBES' CATALOGUE of FLORISTS' FLOWERS for 1890 - (116 pages).
Is the Largest, Best, Most Reliable, and Complete ever issued on Florists' Flowers. It gives accurate descriptions of thousands of varieties of Florists' Flowers that cannot be had elsewhere, business in very full List giving Colour, Height, Month of Flowering, and Price of nearly One Thousand Perennials and Hardy Border Plants, with a mass of other useful information indispensable to all who would excel in the Cultivation of Flowers.
This Catalogue forms a most useful and convenient Reference Book on all sections of Florists' Flowers that should be in the hands of all who love a Garden. Free on application.
JOHN FORBES, Nurseryman, Hawick, Scotland.

SAMUEL SHEPPERSON,
Florist and Seedsman,
PROSPECT HOUSE, BELPER, DERBYSHIRE,
Begs to inform the readers of this Paper that he is prepared to execute Orders for the following Plants, all of which are of the very finest strains that money can buy. They have all been grown on the Derbyshire hills, and are hardy and strong. Carriage free. Cash with order. Descriptive LIST, 4d.; free to customers.

CHRYSANTHEMUMS.—Special culture, not a collection of old-fashioned sorts, but the cream only of the best English, French, American, and Japanese raisers, including the very latest novelties. Good well-rooted plants, 12 for 2s.; 25 for 3s. 6d., warranted true to name; 12 varieties, all new of 1888 and 1889, for 4s.

PANSIES.—A great Specialty. Five Silver Cups, and other Prizes. The cream only of the most noted raisers, the latest new sorts, and the winners at all the great shows. Good plants, correctly named, Show or Fancy, 12 for 3s., 25 for 5s. 6d., free. Also Seed, 1s. and 2s. 6d. per pkt.

PHLOX, special culture, the cream only from Downie, Laird & Sons, Kelway, Ware, and other first-class growers. Six fine varieties for 2s., 12 for 3s., true to name. Strong stools, to bloom well.

CARNATIONS, PICOTEES, and CLOVES.—Strong layers, to bloom well, finest named varieties, 12 distinct colours for 4s., 25 for 7s. 6d. Also Seed, 1s. and 2s. 6d. per packet.

CANTERBURY BELLS.—Grand new colours and new forms; double and single, telescope, cup and saucer, and other varieties, 12 plants, to bloom well, 1s. 6d.; 25, 2s. 6d. Also Seed, 6d. and 1s. per packet.

THE BEAUTIFUL PURE WHITE and PINK MALVA MOSCHATA, one of the best hardy border plants in cultivation. Strong 2 year old plants, 12 for 1s. 6d.; 25 for 2s. 6d.; also Seed, 6d. and 1s. per packet.

HOLLYHOCKS.—Warranted all fine double flowers. Clibran's select strain. Strong year old plants to bloom well, 12 varieties, 3s.; 6 varieties, 2s.

POLYANTHUS and PRIMROSE, Hybrids, splendid mixed colours, finest strain grown, 12 for 1s. 6d., 25 for 2s. 6d.; 100, 9s., all good blooming plants. Also Seed, 6d. and 1s. per packet.

HYACINTHUS CANDICANS.—A really fine and stately hardy white flowered border plant. Six flowering bulbs for 1s. 6d., 12 for 2s. 6d.

DELPHINIUMS.—In all the colours found in this deservedly popular class of border plants. Strong plants to bloom well, 6 for 1s. 6d., 12 for 2s. 6d., free. Also Seed, 6d. and 1s. per packet.

FOXGLOVES.—Gloxinia flowered. Dean's grand new large spotted, and pure white varieties 12 for 1s. 6d., 25, 2s. 6d. Also Seed, 6d. and 1s. per packet.

SWEETLY-SCENTED, PURE SNOW-WHITE PINKS, quite hardy, 12 for 1s. 6d., 24 for 2s. 6d.

CARNATIONS, PICOTEES, and CLOVES.—Strong year old plants, from finest varieties only, including many new sorts, 12 beautiful varieties for 2s. 6d., 6 for 1s. 6d., free.

FANCY PANSIES. Unnamed, 12 for 1s. 6d.; 25 for 3s.; 100 for 10s. All different and first-class sorts.

THE NEW DOUBLE SCARLET GEUM, hardy free blooming, strong two year old plants, 12 for 1s. 6d., 25 for 2s. 6d. Also 6d. and 1s. per packet.

AURICULA (Alpines).—A splendid collection. Strong plants to bloom well, most beautiful colours and sweetly scented, 12 for 2s., 25s. for 5s. 6d. Seed, 6d. and 1s. per packet. Also AURICULA, the real old Irish Dusty Miller, sweetly scented, 3 for 1s. 6d.; 6 for 2s. 6d.

THREE WHITE GEMS, CAMPANULA PERSICIFOLIA, Single White, Double White, and CORONATA, all quite hardy and unrivalled for cut flowers, 3 of each for 2s.

THREE WHITE HARDY BEAUTIES GNAPHALIUM LANATUM, everlasting, last for years after being cut. IBERIS CORIFOLIA, evergreen, and pure white flowers; AQUILEGIA ALBA, the largest pure white, 1 each for 1s. 6d., 2 each for 2s. 6d.

TOMATOS. The best sorts in cultivation.—See Chiswick Great Tomato Trial. 1s. 6d. per dozen.

TWO GEMS, PRIMULA CORTUSOIDES and PRIMULA CASHMERIANA.—Gardening papers say it would be difficult to find more beautiful plants for the Rockery, Borders, or Greenhouse than these, 2 each, 1s. 6d.; 4 each, 2s. 6d. Also Primula Sieboldi amoena, the Queen of Primulas, Geggie's International Prize, 3 distinct varieties named for 2s.

12 HARDY PERENNIAL BORDER PLANTS (named), distinct and useful for decoration and cutting purposes, for 2s.

12 VARIETIES of SHOWY, Free-flowering, and other WINDOW PLANTS (named), for 2s.

NEW STRAWBERRY, NOBLE (Laxton's).—This is, without doubt, the earliest, handsomest, largest, and best Strawberry in cultivation; 12 fruiting plants for 1s. 6d., 25 for 2s. 6d., 100 for 7s. 6d.

STRAWBERRY PLANTS.—Selected Crowns for fruiting this year; British Queen, Pauline, Sabreur, Vicomtesse H. de Thury, Duke of Edinburgh, King of the Earlies, Sir Harry, Dr. Hogg, President, The Captain, and other new and extra sorts, 3s. per 100.

S. SHEPPERSON, Florist, BELPER.

DAILY PARCELS EXPRESS SERVICE to the CONTINENT, *vid* Queenborough, Flushing, Kaldenkirchen.
This Parcels Service, in direct connection with the German and Austro-Hungarian Posts, is specially adapted for the rapid and regular despatch of Plants, Bulbs, &c. No Certificate required for Germany. Tariffs free on application. Goods also accepted for Conveyance by *Petite and Grande Vitesse*.
BEST, RYLEY AND CO., 88, Bishopsgate Street, London, E.C.
Receiving Office at Holborn Viaduct Station.

PELARGONIUMS. — Extra strong, healthy bushy plants, showing bud; Show, French, and Decorative kinds, by name, in 48 and 32-size pots, 12s. and 15s. per dozen; 80s. and 100s. per 100. Boxes and packing free. Cash with order.—JAS. HOLDER AND SON, Crown Nursery, Reading.

CLIBRAN'S BEAUTIFUL FLORISTS' FLOWERS, Phloxes, Pentstemons, Antirrhinums, Pinks, Pansies, in distinct, beautiful sorts, 3s. 6d. per dozen. Carnations and Picotees, perfect forms and colours, 12 vars. 6s. Pyrethrums, 12 sorts, 5s. Potentillas, 12 vars., 6s. Seedling Alpine Auriculas, "perfect gems," strong blooming plants, 3s. per dozen.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

To the Trade.
MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to give Special Quotations for all the leading kinds of MANGEL WURZEL and TURNIP SEEDS, of the finest quality, and raised on their own Farms from picked transplanted bulbs. The prices are very low this season.
Seed Growing Establishment, Wisbech.

NEW AGERATUM, "THE ZOO."
This new and distinct variety is the best yet introduced, not only for its dwarf compact habit, but also for the profusion of bloom during the season. It was raised by Mr. Young at the Royal Zoological Society's Gardens, Regent's Park, London, and has been used by him during the past two summers in the grounds there, where it has been the admiration of all who have seen it. It never exceeds 9 inches in height, and produces immense trusses at the point of every shoot. The colour is a viole-blue, and quite distinct from any we have yet seen, and far excels all other kinds in every respect.
Price, 6s. per dozen, 40s. per 100.

NEW DOUBLE PELARGONIUM, "GOLDEN ACRE GEM."
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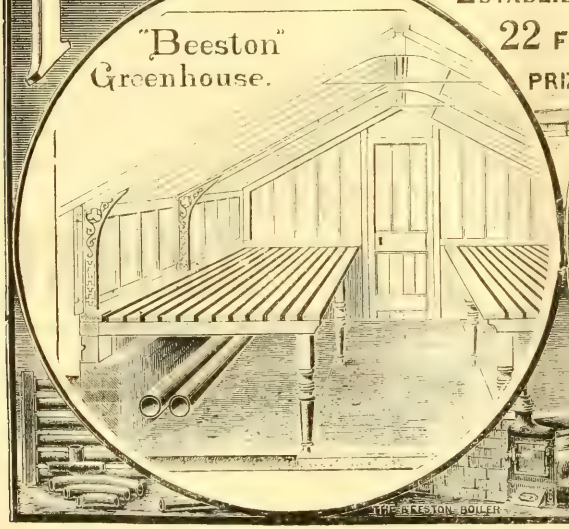
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THE
Gardeners' Chronicle.

SATURDAY, APRIL 26, 1890.

COLOURING OF GRAPES.

SOME experiments recorded by M. Laurent in a communication to the Botanical Society of Belgium are so interesting to Grape growers, that we deem it well to bring them to the notice of our readers. Light, as is well known, is essential to the formation of chlorophyll or green colouring matter, but the colour of flowers is less directly influenced by light, as, if the flower is sufficiently nourished, it may be, and often is, produced independently of it. This nourishment may be stored up, as in the bulb coats of a Hyacinth, or the bark of a Lilac, for instance, or it may be formed in the adjacent leaves shortly before the flowering period. In any case, although the colour of flowers may not be directly the result of solar light, it is indirectly. This may be shown by arresting leaf-action, placing the leaves in the dark, while the flowers are exposed to the light, or, as practised by M. Laurent, by "ringing" the base of the stalk supporting the flowers, so as to arrest the flow of nutriment to the flowers. In either case, although the flowers are exposed to the light, they are deformed and deficient in colour. The action of light in colouring fruits is well known and curious illustrations of it are afforded when an Apple, for instance, has been surrounded while growing by a net, the net-work is clearly marked on the ripe fruit, the position of the threads being marked by imperfectly coloured lines, while the interspaces to which access of light is not prevented, are brightly coloured. But while this is the rule in many cases, it is not so in all. The berries of the Berberis, of the Hawthorn, and of some black Grapes, colour as well when shaded by the foliage as in full sunlight, temperature and other conditions being equal. So that there are two sorts of colouring matter in fruit, the one directly influenced by light, the other only indirectly so, as is the case in flowers.

M. Laurent's experiments have been made, in the School of Horticulture at Vilvorde, on some Black Hamburgh Grapes (Frankenthal). Two bunches were, when the berries were of the size of Peas, placed in cardboard boxes blackened on the outside, and allowed to remain therein till the berries were ripe, when it was found that there was no difference either in colour or flavour in the berries so treated and those on the same Vine grown in the ordinary way. To show that in this experiment the berries received an adequate food supply from the leaves and consequently coloured well, M. Laurent experimented by cutting off the food-supply, by means of the ringing process, from four bunches on the same day that the other bunches were placed in the dark boxes. Two rings of bark, each about a quarter of an inch in depth were taken from the Vine, one just above, the other just below the point whence the stalk of the bunch originated, so that the bunch was, in fact, isolated. Of the four bunches so treated two were placed in darkened boxes, two others remained exposed to the light. When the crop was ripe, the bunches which had been subjected to the double process of ringing and of removal from the light—those, in fact, in which access of food was quite prevented—remained green or only slightly coloured, deficient in size, and acid in flavour. The two bunches which had been subjected to the ringing process, but which were exposed to the light, produced berries nearly of the normal size, some reddish, others green; the flavour was acid, especially in those that remained green. These experiments were repeated during three successive years, and with the same general results, save that if the berries were allowed to get too large before the experiments were made, they coloured even after ringing and when placed in the dark, so that the experiment should in all cases be made when the berries are quite small, and contain but little nutritive matter. The colouring matter of Grapes may then be formed in the absence of light, provided a sufficient supply of nourishment be forthcoming, but if this supply be arrested, then the colour remains imperfect. The red colouring matter of Vines contains, according to Glénard, 57 per cent. of carbon, 4·8 of hydrogen, 37·8 of oxygen, corresponding to the chemical formula, C^3H^2O—that is to say, to a body less rich in oxygen and hydrogen than the sugars, $C^6H^{12}O^6$, $C^{12}H^{22}O^{11}$. It may, therefore, be surmised that the colouring matter of grapes arise from a dehydration of glucose during the last period of maturation. If this be so, then the want of colour and sweetness in Grapes may be due to defective nutrition, due to overcropping, to imperfect exposure to light, and to shanking. Under each of these circumstances the Grapes do not receive a full supply of sugary food, and the colouring matter is diminished in proportion. M. Laurent's conclusions will be accepted by practical men, but they will regret with us that he has not apparently given sufficient attention to the influence of temperature.

Finsbury Square Pavilion.—The committee of the inhabitants of Finsbury Square have accepted a design by Messrs. Crompton & Fawkes, horticultural builders, Chelmsford, for a pavilion for the centre of the square. The building will be 24 feet by 18 feet, and about 40 feet high, cruciform, with ornamental gables facing four ways, and surmounted by an octagon lantern in which a clock with four dials will probably be placed at some future time. The base will be of red rubbed brickwork, and the sides of glass for the remainder of the height. The roof will be covered with red tiles. It is intended to open the building during the first week in June. All the details have been designed by Mr. Fawkes.

New or Noteworthy Plants.

DENDROBIUM ATROVIOLACEUM, *Rolfe, n.sp.**

This is another very distinct and pretty Dendrobium, introduced from Eastern New Guinea by Messrs. James Veitch & Sons, of Chelsea, and perhaps the handsomest of the set to which it belongs. It is allied to D. macrophyllum, A. Rich., often known in gardens as D. Veitchianum, but differing in the brighter colours and in the absence of the curious hairiness of that species. A plant of it (probably the first that has flowered in Europe) was exhibited at the meeting of the Royal Horticultural Society on April 8 last, and was awarded a Botanical Certificate by the Scientific Committtee (*vide Gard. Chron.*, April 12, p. 463). The materials from which the annexed description was made are, a single pseudobulb bearing a six-flowered raceme, and a leaf from another plant. The flowers are 2 inches across, creamy-yellow, and elegantly spotted, while the lip is remarkable for its deep violet colour, in reference to which the name is given. My own impression is that the plant will improve much when it becomes established, for it must be remembered that these flowers were produced after the fatigues of a long and tedious journey, during which the plants lost their leaves. I believe Messrs. Veitch have imported a number of plants. *R. A. Rolfe.*

A SURVIVOR.

Some time since we had an opportunity of figuring, as the latest of its race, the sole tree in St. Helena of Psiadia rotundifolia. Now we are enabled, thanks to the authorities at Kew, to illustrate a plant once common in St. Helena, but now extinct there, and only latterly discovered in cultivation owing to its having been grown under an inappropriate name. Melhania melanoxylon (fig. 81) is one of the many plants of the Island of St. Helena, which, according to Melliss, Morris, and Hemsley, have become extinct there. Two species of Melhania were included in the flora of the island, namely, the above and M. erythroxylon; they are both in cultivation at Kew, where a small plant of the first-named is now flowering in the T range. A figure of this species will be found at t. 1000 of the *Botanical Magazine* under the erroneous name of Pentapetes erythroxylon. According to Melliss, who figures both species in his *Plants of St. Helena*, M. melanoxylon was found near the coast at moderate altitudes, where the weather-beaten stems are still found embedded in the soil. He says—"I believe it to be now extinct. The last plant I saw was a small one growing in the garden at Dakbank, about twenty-five years ago; but it is not there now, and I have searched the whole island over for another, but in vain." This was written fifteen years ago. The wood is known as native ebony, and it is black, very hard, heavy, and brittle. This plant once formed a considerable portion of the vegetation of the island. It forms a compact, shrubby tree, with ovate-acuminate slightly-toothed leaves, 2 inches long, dark green above, covered beneath with soft and silky white hairs. The flowers are Malva-like, 1½ inch across, white with a crimson blotch at the base of the column formed by the purple stamens and green stigma. M. erythroxylon is the redwood of St. Helena, where it formed a tree 20 feet high, and bears large tubular flowers, which were white when they first expanded, changing to pink, and finally to red. This species is now rare in the island, for, according to Melliss, there were not more than seventeen or eighteen plants of it in St. Helena when he wrote. Mr. Morris, who visited this island in 1883, brought home seeds of this plant, and from these the Kew plants were raised. *W. W.*

* *Dendrobium atroviolaceum*, n. sp.—Pseudobulb a little over a foot long, slender below, 2 inch thick above, with numerous furrows. Leaf ovate-oblong, obtusely bidentate, leathery, dark green, 5 inches long by 2½ inches broad. Raceme subterminal, erect, 3 inches long, with a few small sheathing bracts near base, six-flowered. Flowering bracts ovate, acute, 2½ lines long. Pedicels 1½ inch long, as well as peduncle and bracts of a very pale green. Flowers 2½ inch across, the segments widely spreading. Sepals ovate-lanceolate, acute, cream-yellow, with a faint suffusion of light green, and numerous dusky-brown and purple spots. Petals cuneate-obovate, acute, ⅝ inch across, less spotted than sepals, but otherwise similar. On the exterior of the segments the spots are more purple-brown. Lip three-lobed; side lobes incurved and broadly rounded, deep violet-purple inside, with a few radiating paler lines near margin, green outside, with a large dark violet irregular blotch on either side, and a broad band on the front margin of a brighter shade; front lobe reflexed, ovate, acute, its margins incurved, inside dark violet-purple, with narrow green margin and a few radiating lines of same colour, outside light green, with a very few dark violet spots; disc consisting of a pair of pallid raised plates near the base, which unite, and then extend to base of front lobe as a single blunt fleshy keel. Column very short, pale greenish-white, almost suffused with crimson purple on front face.

Roses.

UNDERGROUND ROSE BUDDING.

This interesting means of propagation is but little understood and practised by amateurs, and it is more than probable that not a few pretty successful rosarians may never have heard of it, and yet it seems reasonable to assume that if Rose buds root so freely on foster stems or branches; they may also be made to root in the ground. During the process of rooting, Rose buds need but little help whatever they may require afterwards. During the process of "taking," as the union of scion and stock is technically called by Rose growers, the stock is virtually passive. The chief aid the bud desiderates during the process of union is a moist medium and a growing temperature, and these two mechanical conditions are as easily commanded through the soil as through the tissues or sap of the plants of Roses or of Briars. Hence it ought to be as easy a matter to root Rose buds through the soil as through other plants. And it is, and yet it is not. Nor is this diverse answer so paradoxical as it seems; so very much of success or failure turns on the time of budding. The majority of those who try the rooting of Rose buds in the earth in the spring have probably failed; and yet never do Rose buds look more tempting and full of self-contained life than through February, March, and April. Branchlets, even flower-buds in embryo, are already in the buds, whose base swells out into something like a natural callus, as the embryo shoot develops itself. What an attractive and tempting condition for the skilful cultivator deftly to transfer the bud from mother Rose to mother earth.

This has been done thousands of times, with such uncertain success as hardly to invite repetition, and yet the causes of complete or partial failure are by no means obvious. They are largely hidden away under such convenient phrases as season and sap, and both, no doubt, have much to do with the failure to root Rose buds in the soil in the spring. Nevertheless, it having been done, the practical question for amateurs is whether, considering the low percentage of success, in this mode and time of propagation, it is worth the candle. An emphatic positive answer would at once be given to this question, were it not for this double answer, that Rose buds may more readily and more certainly be rooted in the earth in July, and that spring buds may more swiftly be converted into Rose bushes as scions than in the form of buds.

The first step to success, then, in this method of striking Rose cuttings in the earth is their selection at the right season. This extends from June to August, according to site, soil, climate, &c. July, as a rule, will furnish the best buds. Choose only such as would be used for the budding of Briars; manipulate them exactly in the same way, with these two very important exceptions—leave the base leaf and the half or a quarter of the wood under the bud intact; in other words, cut the Rose-shoot away under the bud as for budding, but leave the wood intact under the bark. Different propagators prefer different proportions of wood left under the bark, but all agree in cutting a half or thereabouts of the circumference of the wood away, so as to expose the edges of the bark to the soil.

Some make a point of retaining all the pith, others of cutting right through it, and others still of

cutting it clean out, leaving about a quarter section of the wood intact. The amount of wood left is not material to success; neither does it greatly matter whether the ends of the bud section are wedge-shaped, or left nearly square, as an axe-head, but as the thin edges are of no mechanical use in this mode of bud-rooting in the soil, and may tend to an undue attenuation of vital force, more wood and bark may be left towards the end of those earth-safety, such buds mostly remain on the rooting pans for some little time after rooting, it is customary to use an inch or so of the usual mixture of loam, peat, leaf-mould, and sand over the drainage, and to surface all with another inch of clean silver-sand, and this, by watering and compression, should be made as firm and hard as practicable. A day or more after the final matting, the pans or pots will be in the best condition for use.



Fig. 81 – Melhania melanoxylon, the Blackwood of St. Helena, now extinct. (see p. 512.)

buds than in ordinary buds. By cutting these ends square down, more bark will also be placed in contact with the soil, than if the bud sections were "slivered off."

Though the character and manipulation of earth Rose buds have been described first, yet suitable preparation for the reception of the buds must precede their propagation. Well-drained shallow pans, the drainage covered with cocoa fibre refuse or leaf-mould filled or surfaced with clean silver-sand, form as good a striking medium for Rose buds as any other compost. Though for convenience, as well as

The moment the buds are manipulated into shape insert them slightly in the sand, the surface of the bark being barely covered; the growing ends of the buds may incline a little higher than the base ends. This is easily managed by beginning at one side of the pan, and pointing all the buds in one direction. This simple detail also imparts greater stability to the buds, a point of considerable importance towards rendering them immovable during their first stages.

The buds may be placed as closely together as their leaves will permit, sprinkle lightly overhead as soon as the pan or pot is filled, and cover at once with a bell-glass, and place the pots in a close pit or frame, and shade from bright sunshine. Care must be taken not to overwater the buds. If the pots or pans are sufficiently moist, a swill overhead may suffice; or if more water is given, the buds should be left for a hour or so, for the surface of the leaves to become nearly dry before the bell-glass is put on. The best and safest mode is to have the rooting material in perfect condition as to moisture before inserting the eyes, as any excess of watering overhead after insertion is apt to displace the eyes as well as to saturate or sour the compost.

The time of rooting depends greatly on the degree of heat applied. A close frame, pit, or house will provide sufficient warmth under skilful management. But a slight addition of bottom and surface heat will hasten the rooting process. The latter, however, must not be carried to excess, nor greatly exceed from 60° to 70° at the utmost.

Good culture consists in preserving the leaves on the buds until the latter are callused or rooted. Little water or air will be needed until this takes place; but the leaves must on no account be allowed to flag for lack of water or any excess of sunshine until roots and fruit growths appear. Then remove the bell glasses, tentatively at night at first, then for a few hours during sunshine, and finally wholly, so soon as the buds have rooted into plants.

Caution should be exercised as to potting the buds off singly, or failure may tread swiftly on the heels of success. Some pot Rose buds off singly so soon as callused. This plan is safe and good if wisely followed; the wisdom chiefly consisting in placing the buds in bottom heat, and getting them to push forth roots. But where it is resolved to proceed more slowly, no buds should be shifted until well furnished with roots. Some even prefer wintering their earth buds in the pots or pans in which they were rooted, and this is doubtless the safest course to pursue unless the single plants are well rooted before winter. For much soil and few roots in a Rose or any other flower pot is the surest possible preparation for a good and safe passage through our changeable winter. *Rosa.*

MR. MARRIOTT'S GARDEN, COVENTRY.

Mr. Alderman James Marriott's specimen stove and greenhouse plants are well-known at the flower shows of Shrewsbury, Reading, and other places, and his collection of Orchids has a name in the Midlands. About five minutes' walk from the Coventry station is the Grosvenor Road, and here is Mr. Marriott's garden, which is about an acre in extent, and mostly covered with glass. The Orchids are numerous, many of them very fine specimens. There was, at the time of my visit, a plant of Lycaste Skinneri alba with three fine blooms, averaging 6¾ inches across—a very fine variety indeed, with a bright lemon lip. Another gem in flower was Dendrobium Brymerianum, also Aërides crassifolium in a hanging basket, bright rosy-pink, and very fragrant. Odontoglossum maculatum was represented in several varieties, two being of great beauty. Cypripedium bellatulum and C. niveum were noted in bloom. Cœlogyne ocellata maxima is another little gem. Other species in flower were Cymbidium Lowianum, a grand pyramidal mass of Dendrobium Devonianum in a hanging pan, Dendrobium Wardianum; a fine variety of Dendrobium nobile, with an intense rich deep violet spot on the lip; fine specimens of Oncidium sphacelatum, Cypripedium villosum, and Lælia anceps alba, but this last not in bloom. Mr. Finch, as Orchid grower, manages his plants intelligently and well, and has a name as a cultivator of specimen exhibition plants.

There are now in the houses a number of plants which have been at rest and are now preparing for their round of work at the coming flower shows—Dipladenias, Crotons, Ixoras — amongst them a grand I. Williamsii; Allamandas, Franciscas, Rondeletias, and others. A specimen Clivea miniata

has furnished sixty-two fine heads of flowers, and some are now on the plant. Anthuriums are well done here, and an A. Rothschildianum now in flower is very beautiful, so distinct and exquisitely spotted. As cut flowers are wanted to so great an extent here, Mr. Finch was strongly recommended to grow Psycotria jasminiflora, a plant that is worthy of the attention of market growers, as it produces freely its corymbs of waxy, white jasmine-like flowers.

One remarkable feature in the Grosvenor Road is a low span-roofed house, 46 feet long and 12 feet wide, for growing Ericas, and here are to be found many veteran plants of leading species, and young plants in good condition coming on. Grapes and Melon-growing, as well as plant cultivation, are good all round. *W. D.*

VAGARIES OF VARIATION, WITH SPECIAL REFERENCE TO BRITISH FERNS.

(Continued from p. 480.)

In Polystichum angulare many of the markedly abnormal forms revert temporarily to the normal if the plant be shifted or allowed to get out of condition, and sometimes even lose their abnormal character permanently. Such plants, however, even at their best, generally show traces of irregularity, and hence are not quite parallel cases to the Lastrea above cited, which, large as it was, was perfect in every way.

In 1888 I found at Clovelly a very remarkable example of extreme variation in an otherwise normal plant of P. angulare, one frond of which was divided near the base into three, each division dividing again and again until the frond formed a broad triangular fan of no less than 15 branches, several of the extreme points being furthermore tipped with finely fimbriated tassels. The remaining fronds were quite common, save that one was split near the apex. On taking up the plant, the *debris* of a solitary fanshaped frond of similar widely abnormal character was found among the fronds of the previous season. Though it was not ascertained that the two abnormal fronds sprang from the same part of the caudex, there seems a probability in this case that one portion of the crown varied from the rest, in which case should the crown divide by simple fissure, or a bud at the base of the abnormal frond produce an offset, a constant thorough variety might thus be produced, or spores from the abnormal frond —which in this case was barren—might yield a like result. The recurrence of such a very abnormal frond is the interesting feature here, seeming to indicate a transition state of some sort.

On the opposite side of the road, and within 50 yards of this plant, I espied another P. angulare bearing a frond with a neatly tasselled apex, and pinnæ dilated at their tips; a second frond showed this latter feature only, accompanied by a few depauperate pinnæ. On taking up this plant, I found it to be unmistakably an offset of a large coarse growing plant with truncate fronds, but otherwise normal. Under cultivation the offset produced normal fronds with one exception, which bore a much divided apical tassel. The parent stock, on the other hand, threw up non-truncate fronds with abnormally long basal pinnæ, in one frond indeed these were equal in size to the rest of the much reduced frond, forming a sort of trident. Here we obviously have a struggle between normal and abnormal elements which, through spores or buds, might produce strongly marked and possibly constant varieties.

On two occasions also, it has been my lot to find absolutely distinct varieties growing side by side. In the one case a dwarf depauperate, but constant form of the rarely sportive Lastrea montana, its immediate neighbour being a robust form of Blechnum spicant, with confluent and cruciate pinnæ towards the apex of all the fronds, many of which were moreover once divided at the tips, the divisions spreading out at right angles to the rachis. Both these retain their characters under cultivation. In the other case I gathered from a wall-top near Minehead two forms of Polypodium vulgare, so closely associated, that though the rhizomes were disconnected, I concluded that I had broken a single plant of irregular type into two. Under cultivation, however, one has proved to be a fine symmetrical, acute form, with long markedly serrate pinnæ, and a sharply pointed apex to every frond; in the other, however, all the fronds are abruptly truncate, the pinnæ are obtuse, and only crenate, except those next the truncation, which are abnormally long and so deeply cut as to be almost bipinnatifid, in short, they form two unmistakably distinct forms.

Recurring to the theme of reversion, there are several curious instances of intermittent partial reversion which merit notice. That beautiful variety of Athyrum filix fœmina, viz., kalothrix, was a sport from a true plumose form, and most if not all the plants I have possessed produce here and there, sometimes an entire frond of the parental type, but more frequently it is only a pinna or two, or even a pinnule, which appears so affected; while if a plant be long undisturbed, it may cease to revert altogether. A batch of seedlings raised by myself gave several entire reversions to the plumose type, and Messrs. Stansfield of Sale report the same experience. One of my seedlings afforded me, moreover, a curious instance of temporary cresting, after developing into a small plant of true kalothrix type, it was potted up and accidentally allowed to get dust dry during the winter and spring. Early in the summer it was soaked, with a forlorn hope of resuscitation. It then threw up a small but very finely crested frond, bearing an unmistakably wide fan-shaped tassel of numerous points; the next fronds followed suit, but less markedly, and by the time the fourth or fifth fronds arose it had recovered gradually its normal outline, which it has since maintained. Several other seedlings of the same batch under starved conditions, bore irregular ramose fronds, but immediately they received special care as novelties, the eccentricity vanished. Here, obviously, we have cresting resulting from uncongenial conditions, and the question arises whether spores produced under like circumstances might not occasionally yield permanent variations. I am not aware, however, of any evidence supporting this idea.

As a curious coincidence in very eccentric vagaries, I may mention that some years back I found near Wigtown, N.B., a form of Athyrium, in which the leafy portion of the two or three pinnules next the midribs of the fronds was symmetrically absent, the rachides only remaining as little thorns, so that there was a tapering longitudinal space down the centre of each frond, giving it a very curious appearance. Last year I received from Mr. Phillips, of Belfast, an Irish find of his with precisely the same character; the pinnæ, however, had also a space down their centres, due to a slight depauperation of the pinnules adjacent to their midribs. It is worthy of remark that the two finds were so very distinct, apart from the main characteristic described, that a common origin was extremely unlikely, independent of the consideration of the distance the spores would in such case have had to travel.

In connection with the subtle influences which lead to these vagaries, it is a singular fact that, when hybridisation is effected by sowing the spores of crested and non-crested forms together, it occasionally happens that the cresting character is transmitted purely by itself, the result of the cross being the true frond type of the one parent, plus the cresting of the other, though the second parent may have fronds widely abnormal otherwise.

I may also appropriately chronicle here two singular combinations of the effect of crossing between Ferns, one parent being subject to partial reversion. Mr. Clapham was successful in crossing two very marked varieties of Polypodium vulgare viz, var. elegantissimum, a very finely divided form, subject to piecemeal reversion like kalothrix and var. bifido cristatum, a very fine but somewhat narrow crested form. The result was the transference of the cresting to elegantissimum, with the curious additional effect that while the tendency to piecemeal reversion persists, true fronds of bifido cristatum are thrown up instead of normal ones. A more absolute proof of the joint parentage could not be imagined. A composite frond of this lies before me as I write. A kindred case is recorded by Colonel A. M. Jones in connection with a cross effected by Mr. Stansfield between a fine plumose form of Athyrium and an irregular depauperate crested form known as Craigii, the result being a plumose Craigii which, to remove all doubts as to its pedigree, produced subsequently a frond true to the plumose parent, but crested, not a taint of the Craigii character other than this, appearing.

I am now, however, entering into the domain of other experiences than my own, merely, however, to indicate lines of research which may, if persistently followed, yield results sufficiently coherent to build a theory upon. What is needed, is some definite centre where reports upon the phenomena observed could be collated. At present the specialists are sporadic, and their knowledge mainly confined to themselves. Occasionally a short article appears, now in one and now in another of the horticultural journals, and from time to time papers are read and even published by kindred societies, but that is not enough, and I trust that the re-awakening interest in this important branch of native horticulture may lead to some special organisation there anent being arranged at the forthcoming Fern Convention to be held in July next by the Royal Horticultural Society. *Chas. T. Druery, F.L.S., Fernholme, Forest Gate, Essex.*

HYBRID ODONTOGLOSSUMS.

Perhaps no genus of the great Orchidean family is at once more popular with the horticulturist and more perplexing to the botanist than Odontoglossum. So attractive are many of the species, so floriferous, and so easily cultivated, that most of the districts in which they are known to grow have been ransacked, and the plants sent home in hundreds of thousands to enrich our collections. Under ordinary circumstances the result of this activity would have been to increase our knowledge of the genus very materially, if not to enable us to form some idea of the number, variability, and distribution of the species of which it consists. So far from this being the case, however, the number of intermediate forms which are constantly appearing tend rather to obscure the limits of species formerly considered distinct, and the nomenclature of the genus is in a hopeless and bewildering state of confusion. Some of these intermediate forms are undoubtedly natural hybrids, but it is probable that others are pure varieties, for some of the species have proved polymorphic to a degree quite unsuspected a few years ago. In a few cases the gaps between otherwise distinct species seem to be so completely bridged over by these intermediate forms that the Messrs. Veitch, in their *Manual of Orchidaceous Plants*, speak of them as "confluent in series," on account of the difficulty of deciding where the partition wall is to be set up between them. In these cases they have placed acknowledged hybrids as varieties of the species they most nearly resemble. "This plan," they remark, "is by no means free from objection; but it has at least the advantage of grouping together a number of allied forms, which, if described under separate names, would leave the acknowledged confusion much where it was."

It has been my misfortune of late to have to determine a considerable number of these doubtful plants, and I have found the task by no means an easy one. I do not, however, regret the circumstance—quite the reverse; for it seems to me that the only way to get a clear idea of the genus is to get together as complete a series of the different forms as possible, whether varieties or hybrids, and then compare them side by side. The accumulation of such a series is necessarily a work of time. The most complete one in existence is, unfortunately, not

available for reference for the next quarter of a century, or nearly, and the only available plan is to provide an efficient substitute. The Kew collection contains a fair proportion of the hybrid forms, in addition to most of the species, but is wanting in some of those described by Reichenbach. Most of them exist in gardens, though a few are rather rare, in consequence of which they come to hand rather slowly.

In repeatedly going through the material at hand, two or three things have presented themselves very forcibly to my mind. The first is, that in the majority of cases it is possible to separate the undoubted species from those which may, with a greater or less degree of probability, be assumed to be of hybrid origin. It is fortunate that such is the case, for I believe it is the first real step towards the solution of the problem. In those cases where the forms appear confluent, it may hereafter be possible to effect the same separation between them. It may not be easy to lay down any absolute rules by which natural hybrids can be separated from genuine species, but the two are so essentially distinct in their origin that a very few considerations will serve to make the matter clear.

Species, of whatever kind, have always a definite geographical area, over which the individuals which compose it are distributed, more or less continuously or disconnectedly according to circumstances. Taking this area as a whole, the individuals are generally very numerous, but everywhere they bear so strong a resemblance to each other that they can generally be easily recognised as individuals of the same species. Of course, a variable species may exist in different areas as what are called geographical varieties, and, at the present day, no apology is needed for saying that these are incipient species. Two or more species may be found growing together in one spot, but even when this is the case the boundaries of their individual geographical areas are hardly ever conterminous; that is to say, there are other spots where the same species grow separately. In fact, there are good grounds for believing that this is almost invariably true of closely allied species. Even where they grow together, there are equally strong reasons for believing that they originated separately, but were afterwards disseminated from their original birthplace, and thus accidentally brought together. These considerations help us materially to understand the phenomena of natural hybridism.

Natural hybrids only originate where two or more allied species grow in sufficient proximity to each other for the pollen to be carried from the one to the other. In most cases they are found growing with the parent species, though this is not always the case; for the seeds may sometimes be carried away to some distance, though with Orchids I think we have very little evidence of its taking place on any extensive scale. These hybrids are generally so intermediate in character that their parentage may very often be guessed by anyone well acquainted with the characters of the parent species—in fact, it may often be said, as in the case of artificial hybrids of known parentage that they bear the evidence of their origin in their faces. Another fact respecting them is that, compared with the parent species, they are very rare. There are a few cases where, taken in the aggregate, the individuals are numerous, because the same cross has been effected over and over again. In such cases, however, there is usually a considerable range of variation. To quote Messrs. Veitch:—"From the first it has been observed of these natural hybrids, that it is an extremely rare occurrence for any two appearing in different importations to be identical, although apparently derived from the same two species, and sometimes sufficiently alike to come under the same name." One other consideration which should not be overlooked is, the possibility that some of these mule forms may be themselves derived from hybrid parents, as is the case with certain artificial hybrids.

"These hybrids are highly deserving of attentive study, for owing to the still very imperfect knowledge of the distributional limits of the species of Odontoglossum, and the still more imperfect knowledge we possess of the insect life of the region, it is at present hopeless to attempt any satisfactory explanation of their origin, or from the *data* already accumulated to deduce any general law respecting them." These interesting words are cited from Messrs. Veitch's work before mentioned. In future papers I hope to be able to analyse the materials already accumulated, with a view of accelerating future progress. Meantime, a few flowers of any of the following would be very gratefully received, or indeed of anything which would in any way aid in elucidating a difficult but very interesting problem.

acuminatissimum	hinnus	Measuresianum
baphicanthum	Horsmanni	mulus
brachypterum	Jenningsianum	Pollettianum
Brassia	lepidum	prionopetalum
cheetostroma	luridatum	radiatum
deltoglossum	Lecanum	Schroderianum
diranophorum	ligulare	Scottii
facetum	macrospilum	stellimicans
ferrugineum	Marriottianum	tentaculatum
histrionicum	Masereelianum	Vuylstekeanum

R. A. Rolfe, Herbarium, Kew.

(To be continued.)

VEGETABLES.

BROCCOLI.

In a general way, Broccoli seed, in my opinion, is sown too early, particularly the late varieties; also too thickly. Towards the end of the present month scatter the seed thinly on ground that has been made rather firm, that is not over rich, and has been made fine. The seed may just be covered, and in most gardens it must be protected from birds by spreading a fish-net over the beds, supporting it with forked pegs, or by rolling the seed damped in milk in red lead powder. To have short-legged, hard-stemmed Broccoli, the seedlings should not get crowded and drawn, but should be planted out when they are large enough to handle. I find that the best way of managing, so as not to waste space, is to put Broccoli in rows 4 feet apart, and have Potatos between the rows, as then both crops are benefited from the full sunlight thus obtained. Although a rich soil may produce the best heads, when the plants have the luck to live through the winter, it does not favour hardiness.

The best place for late Broccoli is an open field, as they will stand without injury whilst garden plants have been killed outright, or much weakened by frost. For early work, or first cutting in the autumn, the finest Broccoli is Veitch's Self-Protecting, and it is enough to say of this that it is in all respects equal to the well-known Autumn Giant Cauliflower, and of which it seems to be a late variety. To succeed this, Snow's Winter White, if it can be had true, is the most trustworthy, as the heads are well-protected and very compact and white, and it grows of suitable size for table use. To follow on after this, none that I have tried are equal to Veitch's Spring White—a Broccoli perfect in shape, of medium size, and white. For late use, Model is the type of what a good Broccoli should be, and it is, therefore, appropriately named, and it has desirable hardiness as well. Lauder's Goshen and Late Queen are both excellent sorts, and any one growing the above-named will have the cream of Broccolis; but, in addition, every person should plant some Early and Late Purple Sprouting, an exceedingly useful vegetable, of delicate flavour. *J. Sheppard.*

—— Hartland's April Queen is certainly the best variety grown in the south of Ireland. It is of excellent quality, and comes into use when other vegetables are getting scarce, and the heads are well protected and white as any Cauliflower. For market purposes it cannot be beaten. *P. C.*

—— We have been cutting, and are cutting daily, some splendid heads of Sutton's Late White Broccoli, which seems to withstand frost better than any other. Leamington Dwarf is also good, and 95 per cent. of it has stood well the trials of the past winter. Veitch's Model is likewise a good Broccoli, of which we are now cutting handsome heads. These three are very superior over all hardy varieties, and of good quality. *W. A. Cook.*

RATING OF NURSERIES AND MARKET GARDENS.

The Bill to amend the Law relating to the Rating of Machinery, which was read a second time this week in the House of Commons, is one which affects the nursery trade to a greater extent than any other measure which has been introduced since the Income-tax Act of 1842, which contains special provisions relating to nurserymen and market gardeners. When I say that it affects the trade, I mean that it may be made to affect it, if proper steps are taken for that purpose. As the Bill is drafted, it does not comprise the trade within its scope, although the principle of the Bill is such as to make it easily applicable thereto.

In order that this may be understood, will you permit me to remind your readers that in June, 1887, a meeting of the trade was called by me for the purpose of taking into consideration the inequality which existed in the assessments to the poor-rate of nurseries and market gardens, and for the purpose of endeavouring to arrive at a proper basis on which such assessments should be made. As a result of the meeting, the opinion of an eminent counsel was taken with a view to ascertain the existing law on the subject. His opinion is embodied in the report of my association for the year 1889, and is to the effect that greenhouses belonging to nurserymen and market gardeners are trade fixtures, that as such they cannot be rated, but that they must be taken into account as enhancing the value of the land on which they are erected in arriving at the rateable value of the land. In view of this opinion (in which the various decisions of the Courts on the subject were cited), it was thought inadvisable to take up a test case which would have the effect of throwing away money for no useful purpose. When this decision became known, a lengthy correspondence took place between a member of the trade and myself, the object on his part being to convince me that the long list of decisions cited by counsel, in his opinion, could be reversed; but I was not convinced. By a curious coincidence, on the very day the Bill before mentioned was introduced, a case in point came before the Queen's Bench, and the cases cited in the opinion of counsel were sought to be distinguished, but without avail, and it was decided again that trade fixtures must be taken into account, as enhancing the rateable value of the property. Mr. Justice Grantham, in the course of his judgment, said it was difficult to see how, in fact, that was not a rating of chattels, but the cases showed that a thing which would otherwise be considered a chattel might enhance the value of land for rating purposes; there is therefore now no question as to what the law on the subject is, and that case fully justifies the decision come to by my committee.

The remedy, however, which is sought for can be found in the Bill already referred to. Its preamble recites that "questions have from time to time arisen as to how far machinery is to be taken into consideration in estimating the rateable value of the premises in which any trade, business, or manufacture is carried on, and it is expedient to amend the law relating thereto;" and by Section 1 it is provided that, "in estimating for the purpose of assessment to the poor-rate, county-rate, borough-rate, or any other rate leviable upon property rateable to the relief of the poor, the rateable value of any tenement or premises occupied for any trade, business, or manufacturing purposes, the annual value of the machinery in this section specified on any such tenement or premises shall be taken into consideration—that is to say, water-wheels, &c." By Section 2 it is provided that, "save as in the last section provided, no machinery, whether attached to the tenement or premises or not, shall be taken into consideration in estimating such rateable value."

It will be seen that the governing word, both in the title and body of the Bill, is "machinery." Now, whether this word alone would include glass erections is very doubtful indeed, and it appears to me that this is an opportunity not to be lost of getting such words inserted in the Bill in Committee as would place the question beyond all doubt. The manufacturing interest is well represented in the House, but the nursery trade is, as far as I know, wholly unrepresented, and *primâ facie* the manufacturing interest alone is referred to in the Bill. Those of your readers who read the debate on the Bill will remember that the main argument against it was, that the alteration the law proposed would shift the rates from the wealthy class of manufacturers to the classes of industry less capable of bearing the already too heavy burden of taxation. This very argument will support the extension of the scope of the Bill as I propose, by relieving the trade to an enormous extent, and thus tend to average the distribution of taxation.

It is for the trade to say whether they desire the matter to be taken up, and I shall be happy to receive communications from them, either direct, or through your columns, on the subject. Meanwhile, I am in communication with the promoters of the Bill, as it is a matter that will allow of no delay. I trust that the importance of the matter will be a sufficient excuse for my trespassing at such length on your space. *F. C. Goodchild, Secretary, Nursery and Seed Trade Association, Limited, 25, Old Jewry, E.C.*

PHALÆNOPSIS IN THE PHILIPPINES.

I read the account of the distribution of the section Euphalænopsis in the Philippine Islands, given by Mr. C. Roebelen, at p. 459, with very great interest, partly on account of the subject itself, and partly because of the light it throws on the affinities of the Philippine flora with that of the Malayan Archipelago, in both of which I am particularly interested. I fully agree that details relating to the surroundings of a new species, and its nearest allied neighbours, are almost as necessary as the description of the plant itself, and therefore it is very gratifying to find such information forthcoming on the distribution of a group of plants of such commercial value. There are several other very perplexing groups on which similar information is much needed, and let us hope it will soon be forthcoming.

To return to the Phalænopsis. One of the first points which strikes me as particularly interesting is the presence of P. grandiflora in the island of Palawan. Hitherto we have generally believed that this species was absent from the Philippines, being there replaced by P. amabilis (I use this name in the sense it is generally used in gardens, though the name properly belongs to the Malayan species). I should much like to know whether the remark that "P. amabilis grows all over the Philippine Islands" is intended to apply also to Palawan, for it would be very curious to find that both grow in the same island. I am not so much surprised at the occurrence of P. grandiflora in Palawan as I should have been a year or two ago, for in working up a few plants from this island, and the small island of Balabac (between it and Borneo), there appeared traces of affinity with Borneo rather than with Luzon, and in my paper on the *Flora of the Philippine Islands* (*Journ. Linn. Soc.*, xxi., pp. 283—316), written at an earlier date, I pointed out that the deepest channel which traversed the submerged bank which connects these two islands was the Mindoro Straits, north of Palawan; so that it seems quite possible the latter island may have remained in connection with Borneo long after it had been separated from Luzon. A few notes on the Orchids of Palawan would be very interesting.

The Sulu Archipelago flora seems more allied to the Philippine one. There is Phalænopsis Mariæ in the main island of Sulu, and in Mindanao, and Mr. Roebelen mentions P. amabilis in Tawi-tawi. The Sulu plants I have had to work up appeared more Philippine than Bornean, while the deepest channel which traverses the submerged bank running between Mindanao and Borneo is close to the latter island south of Tawi-tawi. Thus we should expect to find the Sulu flora rather an extension of the Philippine than the Bornean one.

The distribution of Phalænopsis grandiflora is very interesting. (The section Euphalænopsis is exclusively Philippine, with the exception of this species and P. gloriosa, which I believe is a local variety of the same; at least it has a similar narrow front lobe to the lip, though it differs in colour.) It occurs in Java and some small adjacent islets, various parts of Borneo, Palawan (according to Mr. Roebelen), Celebes, Buru, Amboyna, and Timor Laut, in the Moluccas. Thus its known area is somewhat extensive, and it may yet be found on other of the intermediate islands.

The occurrence of natural hybrids in the Philippines is another point on which more accurate information was needed. P. leucorrhoda ×, P. casta ×, and P. cynthia × are generally understood to be from Luzon, where P. amabilis and P. Schilleriana grow together; but I should much like to see the results of intercrossing between P. amabilis, P. Sanderiana, and the white-flowered silver-grey-leaved species mentioned by Mr. Roebelen as found in Mindanao. Also the natural mules between P. Sanderiana and P. Stuartiana from the interior of that island.

Two little points in Mr. Roebelen's letter do not seem quite clear. The first is, where he speaks of P. Schilleriana being confined to central Luzon on the Pacific coast and a few adjacent islands, distant from the home of P. Sanderiana about 350 miles, and yet speaks of P. Schilleriana alba as most likely from South Mindanao, where he points out that P. Sanderiana actually grows. The second is, where he speaks of P. Sanderiana as "considered to be a natural cross between P. amabilis and P. Schilleriana, which it may be botanically, but it seems to be too far off from at least one of its supposed parents for this to be likely." Perhaps Mr. Roebelen, who has so largely increased our knowledge of the distribution of these interesting plants, will kindly explain.

My own impression, to a certain extent, coincides with his, that is, I think we have yet much to learn of the exact relation some of these forms bear to each other. If we could trace them geographically and thus find out which were purely divergent forms, and which genuine natural hybrids, occurring where these forms grew intermixed, it would be a great advance in our knowledge. Perhaps it is not too much to hope that such evidence will yet be forthcoming. *R. A. Rolfe.*

MALTESE GARDENS.

(*Continued from p. 448.*)

Captain Price's garden is of even greater extent than that of Mr. Harry, and contains some twenty or more divisions. Being on the side of a hill the separate gardenettes are surrounded by balustrades and terraces, numerous short flights of stone steps connecting them as shown in fig. 82. Here and there one suddenly comes upon little temple-like structures, which command some pleasant view across the harbour. On reaching the summit one obtains a panorama of the harbour of Valletta, and the numerous fortifications, together with an extensive view of Malta and its walled-in fields, with square tower-like and windowless houses of the peasants dotted about.

Water being a precious article in Malta, as rain only falls in the late autumn and winter months, it is collected by the flat roof on all the houses, and then conveyed by pipes to a tank cut in the solid rock below. In Capt. Price's garden there are no fewer than twelve such wells. They are picturesque objects, because they all have two marble pillars with the usual cross-piece, also of marble, from which the bucket hangs. Many are elaborately carved in resemblance of Grapes and other fruit.

Like Mr. Harry's, this also abounds with interesting trees, shrubs, and herbs; but no description can give the remotest idea of the number of picturesque spots and "surprises" which meet one at every turn. Plants which are cultivated simply in pots at home here form masses of many square yards, such as Richardia, and all sorts of Pelargonium are rampant.

Of the more noticeable trees, there is a Dracæna Draco about fifty years old. It has a straight trunk, about 12 feet in height, whence a circle of branches radiate. It is 4 feet 6 inches in circumference at 5 feet from the ground, consequently it is 18 inches in diameter. Schinus Molle, so common at Gibraltar and Malta in all the public places, is now bearing bunches of hot-tasting pink berries, which have given it the popular name of the Pepper Tree. The dwarf fan-Palm, Ligustrum japonicum, with great clusters of black fruit, and Euonymus japonicus, with its red fruit; Adhatodas, Justicias, Pittosporum Tobira, Hibiscus phœnicieus, and H. Patersoni; Quercus Ilex bearing acorns half as large again as in England; Bignonia radicans, Stachys, Daturas, &c.

Of climbing plants, which cover the numerous walls and balustrades, there are Plumbagos, blue and white; the ever-present purple Bougainvillea Solandras, Philodendrons, Stephanotis, Tacsonias and Ficus repens.

Mention may also be made of the Avocado Pear, Dasylirions, Mesembryant hemums, Agaves, large masses of Acanthus and Richardia, and the usual profusion of Pelargoniums, Heliotrope, &c. Several wild spots were profusely covered with the Ivy-leaved Pelargonium, Ferns, Acanthus, clumps of the yellow Sempervivum arboreum, the scarlet Antholyza æthiopica, and Aloes; the interstices being carpeted with the ubiquitous weed Oxalis cernua, with its golden flowers.

In the garden, or rather square inclosure, within the Palace of Valletta, is an Araucaria excelsa, which was planted by H.R.H. Prince Alfred in 1858. It was then 7 feet high. It is now, as nearly as I could calculate, about 90 feet. It is over 6 feet in circumference at a height of 4 feet from the ground. *George Henslow, Malta, January 25.*

FOREIGN CORRESPONDENCE.

BERLIN.

"White Christmas, green Easter" is a proverb which is quite true of this year, and although Easter fell somewhat early, the shrubs and trees were green in great part. Spring arrived on March 13, and now Lonicera xylosteum and tartarica, Ligustrum vulgare, Ribes rubrum, alpinum and Grossularia are green; Lonicera fragrantissima, L. Standishii, Corylopsis—a very fine shrub—and Forsythias are in full flower. The Crocuses are past; Hyacinths are seen everywhere. The importations of living flowers from the Riviera consist of double Ranunculuses and Anemones only. Forced Roses are now in full flower. A new mode of growing Roses has come into vogue. Cuttings of forced Roses are made in the second half of March, and when rooted in April they are planted out upon heavily manured beds, and pruning is prohibited. In November the plants are potted, all twigs being retained. They form by that time of the year, in consequence of the heavy manuring they have received, bushes of 2 feet in diameter and as much in height. After the new year they are put into the forcing pits. I must confess I never saw such well formed double flowers as are on these bushes. Fisher Holmes, Marie Baumann, and La France are very well adapted to this method of culture, and one bush will carry, one year from the cutting, from thirty to thirty-five flowers, so that this mode of culture gives very good results when it is borne in mind that a single flower of La France is sold at the present time for 1*s.* 6*d.*

The strike of the young gardeners on April 1 was not much felt, and of 2000 men who intended to strike only about 200 really came out. The demands put forward were eleven hours work and a

wage of 20*s.* monthly, including free board and lodging; or 18*s.* weekly without board and lodging. Most of the nurserymen agreed to these terms.

In the Botanic Garden there are now many Australian plants in full flower. It is true, the famous collections once cultivated in our botanic garden by Bouché are not now to be found there. For some years the cultivation of such decorative plants as zonal Pelargonium, Begonia boliviensis, Alternanthera, &c., was more highly estimated than that of rare, difficult-to-be-cultivated plants; but it is to be hoped that this state of things will be amended, and the botanic garden will again become a thoroughly scientific institution. Amongst the Australian plants, I remarked the following in flower, which are worthy of being more commonly cultivated:—Hardenbergia monophylla, a papilionaceous climbing shrub, with numerous clustered racemes of violet flowers, about 2 inches in diameter; Clianthus species, a very nice climber, with bright green foliage and brilliant scarlet flowers of about 1 inch in length; both shrubs were about 1 foot high, and freely flowered. Chorozemas in variety



Fig. 82.—Terrace approach in Captain Price's garden, Malta. (See p. 516.)

are in full flower; these were in former times much cultivated. I remember well two specimens which were occasionally exhibited; they each covered a wire balloon of about 4 feet in diameter, and nothing could be seen but the brilliant flowers; the days of this kind of plant growing are now past. Kennedya glabrata var. tenuifolia has a habit of growth much resembling that of a Nertera depressa, but it is covered with numerous red flowers instead of scarlet berries.

A very interesting house is that containing imported plants from the German colonies. Besides very strong seedlings of Rhizophora Mangle and Pandanus candelabrum—both cultivated in brackish water—there are very many decorative plants. A very fine climber is Ipomœa paniculata, whose Ivy-shaped dark green leaves contrast very finely with the white middling-sized flowers, whose tube is on the inner surface of a dark violet colour. The plant grows very freely, and often makes shoots of 15 to 20 feet in length. A plant much esteemed by the natives of the Cameroons is Emilia sagittata, a composite, whose bright green leaves are on the under surface of a blue-violet colour. The little heads, half an inch in diameter, are of a brilliant orange colour. The plant is said to give physical strength. The natives rub some of the leaves of the plant in their hands before engaging in races or palavers, which is said to give not only strength to the body, but also to the mind. The methods of culture pursued in this house differ widely from that in the others, for Mr. Braun having collected the plants himself in Cameroons, his idea is to give the plants as far as is possible a situation similar to that which they had in their native home. For instance, he places plants which grew in the cleft of two branches again in such a cleft, be it of two branches or of two planks. Epiphytical plants, as Orchids and Ferns, he cultivates only on branches or planks. He lays the rhizome directly upon them, covers it with some peat (roots of Ferns), and fastens it with copper-wire. In a short time the young strong roots run along the branch or plank, and after some months the wire fastenings as well as the peat may be removed. The branches and planks are hung as near to the glass as possible. Plants which grow naturally downwards, as do many Orchids, are hung in this situation, the apex downwards. The watering is of the simplest, the plank being immersed in water. In this way epiphytical plants grow much better than in pots.

In one of my last letters, I said that it might be possible to create fasciations artificially. I, myself, commenced some experiments in this way with Tropœolum majus, and so far as I can now see, these have been successful. Some time since, Prof. Kny, from the Agricultural High School, told me that Prof. Sachs, of Wurzburgh, some years ago, succeeded in producing fasciation, and that he himself had also succeeded; and curiously enough, each of us three tried to succeed with the same species! The results of Prof Sachs are published, as Prof. Kny, told me, in the *Proceedings of the Vienna Academy*. Those of Prof. Kny are not yet published, but he has preserved in alcohol the fasciations which he obtained. The leading idea I had I once communicated to you when I was at St. Petersburgh, that if the vegetative point of a vigorously growing plant is destroyed, there are developed close together some new vegetative points, and the formation of new cells is so rapid that the single newly-formed buds cannot find time to separate themselves, and the consequence is that the young shoots adhere together, and a fasciation appears. A most important condition is that the plant experimented on must be in the most vigorous growth. Now, fasciations are hereditary, and it might be possible to create in this way one or another new and interesting garden plant in the manner of the Coxcomb. Experimental teratology is very important for gardeners; it is only necessary to question Nature in the right manner to obtain the right answer. *Our Berlin Correspondent.*

Belgian Letter.

In the Liège Botanic Garden a mass of fifty plants of Vriesia Leodiensis is a conspicuous object, by reason of the rich colours of the flower-heads. Among the number of hybrids raised by M. Marechal, the curator, is V. brachystachys, which will be a great addition to collections of these plants. A dozen immense well-grown Vriesias likely to make a great sensation in the horticultural world, include V. gigantea (V. Glaziovana), V. Reginae, and others not yet determined. All these have been raised from seed imported from Brazil by Wallis.

I have never seen a more beautiful Kentia rupicola than that which is one of the greatest ornaments of the Botanic Garden. Equally deserving of notice are the three enormous Rhapis aspera; as a plant of large size, a beautiful Ceratozamia mexicana may also be named.

When visiting Messrs. Jacob Maukoy & Co.'s Nursery, I saw a superior variety of Masdevallia Backhousiana, introduced from New Grenada. It resembles M. chimæra, but has longer hairs; the flower is as hairy as possible, which gives it a very curious appearance, and renders it a very distinct form in this great genus, the cultivation of which is much neglected in Belgium. I think this is owing to the wrong methods of cultivation which are adopted—plants are kept too warm, and do not get sufficient water. The collection of Araucarias comprises twenty of the more remarkable and rare species; for instance, A. Cunninghami var. glauca, from New Caledonia; the type, quite blue, has a pretty, fresh look, and is rare; A. Cooki pendula, a variety without comparison; and the none less rare A. Nieprascht.

A new Anthurium, not yet in commerce, but which will no doubt be well received, is Madame Ed. Pynaert; it is strong, and has grand foliage. The large flowers are of the same form as A. Andreanum, but the spathe is a fine white, delicately veined with light rose. The spadix is rose. This fine acquisition has received a Certificate at Ghent.

The recent Antwerp show was remarkable for the quantity of flowering plants shown. Orchids were, however, hardly represented. As specimen plants we should name Chorozema splendens, Pimelea spectabilis, P. ligustrina, Pandanus utilis, Begonia manicata, Clianthus puniceus, Solanum Warscewiczii, Pritchardia macrocarpa, and Phœnix rupicola. Very fine were the exhibits of the chief of the Antwerp amateurs, M. H. Vanderlinden who had Deutzia gracilis measuring over 6 feet in diameter, also Ledum palustre, Gaultheria acuminata, and Staphylea colchica. Many decorative floral groups, and more than forty flower pictures, in which Orchids and Pæonies figured prominently, formed a feature of the display.

In the collection of M. Metdepenningen, of Ghent, are two remarkable plants from an importation of Odontoglossum crispum, from Pacho. One of these has a branched spike, and is a puzzle. On looking at the flower you seem to have seen it in different degrees of colour, form, lip, &c., in the hybrids Wilckeanum, mulus, excellens, Shuttleworthi, aureum guttatum, sulphureum, &c. The second is like the former, of a good crispum type, with a mixture of yellow and red in the centre, and with extra heavy spots.

The Bruges horticultural show was a great success. M. Vincke-Dujardin sent a choice lot of Orchids, and M. Van Noten also sent a grand lot. Messrs. De Smet Brothers sent Anthuriums. M. Dumon de Marten had specimen Palms. M. L. Spae-vandermulen had a novelty in Kentia Dumoniana. *Ch. de B.*

INSECT PESTS.

How to Get Rid of Scale.—Dr. D. W. Coquillet, of Los Angeles, reports in the last number of *Insect Life*—which in this case ought to be called *Insect Death*—a means of destroying the scale that is so injurious to Orange trees. One oz. of dry potassium cyanide [poison] is mixed in a leaden pail with 1 fluid oz. of sulphuric acid and 2 fluid ozs. of water. A tent is placed over the tree, the cyanide is first placed in the leaden pail, then the water, and lastly the acid. A sack is thrown over the pail, and earth thrown on the edge of the tent, where it rests on the ground, to prevent the escape of the gas. The operator, of course, beats a retreat speedily from the interior of the tent, which is allowed to remain over the tree for a quarter of an hour, and is then ready for use upon another. The quantity of poison required varies, of course, with the height of the tree; but the proportions of the ingredients remain the same. For a tree of 18 feet in height, 15 oz. of cyanide, 30 of water, and 15 of acid, are required. It is the only method known by which scale insects on the fruit can be destroyed at one operation.

Clothes Moths.

Prof. Riley, in the last number of *Insect Life*, alludes to the three most common species, Tinea pellionella, T. tapetzella, and Tineola biselliella. A description and an account of the mode of life of each creature are given, as well as woodcut illustrations. The remedy suggested is, that in the latter part of May, all garments, furs, and other objects likely to be infested, should be thoroughly shaken and exposed to the light and air, and then subjected to a thorough spraying with benzine. The benzine spray should also be applied to all cracks in the floor, corners of dark cupboards, &c.; carriages unused in the winter should be similarly treated. As the vapour is very inflammable, care should be taken to avoid bringing any light into the rooms or near the garments until the smell has disappeared.

Arsenical Spraying.

It has been asserted that the spraying of fruit trees when in blossom will lead to the storage by bees of poisoned honey. Professor Riley, however, says that in the American States experience has shown that the judicious and cautious use of arsenical sprays in orchards "is attended only with benefit, and that the possible harm is reduced to such a minimum as almost to justify its being left out of consideration." We commented lately on the singular fact that while in Canada and in America "Paris green" and "London purple" were very largely used, yet in this country London purple, in spite of its name, was not known, and finds no place in the ordinary books of reference. Further inquiry elicited the fact that London purple was actually manufactured in this country as a bye product in the manufacture of aniline dyes (magenta), and exported largely to America, though, as we have said, unknown here. The repeated recommendations for its use made by such specially trustworthy authorities as Professors Riley, Saunders, and Fletcher induced us to enquire of the manufacturers the reason why a preparation of so much value when properly used and cautiously handled, and one so largely used in America, should not be procurable here. The reply was, that the quantities used here were so small that it did not pay to advertise, or bring the substance before the public. Fruit growers here ask to be supplied with a pound where their transatlantic brother asks for a hundredweight.

The Fluted Scale Insect.

In the twenty-first number of the *Bulletin of the United States Department of Agriculture*, Mr. Kœbele gives an account of his visit to Australia to investigate the natural enemies of the fluted scale, Icerya Purchasi, with a view to introduce them into California, where the scale is exceedingly destructive. Amongst other things, a lady-bird, Venalia cardinalis, was observed preying on the scale, and found to be a most effective agent in the destruction of the fluted scale. Steps were accordingly taken to introduce the beetle into California, and apparently with the best results.

Cockroaches.

Professor Riley, in *Insect Life*, recommends the use of insect powder (Pyrethrum), as the best and most efficient remedy. This should be puffed into all crevices in the floor and elsewhere. If this is done persistently and thoroughly, there is an end to the cockroaches.

The Root-Knot Disease.

The United States Department of Agriculture has published a valuable report of the root-knot disease, which affects the Peach and Orange in Florida. The report has been prepared under the direction of Mr. Riley by Dr. Neal, and is illustrated with twenty-one well-executed coloured plates. Dr. Neal's paper will have to be compared with the writings of Ritzema Bos, Beijerinck, and others who have studied these creatures in Europe, as Dr. Neal does not profess to be a specialist, and the literature of the subject was not accessible to him. Nevertheless, Dr. Neal has produced a valuable report.

The burning of affected plants on the ground is specially insisted on, allowing the land to remain fallow. A certain species of ant preys upon the worm. Alkaline manures (potash salts), are useful as promoting vegetation, but actual vermicides hitherto have, generally speaking, done more harm than good. The disease, unfortunately, is far from being unknown here, and it, or a very closely corresponding disorder, affects plants of very numerous natural orders.

COLONIAL NOTES.

In the Queensland Botanic Gardens, Rockhampton, which is under the Tropic of Capricorn, there are good plants of Vitis rupestris, Cissus monticola, and C. cordifolia, raised from seed sent by Baron von Mueller; they will most probably bear a few fruit next season. A plant of Strophanthus hispidus, raised from seed from the same source, is doing well. Two plants of tuberous-rooted Ipomea (Ipomœa calabra, see *Select Plants*) are planted out, and specimens will be forwarded as soon as they can be procured. The Adamsonia digitata does well here, it has stood well during two winters, and may now be looked on as a success. Bertholletia excelsa plants are very healthy, but appear to be of slow growth. The Livistona Mariæ must be a beautiful Palm, if its foliage keeps the colour it has at present (a beautiful rich copper). We have four plants doing well. Borassus flabelliformis appears to be quite at home here. Catalpa speciosa grow very rapidly, and will most probably turn out a good useful shade and timber tree. Lespedeza striata: I find this plant succeeds best if sown among the natural grasses in moist ground, in this way it it covers the ground well.

As a curiosity in the adaptability of plants, I may mention that last week we had Pine-apples and Apples gathered from the same bed, the Apples are small, but well flavoured.

A few days ago, a station owner out West told me there was a species of Ipomea (I. calabra, tuberous rooted) growing in the scrubs on his station used as food by the blacks; he describes the flowers as deep purple, and promised to have some of the tubers taken up, and sent down the first chance. We are having a grand season here. I would like you to see how things are growing with us at present. *J. S. Edgar, Rockhampton.*

Jamaica.

The last *Bulletin* of the botanical department contains articles on the culture of Coca (Erythroxylon Coca), and on the abandonment of Orange culture in the Azores, due to a disease ("gumming"), and to the unremunerative prices obtained by the growers. Other articles refer to the manufacture of Lemon essence in Sicily, and fruit-candying in Italy.

PLANTS AND THEIR CULTURE.

Bulbs, &c.—The bloom of hybrid Amaryllis will soon be over, and the bulbs should be put in a light position, a shelf or stage close to the glass in an intermediate-house being a suitable place for them. Amaryllis aulica is useful in the early months of the year, and it will give satisfaction if repotted annually in 6-inch pots. We grow at Syon a large number of this species on shelves in early vineries, and the plants do well when so treated, producing a large quantity of bloom. A. formosissima is another free-blooming variety to succeed A. aulica; it has flowers of a beautiful rich colour, which are very effective when cut for vases. It needs treatment similar to that given the first-named species.

Gloxinias are often so much shaded that they become drawn; they do better with less shade during sunshine, if they have become inured to it from the first; positions on shelves near the roof suit them well. Any repotting needed should be attended to, for if the plants are allowed to get too far into bloom before repotting, a check is given them. Young plants may be pricked off into small pots, and these plants will flower late in the autumn. Weak manure water is beneficial to Gloxinias when the pots are full of roots. We use Clay's Fertiliser once a week.

Gloriosas, as they fill their pots with roots, should be top-dressed with dry cow-dung, and kept trained on wires near to the light. The tubers of Achimenes to flower late should be started, and also a few pots of Gesneras, for early autumn flowering, and later, and these tubers should be selected from such as are just beginning to grow. The main lot should be started later when the flowering stove plants are over, as they then come in more acceptably. A large proportion of peat, a little loam, leaf soil, and coarse silver sand, make a suitable compost for these plants; and very little water must be given them before active growth begins, and they should not be syringed overhead. A shelf out of the reach of the daily syringings suits them best. Any of the Eucharis amazonica requiring shifting or dividing may be attended to. These plants do well in a compost of three parts turf loam, a small quantity of leaf soil, some charcoal broken small, and ½-inch bones. I put the bones directly above the crocks, and do not shift these plants often, but supply manurial food, and grow them on continually, and do not dry them off at all, and by following this plan I get flowers in quantity three times in a year. Hymenocallis and Pancratium should be repotted if this appears necessary. These plants are liable to be infested with red-spider and thrips, and should not be grown therefore in dry hot-houses; or the frequent washing and syringing of the undersides of the leaves be neglected. Hymenocallis macrostephana is a fine plant when well flowered, the very fragrant flowers lasting a long time. The plant needs similar treatment to Eucharis. Imantophyllums, now useful, should have weak liquid-manure frequently, which will induce the plants to throw up strong flower stalks, and give substance to the flowers. I. miniatum and I. splendens will produce a succession of spikes if well treated. The latter is the best for the purpose, as it produces a longer spike and larger blooms. They do well in Eucharis compost, and will remain much longer in bloom if removed to a cool and dry house. They do not require to be often shifted, but to have plenty of manure-water. Most of the species of Crinums should be growing freely. Much shading and all overpotting should be avoided; the compost advised for Eucharis will suit these plants. Plunge the pots whenever practicable in cocoa-fibre, or half-decayed leaves, giving plenty of water and liquid-manure. When they are growing, syringe them daily; but withhold water as they complete their growth, giving the tubers a thorough ripening. Vallota purpurea should also be growing freely. A place in a greenhouse, near the glass, to prevent drawing, suits them. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

East-Indian House.—Great care should be taken to keep this house at an even temperature, whatever may be the fluctuation in the temperature outside, variable degrees of warmth checking active growth readily. Shadings must be let down during bright sunshine, but run up again during cloudy intervals; a moderate amount of heat should be kept up in the hot-water pipes, and regulated as may be found necessary. The sooner the Phalænopsis plants are started into growth in the spring the better. In ventilating, do not give too much air by the top ventilators, but give rather more at the bottom if the shutters are placed over the hot-water pipes, thus preserving the balance of air and moisture.

Keep a look-out on all Aërides and Vandas which have been repotted, so that no shell snails or slugs make havoc with the young roots. Traps should be continually set for these; Potatos cut in halves, and hollowed out in the centre, make excellent traps not only for snails, but for wire-worms, centipedes, wood-lice, and others, the larvæ of which are introduced in sphagnum moss. Whatever traps are used, night searching with a lamp should not be neglected.

Calanthe Veitchii and C. vestita, if now showing young growths above the potting material, should, on the first fine sunny morning, be given a thorough soaking in warm water. This will last them for some time if the pots are syringed twice a day afterwards, the plants themselves not being syringed for some few weeks yet, otherwise the young growths will spot; if this occurs, they seldom do well, and always look badly for the rest of the year.

Odontoglossum Londesborroughianum, a beautiful Orchid that seldom does well, I find to grow satisfactorily if placed upon a raft, stood inside a large pot, peat and sphagnum moss being placed about the roots The plants should be placed close to the glass, and but little water afforded until roots are seen to be pushing forth. No water may lodge in the centre of the young growths of this plant. Cypripedium bellatulum is now throwing up its flowers, and the majority of the spikes are twin flowered; a little guano rubbed into the water will prove beneficial to these plants, and care should be taken to let as little as possible of this manure-water enter the heart of the plants, otherwise it will discolour them, but clear water may be poured with impunity over the plants when dry. The temperature should be as nearly as possible the same as that recommended in the last Calendar.

Cattleya-house.—The past winter seems to have been favourable to the ripening of Cattleyas, for seldom do I remember seeing them push so many flower-buds as is the case this season. C. Bowringiana should now be repotted; it is a strong rooter, and I find that it, like all the thin-rooted Cattleyas, clings firmly to the pot, so that big shifts should not be given it. But little water should be given repotted plants for a month afterwards—in fact, not until the roots are seen to be growing freely, when a good supply should be afforded. Shading for this house will now have become necessary at times. C. Gaskelliana, if now pushing up growth, should not be too liberally supplied with water before the leaves burst and show if the growths are sheathing, for big growths without flowers are very disappointing in any plant; but keeping on the dry side at the proper moment will usually ensure bloom. Keep the atmosphere of the house somewhat moist, yet buoyant, the bottom ventilators being seldom shut, unless while cold winds blow. The temperature may range from 65° at night to 80° by sunheat. *A. G. Catt, Parkfield, Worcester.*

Fruits Under Glass.

The Fruiting Pine House.—Continue to encourage the swelling up the pips by the maintenance of a high temperature, neither too arid nor too humid, but avoid any attempt to reduce warmth by admitting cold air in large quantities, as this always extracts the moisture from the air in the house, and distresses the plants; whereas insufficient ventilation causes drawing of the leaves and crowns, and indifferent flavour. The house should be damped down, and closed before the sun quite leaves it, and the warmth run up to 95°, and allowed to fall during the evening to 70°, some of the humidity escaping by a slight vent left at the top of the house. Whenever the sun shines warmly the top-heat should be shut off, and, if necessary, the bottom-heat valves opened, and *vice versâ*; at night-time and in cold or cloudy weather shading in the form of a double thickness of 1-inch mesh netting should be kept in readiness to use during bright sunshine. Plants selected for fruiting in January and February last which instead of showing fruit have made growth, seldom prove satisfactory, and although they may become of a very large size, usually produce small fruits. If any of the Black Prince type show bloom now, there is the greater certainty of securing good fruit, which will ripen well at base and top alike.

Succession Pines will be growing vigorously, and should have more and rather stronger manure-water, the syringe being plied amongst them moderately, and the walls, floors, and dry corners kept moist, but seeing that no water accumulates in the axils of the leaves. Let the bottom-heat be from 70° to 80°, ventilate freely, but avoid cold draughts. If the plants are not able to stand sunshine, and show bronzed or "cupped" leaves, give the plants a small amount of shade during bright sunshine.

Suckers on old stools and which are of a large size may be potted into 7-inch pots; and earlier potted ones, if found to be well-rooted, may be moved into fruiting pots, this being preferable to waiting until the general potting time comes round, and a better succession is secured. Keep stools which have broad leaves and have produced good-sized fruit for propagation purposes.

Melons, from the time the blooms are set until the swelling of the fruit ceases, should have plenty of water, and some manurial stimulant, as, if once checked, they are seldom satisfactory; but as soon as swelling has ceased, and during the brief period before colouring commences, water should be gradually withheld, and the atmospheric moisture reduced in quantity, so as to impart flavour, and avoid the cracking of the fruit. Should stem canker show itself, a little quick-lime rubbed in carefully will generally prevent any fatal termination to the malady. Cut the fruit as soon as the aroma is perceptible, and the foot-stalk parts slightly from the fruit. Plant out successions in firm soil consisting of turfy loam and road-scrapings; regulate laterals by thinning and stopping, and endeavour to secure the opening of six female flowers at the same time, and make use of nets or boards to support the fruit. Top-dress the hills with rough loam and bone-meal as may be required. Sow more seeds—Blenheim Orange is good for frames and houses, except for the earliest crop.

Cucumbers, spring-sown, and grown in houses or frames, will now be fruiting, and must be regularly thinned at short intervals, and the crop of young fruits reduced in number. Soot or weak guano-water, house-sewage, or liquid manure given alternately is of benefit, together with top-dressings of horse-droppings, turfy loam, and bone-meal, syringing heavily, but being careful to have the foliage dry by nightfall. Sow for succeeding crops both frame and ridge kinds. Rollison's Telegraph, if the strain be a good one, cannot be excelled as a frame variety. *W. Crump, Madresfield Court, Malvern.*

The Hardy Fruit Garden.

Raspberries.—Quarters of these fruits should be cleared of weeds, and dressed with soot. If the mulching was applied, as advised, the same should be raked to spread it well amongst the stools. If manure be plentiful, and the soil not rich, another dressing may be afforded it, for Raspberries cannot be grown well without an abundance of rich food and much moisture. The crop will, I think, be a heavy one this season, and will well repay extra attention afforded the plants. If slugs abound, it is a good plan to dust well all mulchings and shoots with fresh unslaked lime.

Currants and Gooseberries.—These look very promising, and all going well, the crop will be a heavy one; however, there are many pests to contend with before gathering-time. After danger from frost is passed, the most dreaded enemies are the caterpillars, of Nematus Ribesii, Gooseberry saw-fly; and Tenthredo grossulariæ, Currant sawfly. If clearing away 2 inches of soil round bushes affected by the creature last year, and burning the same, was not adopted, fork the soil lightly round them now, and apply some powdered lime, as these pests lie just underneath the surface.

Disbudding.—Timely disbudding and stopping of strong shoots in order to equalise growth in wall and other fruit trees, is an important operation, and should never be neglected. Much judgment is requisite to know how to disbud properly; and the operator must be guided by the kind of fruit tree, the form it is desired to take, soil, and climate. A safe rule to follow is to thin out the shoots, so that no one of them will overlay another; or, in other words, each shoot should have full exposure to light.

With Apricots which are growing strongly, and making a profusion of wood, persistent stopping of sub-laterals will prove conducive to fruitfulness. It matters little how long the new shoots made may be, if the side laterals are kept closely pinched in throughout the season—fruit-buds will form on their entire length. Maggots are frequently troublesome on these trees, and their presence may always be suspected when the leaves curl up; and on examination they will be found curled up in them; the only remedy, therefore, is hand-picking.

Protection.—Where branches of Spruce Fir, &c., have been employed for the protection of Apricots, Peaches, and Nectarines, care must be exercised that the branches are not placed so closely together as to exclude light and air, or great injury will be done. Usually the needles of Fir branches will drop after a little warm sunshine, but if this should not take place rapidly, some of the branches ought to be taken away from the wall; and as soon as the fruits are set, all the branches may be removed, but not all at once. Blinds on rollers or strips of Tiffany, hexagon netting, or other protecting material, must be continued to be employed, as a safeguard against morning frosts. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

Ply the Dutch hoe among Onions sown in March. If the Onion maggot is feared, early and frequent applications of fresh soot should be given when the tops are damp with dew, and the same will also serve as a fertiliser.

Potatos.—The tops of these, if peeping through the soil, should have a little fine soil drawn over them to prevent injury by frost, and when too large for this being done, some litter or bracken kept in readiness for the purpose should be laid over them when required. For supplying young tubers at a late period, some approved varieties of Kidneys should have their sprouts rubbed off, and be put in a cool place to be planted as may be required.

French Beans.—Some rows of the Ne Plus Ultra may now be sown either at the foot of a south wall, or on a warm well-sheltered border. Plant in shallow drills 18 inches apart, and from 6 to 8 inches from bean to bean. Some may also be forwarded in small pots, planting three beans in each pot, and give them cold-frame treatment for the present; these will produce some nice dishes ten days to a fortnight before those that are sown outside. It is somewhat too early to plant large breadths.

Tomatos.—Plants may be shifted into 32's, and assisted with a small amount of warmth, so that by planting out time they will have attained sufficient strength to at once commence fruiting. Pot the plants firmly, and tie each to a strong stick. For fruiting outside, I find the single stem plan the best; all side shoots being removed as fast as they appear.

Mushroom beds may now be made in sheds, or positions where the beds may be kept in darkness. The materials should not be allowed to heat till they become dry, but should be frequently turned till the rank steam and strong heat are dissipated, and then made up firmly; spawned when the warmth has declined to 98°, and cased over with adhesive loam. Beds in bearing will require more water than hitherto; rain-water at 85° is best. If possible, keep the warmth of the Mushroom house under 60°.

Seakale.—Planting must not be further delayed; cut the crown level of old plants which have yielded their crop for the season, and put a little coal ash or fine soil over each.

Capsicum plants may be pricked off, putting three plants in a 3-inch pot, and using sandy soil. Keep the plants on a shelf near the glass in heat, and shade slightly until established. In cold districts Capsicums are best when grown indoors, but strong forward plants will thrive very satisfactorily if properly hardened off when planted out in warmer districts. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, MAY 1—Linnean Society.

SHOWS.

TUESDAY, APRIL 29—Manchester Royal Botanical Society. Royal Aquarium, Westminster (two days).

SALES.

TUESDAY, APRIL 29—Orchids in Flower at Protheroe & Morris' Rooms.

WEDNESDAY, APRIL 30—Stove and Greenhouse Plants, Shrubs, Border Plants, &c., at Stevens' Rooms. Lilies, Greenhouse Plants, &c., at Protheroe & Morris' Rooms. Clearance of Greenhouse Plants, Glass Erections, &c., at the Eltham Nurseries, Eltham, by Protheroe & Morris.

THURSDAY, MAY 1—Orchids in Flower and Bud, at Stevens' Rooms.

FRIDAY, MAY 2—Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—50°.7.

The Horticultural Hall.

THE meeting of the Horticultural Trade, convened at the rooms of the Royal Horticultural Society on Tuesday last, was not so numerously attended as it might have been, but for all that it was hopeful and zealous. The Council was well represented, and among those present we noticed Messrs. Bull, Bunyard, Cannell, Cheal, Fraser, Lane, Noble, Prince, G. Paul, Pearson, Sherwood, Rivers, Sander, Williams. The business of the meeting was briefly introduced by the President, Sir TREVOR LAWRENCE, who then called on Baron VON SCHRÖDER to explain the scheme in detail. This he did in terms as lucid and straightforward as they were energetic. The Baron is an excellent speaker, evidently thoroughly in earnest, and if his arguments, statements of fact rather, do not convince the horticulturists of the soundness of the prospects, of the validity of the security, and of the duty of the trade to support the scheme, even in their own interests only, we do not know what will do so. The scheme has been lately published in our columns, so that we need not enter into full detail. It must suffice to say that lovers of horticulture are requested to lend (not to give) to Sir TREVOR LAWRENCE, Baron HENRY SCHRÖDER, and to EVERARD HAMBRO, Esq. (not to the Royal Horticultural Society), a sum of not less than £40,000, but as much more as possible. The interest of the greater part of the lump sum would be sufficient to secure the ground-rent for the site on the Embankment, and a portion of the capital would be expended in building a suitable Horticultural Institute, for the use of which the Royal Horticultural Society would pay rent, as they do now, for what the Baron contemptuously called a "Dust-bin."

Any of the minor organisations and special societies, the Lindley Library, the charitable societies, and other associations connected with horticulture, could be housed in the same building, a permanent exhibition of horticultural appliances, &c., held, and a rent obtained by letting the large rooms and basement when not required for horticultural purposes. The money would be paid back (without interest) in the form of bonds, and the faster the money comes in, the faster will the bonds be redeemed.

The security is beyond all doubt; all that the horticulturists are really asked to do is to sacrifice the interest on the sums they subscribe. Surely this is a very small matter by comparison to the immense advantages to horticulture generally, and the direct benefit of those who have business tact enough to avail themselves of the opportunities the proposed Institute would offer. The names of the first six gentlemen on the list, each of whom has promised to give £1000, should surely inspire sufficient confidence in the scheme. Here are the names in question: The Duke of Westminster, Lord Rothschild, Lord Revelstoke, Baron Henry Schröder, E. A. Hambro, Esq., J. S. Morgan, Esq. The President offers £250; Messrs. Veitch, collectively, £200; Messrs. Sander & Co., £200; Hurst & Sons, £200; Baron Erlanger, £250; Henry Tiarks, £200; Sir Edmund Loder, £200; Mr. Haywood, £100; Sutton & Sons, £100; B. S. Williams, £100; besides a large number of horticulturists of all grades and descriptions who contribute smaller sums. We cannot but think, after the meeting on Tuesday, that success will be achieved, and that the dream in which we have so often indulged will become a substantial reality.

The Royal Horticultural Society has, it is evident, turned the corner of its difficulties, and so far from "dying a disgraceful death in a dust-bin," is, if properly managed in the interests, not of fashion but of horticulture, once more on the high road to success. The Baron secured a point by his alliterative phrase above quoted, but it is quite clear that the horticulturists are not going to permit the Society to undergo disgraceful extinction. Thanks to the labours of the last two years, and the unwearied devotion of the officers, the Society has thrown off the dreadful slough which fettered its movements at South Kensington, and as it has been by far the most useful of our horticultural societies in the past, so it will, in the future, be more than ever the representative of national horticulture and all that that implies.

Reverting to the proceedings at the meeting, we may add that the first resolution, proposed by Mr. BULL, and seconded by Mr. BUNYARD, signified the cordial approval of the programme put forth by Baron SCHRÖDER, and pledged the members of the trade to do their utmost to carry it out. Mr. GEORGE PAUL, Mr. SHERWOOD, and Mr. BRUCE FINDLAY spoke in support of the scheme, the latter speaker emphasizing the fact that this is no mere metropolitan scheme, but a national one, and that the wider the basis the greater the chance of success.

The second resolution, proposed by Mr. HARRY WILLIAMS, and seconded by Mr. CHEAL, nominated a representative committee of the British nursery trade, to aid in carrying out the scheme, and which, for our part, we very earnestly press upon the attention of our readers, not in the interests of this Society, or that branch of commerce, but on the grounds of national utility.

THE VEITCH MEDALS.—It was a worthy innovation that the Trustees committed when, a year or two back, they decided to honour the gardener for his work in general, and not merely for his success in the contests of the Exhibition tent. Last year the Medal went to Mr. BARRON, this year to Mr. DAVID THOMSON and Mr. BRUCE FINDLAY. Could a better selection of representative men have been made? Will not those whom in future the Trustees think fit to select feel an additional honour in the remembrance of their predecessors? JAMES VEITCH, to perpetuate the memory of whom the medal was instituted, was a shrewd judge of men, and his selection of gardeners to fill important posts showed it. It is, therefore, appropriate that the Veitch Trustees should endeavour to carry out the same principle by awarding honour where honour is due. In their replies to the compliments paid them two things were specially striking. Mr. DAVID THOMSON spoke of the satisfaction he felt in having fulfilled his duty as a servant. Mr. FINDLAY in his turn spoke of the high aims of horticulture contributing to the necessities and pleasures of every individual, and at the same time as being of great national benefit.

RATING NURSERIES AND MARKET GARDENS.—In the Budget proposals of the Chancellor of the Exchequer, is one for defining trade machinery for rating purposes. Under this heading would probably be included such trade fixtures as hot-water boilers, greenhouse pits, &c. For a fuller exposition of the aims and character of the proposed measure, we refer our readers to an article by Mr. GOODCHILD, of the Nursery and Seed Trade Protection Society, p. 515.

THE DAFFODIL CONFERENCE.—We are glad to hear that the financial results were satisfactory, for while we recognise the importance of having a town house for show and business purposes, we can never forget that the highest and best work of the Society as a scientific institution must be done at and in connection with Chiswick. Chiswick, too, is the centre of an enormous population, a large proportion of whom ought to be supporters of the Society, and who should appreciate the advantages of the Society's garden.

HORTICULTURAL CLUB.—The usual monthly dinner took place at the Hotel "Windsor" on Tuesday last, when Dr. HOGG presided, Messrs. DAVID THOMSON and BRUCE FINDLAY being the guests of the Club. Among those present were Messrs. F. W. Burbidge, A. F. Barron, S. Barlow, C. M. Cowan, D. Thomson, Jr.; W. Bull, D. Morris, Rev. W. Wilks, P. Crowley, A. H. Pearson, H. Turner, G. Bunyard, G. Paul, S. Hibberd, A. J. Veitch, and the Rev. H. H. D'Ombrain.

LINNEAN SOCIETY.—A meeting was held on April 17, Mr. CARRUTHERS, F.R.S., President, in the chair. Messrs. E. C. GALPIN, T. JOHNSON, W. F. KIRBY, J. B. CARRUTHERS, and J. S. TURNER were elected Fellows. Lord ARTHUR RUSSELL, on behalf of the subscribers to a portrait of Sir JOSEPH DALTON HOOKER, which had been painted at their request by Mr. HUBERT HERKOMER, R.A., formally presented the portrait to the Society, and in a few words expressed the satisfaction which he was sure would be felt at the acquisition of the likeness of so dis-

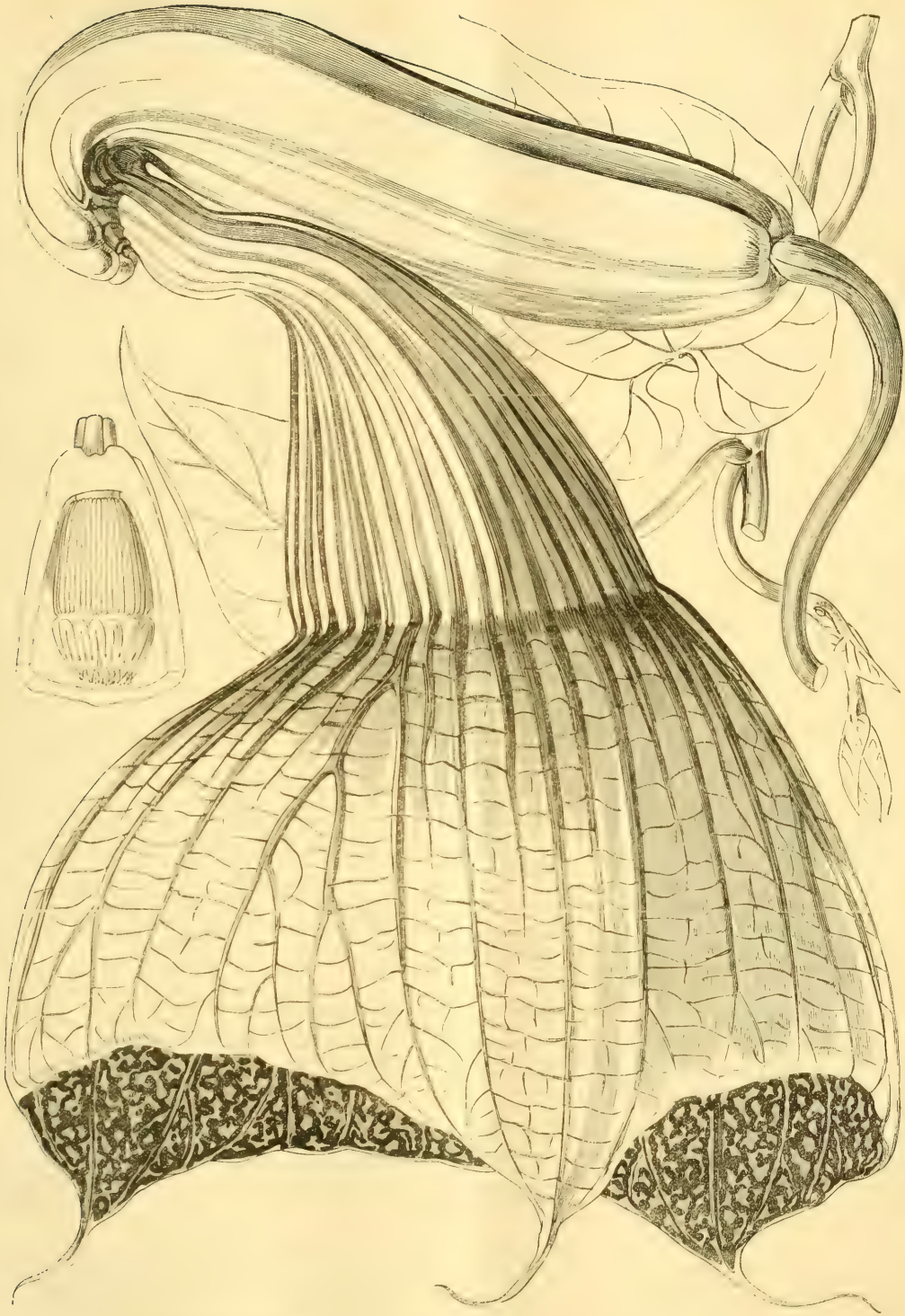


Fig. 83.—Aristolochia goldeana: flowers cream coloured, with purplish veins. (see p. 525.)

tinguished a botanist. It was announced that a photogravure of the portrait was in preparation, of which a copy would be presented when ready to every subscriber to the portrait fund. Dr. EDWARD FISCHER, of Zurich, exhibited and made remarks on certain species of Polyporia bearing a sclerotium possessing the structure of Pachyma cocos, but it was doubtful whether the Polyporia represented the fructification of the Pachyma, or was merely parasitic on it. Mr. GEORGE MURRAY expressed himself in favour of the latter view.

—— At the evening meeting to be held on May 1, 1890, at 8 P.M., the following papers will be read:—1, "Quantitative Examination of Water-meadow Herbage," by Professor W. FREAM, F.L.S.; 2, "On some Old World Species of Scorpion," by R. J. POCOCK.

WILDSMITH MEMORIAL.—The monies already received in aid of the above are as follow:—

	£	s.	d.
Amount previously acknowledged ...	91	9	6
John Noble, Esq. ...	2	2	0
Horticultural Club...	2	0	0
Friends (per Mr. C. Ilott)	1	4	0
Mr. and Mrs. Evans, and family ...	1	10	0
Collected by Miss E. Butler	1	10	0
Mrs. Quartermaine and friends ...	1	11	6
Torquay Horticultural Society ...	1	1	0
Mr. J. Ollerhead ...	1	1	0
Mr. E. Nichols ...	1	1	0
Mr. A. Outram ...	1	1	0
Miss F. Tate... ...	1	1	0
Mr. J. H. Rose ...	1	0	0
Mr. T. Jones	1	0	0
Mr. B Cromwell ...	1	0	0
Mr. W. J. Novell ...	0	10	6
Charles Turner, Esq.	0	10	6
Mr. J. George ...	0	10	6
Mr. C. Ross	0	10	6
Captain Tucker ...	0	10	0
Mr. C. Denning ...	0	10	0
Two Friends (per Mr. G. Stanton) ...	0	10	0
Mr. J. Davidson ...	0	10	0
J. Omer Cooper, Esq.	0	10	0
Mr. A. Blazey ...	0	10	0
Mr. G. Seymour ...	0	10	0
Miss Fate	0	10	0
Bournemouth Gardeners' Association	0	10	0
Mr. J. Moffatt ...	0	10	0
Mr. E. Butts ...	0	10	0
T. Francis Rivers, Esq.	0	10	0
Alfred Palmer, Esq.	2	2	0
Mrs. R. Cook ...	1	0	0
R. Benyon, Esq., J.P.	1	0	0
The Misses Newen (per Mr. J. Bowly)	1	0	0
Messrs. Lane & Son, Berkhamstead ...	1	1	0
Messrs. W. Thomson & Son	1	0	0
Miss Marson ...	1	0	0
Mr. J. Crook... ...	0	10	0
Mr. T. Weaver ...	0	10	0
Mr. J. Bowerman ...	0	10	0
Mr. H. Swansborough	0	10	0
Mr. W. Chown ...	0	10	0
Amounts under 10s..	5	6	6
	£133	13	6

HAMS HALL.—Too often have we had to lament the destruction of country seats owing to the absence of adequate precaution. We do not know whether the destruction of Lord NORTON'S place is attributable to any such lack. It is fortunate that the library is rescued. The building itself was not remarkable.

FRUIT AT THE ANTIPODES.—We read in the *Maitland Mercury* for February 18 this year, that the fruit production of the Singleton district is assuming very large proportions. At the Farmers' Union sales, held every Tuesday, immense quantities of Grapes, Apples, Pears, Quinces, Tomatos, Melons, &c., are sold to numerous buyers who now attend the auction sales regularly from Sydney, Newcastle, Branxton, Muswellbrook, Scone, and other northern towns as far as Armidale. Grapes form the principal item in February, and splendid fruit was sold as low as one halfpenny per lb. at that period.

A NEW VARIETY OF BROCCOLI.—Messrs. HURST & SON, Houndsditch, London, send for our inspection an immense head of Broccoli which has a perfectly firm curd of creamy-white, measuring 32 inches in circumference. The heart-leaves are sufficiently large to protect the large head from discoloration by sun or frost. Mr. B. Hartland, Temple Hill, Cork, is the raiser.

TREE PÆONIES AT MR. WM. GORDON'S.—At the Fullwell branch of the Nurseries of Mr. WM. GORDON, of Twickenham, and which is largely devoted to plants imported from Japan, Tree Pæonies have been in great beauty for the past ten days. At present many are in bloom there, some of the flowers are of an extraordinary size, and some delightfully fragrant. As seen, the following would make a good selection:—Snowball, a fine white; Flag of Truce, semi-double white; Lady Lottie, white, shaded yellow; Spring, white, with violet centre; Prince Albert, maroon, semi-double; Lady Dora, bright pink; Lord Randolph, bright pink, flaked white; Dr. Gordon, immense single rose-pink; Lady Doble, white, flaked rose; Venus, single white. There is also to be found at the nursery a curiously dwarfed Japanese Cherry tree in bloom, and a good houseful of Lilies.

ANEMONES.—Among the Daffodils at Chiswick last week, and forming a marked contrast to them, were some varieties of Anemone coronaria, exhibited by Mr. GILBERT, of a very high degree of excellence. The form was regular enough to please a florist, the colour a particularly rich luminous scarlet. The stamens are a deep violet colour, the filaments slender and expanding into a lanceolate blade, with recurved margins, this blade, of course, representing the anthers. The pistils are represented by a regularly disposed tuft of many rows of linear obtuse spreading petals double the length of the stamens, and completely concealing them.

SPRING IS COMING.—We can testify to the fact, as having been privileged to hear the cuckoo in Richmond Park on the 16th, and to see a swallow in the same locality on the 22nd.

FLOWERS AT STANMORE HALL.—In the lofty Orangery and Camellia-house which stands in this fine garden at Stanmore, now the property of W. K. D'ARCY, Esq., the gardener, Mr. WM. TIDY, has made good use of the pillars and roof to secure an almost endless supply of Roses, and also a large quantity of Grapes of good quality; some seasons as many as 400 bunches being got from this house alone. On the iron pillars and roof are profusely flowered Roses; Lamarcke, Niphetos, and others having already given fine supplies of bloom which will be continued throughout the season. A noteworthy feature is the profusion of bloom on the hybrid perpetuals trained to the pillars, the old Cabbage Rose la Reine being one of the most beautiful and prolific. The body of the house is occupied by large Orange, Camellia, and Rhododendron trees, one specimen of the beautiful white R. Gibsoni having hundreds of blooms, and smaller ones raised by Mr. TIDY from seeds of the large specimen, are very pretty objects. A Chamærops Fortunei some 20 feet high, occupies the centre under the dome, and at the back is a marble bay very tastefully arranged with white Arums and Ferns. Among the plants in the house are specimens of many interesting Ferns and flowering plants, by no means common. Libertia ixioides is very well flowered, and a gigantic standard Cactus, furnished with hundreds of buds, will shortly be a splendid sight. In the lesser plant-houses the Azaleas are good, the Eucharis and the double Cinerarias excellent; and the Primulas and other flowering plants of the season show the skill of a master hand. Among the few Orchids to be found here are some highly developed plants of Cypripedium barbatum grandiflorum in bloom.

NEPENTHES.—An interesting article by Mr. GEORGE TRUFFAUT, on the hybridisation of these plants, is given in the *Revue de l'horticulture Belge*, April 1. It contains a list of the hybrids obtained up to this time, with an indication of their parentage and of their raisers.

"JOURNAL DES ORCHIDEES."—In the second number of this periodical, the use of shreds of tobacco-paper thrown on the hot water-pipes of the Orchid-houses is recommended. The effect is continuous without the disadvantages of fumigation. Another article is devoted to the potting of Orchids, and one to the culture of Orchids for market.

TURNIP-TOPS.—A farmer at Bury St. Edmunds has lately published his experiences of Turnip-tops, which are as striking as they are instructive:—Last month he sent 150 bags of "Tops," each weighing 60 lb. to 70 lb., to the Borough Market, and they sold for 1*s.* 3*d.* each: total, £9 7*s.* 6*d.*; of this sum the middleman appropriated £3 2*s.* 6*d.*, or at the rate of, say, 33 per cent., for "commission," while £2 12*s.* 4*d.* was swallowed up for carriage, including 2*s.* for empties, leaving £3 12*s.* 8*d.* Next he forwarded 70 bags to Stratford Market, which brought £2 14*s.* 3*d.*; for this transaction the middleman extorted £1 3*s.* 4*d.*, or nearly 50 per cent., the carriage being 19*s.* 11*d.*, leaving 11*s.* For the 220 bags of Tops, therefore, the farmer received cheques for £4 3*s.* 8*d.*, against which was the set-off of 3*d.* per bag for gathering, and 20*s.* for carting and other labour; net result, 8*s.* 8*d.*

A NEW FLORA OF WARWICKSHIRE.—It is many years since PERRY'S *Plantæ Varvicenses Selectæ* was published, and meanwhile botanical science has made great advances, and immense changes have taken place in nomenclature and the subdivision of species. It has long been obvious that a new county flora is a book to be desired. Quietly, perseveringly, and effectually, for something like a quarter of a century, one of the best, probably the very best, systematic botanist born in Warwickshire, Mr. JAMES E. BAGNALL, of Birmingham, Associate of the Linnean Society, has been collecting materials for a full and reliable account of the flowering plants, Ferns, and Mosses of his native county, and these have been, with great care and labour, duly arranged and systematised, and are now ready to be handed to the printer. Mr. BAGNALL'S *Flora* will include about 1000 more species and varieties of plants than were recorded by PERRY, and will make a volume of about 500 pages, demy 8vo, set in brevier, and be indeed the first complete *Flora of Warwickshire* ever published. The plan pursued by the author is to divide the county into ten districts, based on the river drainage. Each of the rivers is traced in its course through Warwickshire; the district watered by it is described—including an account of its physical and geological features—and the more special plants enumerated. The status and distribution of each plant is given, those which are local and rare being traced through each district in which they occur; the synonyms of the older botanists are quoted, together with habitats, times of flowering, &c. There is also a summary of the geographical distribution of each plant, with lists showing their occurrence in the neighbouring counties of Leicester, Oxford, and Northampton. The work of all former botanists down to date will be fully used, and, judging by some portions of the book which we have been privileged to see, we have no hesitation in saying this new work will be the standard *Flora of Warwickshire*. The geology of the county will be described by Mr. A. BERNARD BADGER, B.A., BURDETT-COUTTS Scholar, Oxford. The book will be published by subscription, price 12*s.* 6*d.* per copy, and will be limited to 500 copies, each of which will be numbered and signed. Intending subscribers should forward their names to Mr. J. E. BAGNALL, A.L.S., 84, Witton Road, Aston, Birmingham.

"THE TROPICAL AGRICULTURIST," published in Ceylon by Messrs. FERGUSON, of Colombo, monthly, comprises a series of extracts and original articles relating to economic botany and cultivation, of great use to growers in hot countries. A monthly supplement is now added, consisting of articles on the elements of vegetable physiology, economic entomology, and other subjects likely to be of service to agriculturists.

CYCLAMEN EUROPÆUM.—According to a paragraph which is going the round of the Press, "the Prefect of Savoy" has prohibited the gathering of Cyclamen in the woods of his department. It would be well if the lords-lieutenants of counties had similar power here to ensure the preservation of Ferns and Primroses.

ROYAL COLLEGE OF SCIENCE, DUBLIN.—Mr. THOMAS JOHNSON, Demonstrator in Botany at the Normal School of Science, South Kensington, has been appointed Professor of Botany at the Royal College of Science, Dublin, in place of the late Dr. MCNAB.

Ghent Chambre Syndicale.—At a meeting held on April 7, First-class Certificates were awarded to Pandanus Trojanowski, from M. A. Van Geert; to Azalea indica Mdlle. Louise Cuvelier, from M. J. De Kneef; to Euonymus japonicus microphyllus variegatus, from M. A. Dallière; to Pandanus glaucus, from M. Spae-Vander Meulen; to Epidendrum Wallisi, from M. A. Van Imschoot; to Genista Andreana, from M. Ad. D'Haene; to Odontoglossum species, O. triumphans, Cattleya Mendelii var., and C. Warcewiczi var., from M. Jules Hye.

Presentation to Mr. R. Dean.—At the beginning of the present year Mr. R. Dean resigned the office of Hon. Secretary to the Ealing, Acton, and Hanwell Horticultural Society, which he had held for a period of fourteen years. In order that some suitable recognition of Mr. Dean's services to the Society during the past nineteen years should be made, a Committee was formed to obtain subscriptions, so that an appropriate present should be given to him, with the result, that on the evening of the 22nd inst., a number of subscribers to the fund met at the London and County Bank, and Mr. Robert Willey, on their behalf, presented Mr. Dean with a gold keyless English lever watch, by Benson, of the value of £20, and Mr. G. F. Nixon a purse of sovereigns, both gentlemen bearing testimony to Mr. Dean's services to the Society. A suitable acknowledgment was made, and the proceedings closed with a hearty vote of thanks to the Committee.

Anemones.—Some beautiful St. Bridgid Anemones, large, and varied in colour, and showing extraordinary vigour, reach us from "St. Bridgid's" Irish garden.

Biographical Index of British and Irish Botanists.—From the *Journal of Botany* for April, 1890, we transcribe the following names from the "Biographical Index of British and Irish Botanists," compiled by James Britten, F.L.S., and G. S. Boulger, F.L.S.:—

"Ordayno, Thomas (fl. 1807). Nurseryman of Newark. 'Flora Nottinghamiensis," 1807. Pritz. 237; Jacks. 388.

"Page, William Bridgewater (fl. 1817). Nurseryman of Southampton. 'Prodromus of Pl. in Southampton Bot. Gard.,' 1817. Pritz. 239; Jacks' 415."

"Parkinson, John (1567–1650): b. Nottingham (?), 1567; d. London, Aug., 1650; bur. St. Martin's-in-the-Fields. Apothecary. King's Herbalist ('Botanicus Regius Primarius'). 'Paradisus Terrestris,' 1629; 'Theatrum Botanicum,' 1640. Had a garden in Long Acre. 'Theatrum,' 699. Pult., i., 138; Rees; Pritz., 240; Jacks., 389; Loudon, 'Arboretum,' 49, 53; Journ. Hort., xxviii., 1875, 493, with portr. Portr. by C. Switzer in 'Paradisus;' and one by W. Marshall in 'Theatrum;' re-engraved in Richardson's Illustr. to Granger. *Parkinsonia*, L.

"Parnell, Richard (d. 1882); b. Devonshire; d. Edinburgh, 1882. Ichthyologist. M.D., F.R.S.E. Orig. Memb. Bot. Soc. Edin., 1836. Lived in Jamaica, 1839. 'Grasses of Scotland,' 1842; 'Grasses of Britain,' 1845, both with figs.; drawn and engraved by himself. Pritz., 241; Jacks., 589; Journ. Bot., 1883, 30; R. S. C., iv., 763. Herbarium of Grasses at Linn. Soc. *Poa Parnellii*, Bab.

"Parry, Charles Christopher (1823–1890) b. Admington, Worcestershire, 28th Aug., 1823; d. Davenport, Iowa, 28th Feb., 1890. Went to America, 1832. M.D., Botanical explorer and collector. On Mexican Boundary Survey, 1850; in Rocky Mountains, 1861. Botanist to Agric. Dept. Washington, 1869–71. 'Chorizanthe,' 1884, 1889, and various botanical papers. Friend of Torrey and Gray. Herb. at Devonport Acad. Nat. Sciences. Jacks., 589; R. S. C., iv., 767; viii., 565; 'Garden and Forest,' iii., 120; Bull, Torrey Bot. Club, March, 1890. *Pinus Parryana*, Engelm.

"Patton, George (1803—1869): b. 1803; d. Glenalmond, Perth, 30th Sept., 1869. Lord Justice Clerk of Scotland, 1867, as Lord Glenalmond. Chairman, Oregon Bot. Assoc. Introduced *Cupressus Lawsoniana* and *Abies Pattoniana*, Gard. Chron., 1869, p. 1043."

"Paxton, Sir Joseph (1803–1865); b. Milton Bryant, Beds., 3rd Aug., 1803; d. Sydenham, 8th June, 1865. F.L.S., 1833. Foreman, Chiswick Arboretum, 1824. Superintendent, Chatsworth, 1826. 'Magazine of Bot.,' 1834. Travelled through S. Europe and Levant, 1838. 'Pocket Bot. Dictionary,' 1840. Knighted, 1851. M.P. for Coventry 1854. Pritz. 242; Jacks, 590; Proc. Linn. Soc. 1865-6, lxxxi.; Gard. Chron., 1865, 554; Journ. Hort. viii. (1865). 446, with portr.; and ix., 12. Journ. Bot., 1865, 231. *Paxtonia*, Lindl.

"Pearce, Richard (d. 1868): d. Panama, 19th July, 1868. Of Stoke, Devonport. Collector for Messrs. Veitch & Bull. Plants at Kew and Brit. Mus. Journ. Bot. 1868, 320; Gard. Chron., 1868, 874, 893; Journ. Bot., xv. (1868), 134. *Streptacanthus Pearcei*, Hook. f.

"Penny, George (d. 1838 or 1839). Nurseryman. Of Epsom, Surrey. A.L.S., 1829. 'Hortus Epsomensis.' Proc. Linn. Soc., i., 36."

PLANT PORTRAITS.

Anthurium Scherzerianum var. maximum album, *Lindenia*, t. 100.—Sufficiently described by its name.

Begonia Adonis, *Revue Horticole*, April 1.—A hybrid between John Heale and a tuberous-rooted variety.

Chlanthus Dampieri var. marginatus, *Garden*, March 29, 1890.

Cœlogyne cristata, *Revue de l'Horticulture Belge*, April.

Cypripedium Ashburtoniæ superbum ×, *Orchid Album*, t. 400.—A cross between the var. superbum of C. barbatum and C. insigne.

Cypripedium nitens ×.—A cross between C. insigne var. Maulei and C. villosum, *Lindenia*, t. 223.

Lælia pumila and L. pumila var. Dayana, *Gardeners*, April 1.

Lepismium dissimile (Cactaceæ), *Gartenflora*, March 15.

Odontoglossum Boddaertianum, *Lindenia*, t. 234.

Odontoglossum luteo purpureum var. sceptrum, sub var. Masereelianum, *L'Illustration Horticole*, t. 99.—A form like O. l.-p. sceptrum, but without any purple spots.

Oncidium auriosum, *Lindenia*, t. 221.

Scuttellaria costaricana, *Revue de l'Horticulture Belge*, April 1.—Flowers deep orange, with a yellow lip.

Strawberry The Bunach, *Canadian Horticulturist*, March.

HOME CORRESPONDENCE.

The Japanese Anemones.—A few years ago I went into a large nursery near London, and saw several large beds of the varieties of Anemone japonica, and I was then told there was no sale for it. These useful Anemones, like some other things, have had to pass through a season of comparative neglect; but there are indications that it is again being sought after. For massing it would be difficult to name another free-growing hardy perennial, and it is not at all fastidious as to position or soil. As far as my own experience goes, it appears to do better in a stiff cold clayey soil on a north aspect rather than in a lighter soil and warmer position on a southern one. Therefore it is, it can be recommended for planting in out-of-the-way spots, for it does not mind being under trees and in the shade. But to see either of the forms at their best, clumps should find a place in the herbaceous border, and be well cultivated. One of the pleasing evidences of our system of modern gardening is not only the growing popularity of hardy perennials, but also the fact that they are better cultivated than they used to be. The Japanese Anemones die down late in the autumn, and, save for the decaying flower-stems, the plants are almost hidden from view. It is then a good mulching of leaves and manure should be given them, after previously slightly forking over the surface. It is of no matter that a few small root-growths are disturbed, as the plants send down strong tap-roots deep into the soil, as any one can ascertain by attempting to dig up a well-established clump. Such a mulching is of immense benefit to the plants, and fine flowers reward the cultivator; and as it is a plant that draws largely upon the resources of the soil, this mulching should be applied annually. The Japanese Anemone appears to be highly sensitive in the matter of existence; the smallest rootlet almost will make a plant, and in a short time a big clump is formed. The species does not, to my mind, receive the attention it deserves; the flowers are large, handsome, and deep coloured, and it is of dwarfer growth than the rose-coloured or white forms. It does for an edging to beds of the latter, and my experience of it is that it is also more persistent in a cut state. The flowers of all are borne on long stems, and they are well adapted for vase decoration and other uses. *R. D.*

Rapid Apple-stock Budding.—Mr. Arthur Wm. Edwards' record, in your last issue, of Apple-stock budding at the Stamford Nurseries is very interesting to all practical budders and grafters, and would be more explicit if the length of the day occupied in the work was specified. At day-work ten hours is the recognised time, but when men are at piece-work they often extend it one or two hours. Mr. Edwards does not specify whether A. Hagger collected his own buds, or whether they were carried to him where he was at work, nor does he state whether he tied in his buds, or was assisted by a tyer. These are details in the process of grafting which need be specified before a definite decision can be arrived at as to the speed of the operator. A good budder or grafter should be able, with the assistance of prepared buds, or grafts, and a tyer, to place 180 buds, or grafts, in an hour. This may appear—and is—fast work, but there are many expert hands who can accomplish it. I witnessed a workman's skill in this respect this grafting season, and he placed 100 grafts in thirty minutes. The success of the buds, or grafts, depends upon the health and good condition of the stocks, which should always be a little more advanced in growth than the scion, care and attention being paid to the sharpness of the knife used, and to placing the scions so that the bark of both should meet on one or both sides. To bud or to graft there are three or four distinct cuts to be made in different directions, so that Mr. Hagger deserves much credit, even if he had assistance; but if he performed the whole of the operation single-handed, he deserves to be classed with Henderson's (of New York) Irishman, who is reputed to have potted 11,000 plants in one day. *An Old Grafter.*

Tomato Seed.—In answer to your correspondent, "A. D.," I venture to offer my experience upon this subject. A Tomato ripened out-of-doors gives a larger quantity of fertile seeds than a fruit of the same variety perfects under glass, but the plants raised from it do not come so true as those from house-grown seed; more, however, depends upon the variety than anything else. My Conference seed was ripened under glass, and every seed appeared to come up readily. It was the same with Prelude, one of its parents, Tennis-ball, Nesbitt's Victoria, and Chemin, whilst seed saved from indoor and outdoor specimens of Perfection have, in each case, germinated slowly, or not at all, and the plants grow unequally. My Ham Green Favourite seed has not germinated so well this spring as it did the last; and it is the same with Dedham Favourite, Blenheim Orange, and Orange Queen. There is a tendency in all the best Tomatos to become seedless, and many of the seeds are merely rudimentary. The Blenheim Orange Tomato, which is of very superior quality, furnished me with very few fertile seeds. The Conference Tomato is a good early variety, and bears abundantly. It is well suited for pot-culture. *W. R., Streatham Hill.*

The Promise of the Plum Crop.—As I look out from my working table southwards, there comes into the line of sight a plantation of some 400 fine young standard trees of Victoria Plums, literally loaded with blossom, and promising an abundant crop. An examination of the flowers shows they are

large, finely developed, and the prophesy of fruitfulness appears to be written large upon the snowy petals. Alas! there is no knowing what fierce trials the crop will have to pass through ere the closing days of May come round. Twice in a year these Victoria Plums put on this apparel of snowy whiteness, viz., now, at the period of flowering, and again in winter, when the soft fleecy snow falls upon the branches, and robes them in a dress of feathery whiteness. Last year these trees flowered fairly abundantly, but bore very little fruit—not so much, apparently, because the frost destroyed the promise of a crop, but because there seemed to be a weakness in the blossoms which did not result in fruit-production. I have not seen the standard Green Gage Plums in this part of the country producing such an amplitude of blossoms as they do this season; the branches are literally wreathed with white flowers. This is true also of the old Orleans. Large trees of Prince of Wales and Pond's Seedling are also profuse of bloom; and so, should the elements be merciful, a really good crop of Plums may be looked for; but cold storms of rain and hail by day, with frosts by night, are not of a nature to re-assure the apprehensive fruit cultivator. He may exclaim, with fervour, "Oh! that the elements would be merciful!" but inexorable laws appear to be destitute of bowels of compassion, and the appeal is made in vain. *R. D.*

CANFORD MANOR GARDENS.—When walking over Lord Wimborne's extensive gardens a few days ago with Mr. T. H. Crasp, the head gardener, many things of interest were noticed, and more than a few improvements which have lately been carried out. The terrace beds, which were formerly too flat, have been raised, and just before the visit of H.R.H. the Prince of Wales, they had been very tastefully planted with a selection of dwarf Conifers, Vincas, &c., the golden, red, and varied tints of foliage showing up with a very pleasing effect. With the beds so well furnished, the grass just taking on its spring-like greenness, and the gravel paths in a clean and hard condition, the terrace, and, indeed, the whole surroundings, at Canford, really looked charming on the afternoon of my visit. I may mention that there are some very fine specimens of Conifers on the lawns at Canford. The glasshouses have lately been repaired and re-painted, and look nice and clean, and the condition of the occupants proves Mr. Crasp has accomplished much good work during the short time that he has had the entire management of the garden. A house of pot Roses was furnishing plenty of cut bloom, and the Calanthes, which have a house almost to themselves, were very promising. In the front range of glass, several changes are contemplated, and, among others, the Fig is to be more extensively grown. The Peach trees were well furnished with fruit, and the Vines looked promising. With the exception of Orchids, Canford is a fully representative garden, but these are being worked up, and much attention is paid to the Orchids already there. *Visitor.*

FUNGUS FOUND ON NASTURTIUM.—The enclosed fungus I do not remember to have seen before, or anything like it in colour. It was growing on the stem of a Nasturtium speciosum, about half an inch from the soil in the vinery. *D. D.* [The name of the fungus is Agaricus æruginosus; it is not uncommon. The blue-green colour of the cap is not very common amongst fungi. This fungus grows on the ground, and it must have got "half an inch" out of the soil and on to the Nasturtium stem by some accident; the fungus is very glutinous when young, and will stick to anything. *W. G. S.*]

RAILWAY CHARGES FOR VEGETABLES FROM CORK TO LONDON.—Does market gardening in Ireland pay? According to my experience it does not. This day I sent three heads of Broccoli, packed in a basket to London *viâ* North Wall, and for which I paid charges to the amount of 5*s*. This seems to be an enormous price to pay for the carriage of so small a package of vegetables. I am sure that the quantity put into the basket could easily be partaken of by three ordinary diners. *Wm. Baylor Hartland, Ard-Cavin, Cork.*

LITTERING DOWN THE STRAWBERRY BEDS.—This kind of protection and manuring combined is very generally left till it is too late for the plants to have the full benefit of the operation, as when the straw or litter is not put on early, much of the moisture has evaporated, and instead of surface-roots being plentiful they have not put forth, or if they have, it has been only in a small degree, and it naturally follows that the flower-spikes are weaker and the fruit smaller than when mulching has been early. To obviate these evils, the beds should be lightly hoed at once, to kill weeds, and as soon as that is done, it is a good plan to give a sprinkling of mixed soot and lime, which checks or destroys slugs, and then the beds should be strawed down; the rains will cleanse it, and the moisture will be retained instead of being evaporated. Not only is much benefit derived by early littering, but at this season the work may now be done in much less time than when the foliage is larger, or the plants in flower. *J. S.*

WALLFLOWERS.—Except when unusually severe weather has cut up the blood-red Wallflower severely, I have never seen them blooming in worse form than this year. It is somewhat odd that, whilst yellows should seem impervious to the cold, the reds have done so badly. The best preparation for an early and abundant supply of good market bloom, is found in a warm, dry autumn. The greater portion of the autumn of last year was unsettled and moist, so that the growth was neither stout nor firm. Possibly the very sharp frosts which took place before Christmas last did injure the shoots somewhat, because following so closely upon the dull autumn. In any case, during the winter and spring the bloom yield has been comparatively poor, and devoid of the customary rich colour; the petals small and irregular, the spikes badly developed. In this district, where Wallflowers, to afford market flowers, are grown by almost hundreds of acres, the nature of the bloom, and especially its earliness, are matters of the first importance. The plants are usually put out in June, and in well-manured soil; that given, a good season, they make big clumps before the winter arrives. The object of the grower is to secure early winter bloom as a dibbling bloom, although the winter pays better than does a glut in the spring. All the same, very early got out plants are likely to suffer more from frost than are later planted ones. Whilst there seems to be but one variety of the dark red Wallflower, though known under diverse names, there is greater variety amongst yellows, but these are not at all popular as market Wallflowers; generally they do not bloom so early as the dark red, which seems to have been educated in precocity. The tallest yellow is one oddly enough named Golden Tom Thumb, but it grows some 12 inches in height; it is a fine variety for cutting from. Then comes Bedfont Yellow, dwarf, compact, rich orange-yellow in colour; a continental yellow, often sold as Belvoir Yellow, but it is too tall, and the true Belvoir Yellow, which should, when in bloom, not exceed 9 inches in height. *A. D.*

THINNING OF VEGETABLE CROPS.—Advantage should always be taken of showery weather to thin all kinds of sown vegetables as soon as the seedlings are large enough to draw, and it is better to do this necessary operation twice, the first time thinning out the seedlings to 3 or 4 inches in the rows, and subsequently drawing every other plant or more, if very fine specimens are desired; however, 3 inches will be enough space to allow between Onion plants in the row, for bulbs for ordinary kitchen use. In thinning the crops of Carrots, Onions, Parsnips, &c., vacant spaces in the rows should be made good by transplantation of the young plants to the same depth in the ground as they were before; and in the case of Onions, cutting back the straggling roots to within 1 inch of the bulb before doing so. Beetroot will also transplant well, but in this case the roots of the individual plants should be planted without any mutilation, and care taken not to bend them in planting. *H. W. W.*

ANEMONE FULGENS.—Mr. Tomkins says, on p. 493, "Cultivated roots cannot be depended upon after the second year." If it were possible for him to give me a call, I could soon prove this to be a fallacy as regards this part of the country. In the gardens of T. H. Burroughes, Esq., at Ketton Cottage, near here, may be seen a very fine collection of the different varieties, some of them in very large quantities. On a bright sunny day, when the flowers are open, they are a splendid sight, and I know of no other hardy spring flowering plant that would give results half as good so early in the season; flowers having been gathered ever since last December. Mr. Burroughes has three distinct colours—crimson-purple, salmon, and scarlet—in quantity, and other shades in smaller numbers; some very fine double varieties; also the beautiful deep scarlet single variety called græca. In Mr. Wolley Dod's communication, p. 424, this is described as "hardly surviving a cold season;" there is no doubt as to its hardiness here, however, and this is one of the coldest places in the country. All the varieties, however, do well in Mr. Burroughes' hands, and not only in the gardens, for by far the greater quantity is grown in what was until very recently an arable field. They are planted on the side that is sheltered from the north and north-east winds, and are fully exposed to the sun. Very little preparation is made for them beyond a dressing of burnt earth to keep the soil open and porous, and a little manure to make amends for the poverty of the soil, which is a stiffish loam full of small pieces of limestone, and it is naturally wet and cold in winter, and the exact reverse in summer. Mr. Burroughes has grown some of his roots for several years, and does not find that their flowering qualities deteriorate, but on the contrary the plants gain strength. As seen as I saw them to-day (April 19) from a distance, they look almost like a patch of scarlet Poppies in full summer. Small bunches of some of the most distinct varieties in this collection were exhibited in the vinery at Chiswick, on the occasion of the Daffodil Conference, and if some bunches had been placed among the Daffodils, they would have afforded a great contrast of colour and relief to the eye, showing off the Daffodils to greater advantage. *W. H. Divers, The Gardens, Ketton Hall, Stamford.*

PRICKING OFF SEEDLINGS.—Those gardeners who do not prick off young plants of various kinds of vegetables usually sow the seeds thinly in drills or broadcast, so that crowding before planting out is obviated. On the contrary, where pricking out is adopted, the plants should be pricked out before they become crowded in the beds. By so doing, sturdy plants produce satisfactory crops in due time. As soon as the seedlings of Cabbage, Cauliflower, Broccoli, Kale, Brussels Sprouts, and the like plants are large enough—that is, when they have developed two or three proper leaves, they should be drawn up when the ground about their roots is moist, and be pricked out in beds at about 6 inches apart, taking care not to bury the plants in the soil much deeper than they were before, making the soil about the roots fairly firm with the small dibber used in pricking out. This work, like the final transplanting, is done best during showery weather, or as soon after rain as the land will bear working. In case the work has to be done in dry weather, the plants should be watered slightly two or three times with a fine-rose pot. Watering will be necessary if the weather prove dry, until the plants have become thoroughly established. *H. W. Ward.*

CELERY.—Celery, like other vegetables that we grow, is becoming in its varieties too numerous. I am altogether averse to those that grow tall, as there is in them much unusable material. The dwarf varieties are more solid than these, and such Celeries as Incomparable or Sandringham are crisp, and possess a pleasant nutty flavour, and, in my opinion, are some of the best. Veitch's Superb White, which is a little taller, and very compact, with solid stems that blanch a pure white, and are tender and excellent eating, runs these two very close. For late use Standard Bearer has come into favour, it being a sturdy, robust Celery, which stands longer than any other before running to seed. This latter quality is a valuable one, as there has always been a difficulty in bridging the Celery season. To prolong the supply, seed of Standard Bearer may yet be sown under a hand-light. When the plants are big enough to be pricked out, the operation should be done in a frame, and the plants nursed on so as to get them into the trenches whilst the growing season is still a long one. Some growers are troubled by Celery bolting, which generally arises from one of two causes, either sowing too soon or allowing the plants to suffer from want of water. Generally it is the latter, as checks received in this way induce premature blooming. Celery when kept properly moist at the roots, grows steadily onwards. This being so, the plants should have a good soaking every week, and frequent sprinklings overhead during the earlier stages. Dwarf Celery needs but shallow trenches, and that is an additional reason why it should be grown in preference to the tall. Some do the soiling up piecemeal, while the plants are growing, and that is, I think, a bad plan, as water can hardly be given afterwards in sufficient quantity to reach the roots, and even if this be done some of the earth must of necessity get carried into the stem. To obviate this, it is better that the earthing be done at once, after growth has almost ceased. *J. Sheppard.*

TRUFFLES—TRUE AND FALSE.

(Continued from p. 429).

Another member of the Tuberacei is the white Truffle (fig. 84), Choiromyces meandriformis, the Tuber album of Sowerby. This plant generally grows in open hilly positions amongst Oaks, half buried in stiff soil, and may be found in June and July.

The white Truffle, although described by Mr. Berkeley as excessively scarce, has several times been sent to the *Gardeners' Chronicle* office for a name. It is very difficult to determine the rarity or commonness of some fungi, especially the subterranean species.

The illustration, A, fig. 84, shows one-half an example of the white Truffle. It is a large species, often attaining the size of an ordinary Potato, either a "round" or "kidney." When young the plant is white; at length it becomes pale buff, or brownish. In section B, the flesh is seen to be marbled with brown and white veins. It becomes yellow in drying. When young the white Truffle is scentless, but when mature the odour is very strong, like decaying cheese. An *ascus* with spores is shown enlarged 200 diameters at C, and a single spore enlarged to 500 diameters at D.

The white Truffle somewhat resembles in form and colour Tuber magnatum, but it is a very different plant. Owing to this superficial resemblance it is sometimes sold for the latter species. A great deal of deception is used by Continental Truffle dealers; for instance, some of the worthless species are dyed, and sold for the better species.

The white Truffle is abundant in some parts of France and Belgium, and it is used to adulterate *pâté de foie gras* by the less conscientious makers. Opinions differ greatly as to the value of the white Truffle; it is much esteemed by some, but not generally held in high repute. It has been known to produce unpleasant symptoms when eaten in a raw state.

The Truffle, so frequently referred to by classical authors, embraces several species, as the brief descriptions clearly show. Terfezia leonis is certainly one species referred to, as the peculiar habitat on the sandy sea-shore is mentioned. This species resembles a Potato in size, form, and colour. When raw, it possesses a soapy, but somewhat sharp taste. When soaked in oil, it is highly esteemed by some; it is at times sliced and mixed with eggs. Some persons consider it delicious in a raw state. It grows in Sandy Pine woods, and in the sands of the sea shore in southern Europe and in Asia and Africa, and is eaten as food in Italy, Sicily, Syria, North Africa, and other places.

It is remarkable that the mature growths of Truffles are generally found nearest to or actually upon the ground surface; the deeper examples are generally immature. *W. G. Smith, Thaxted.*

(To be continued.)

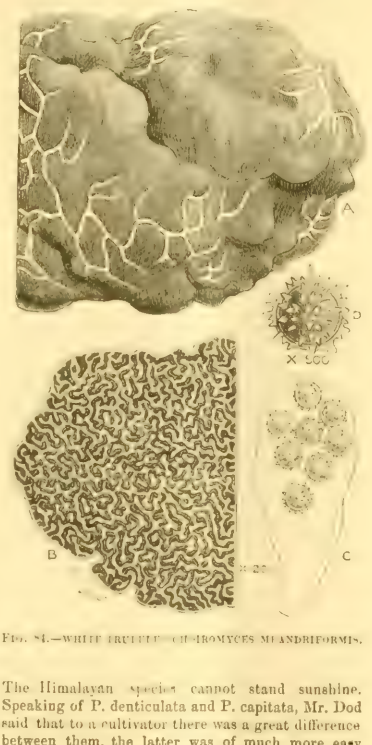


Fig. 84.—White Truffle: Choiromyces meandriformis.

SOCIETIES.

ROYAL HORTICULTURAL.

April 22.—There was a large display of plants at the Drill Hall, James Street, W., last Tuesday, when, in addition to the exhibits before the several committees of the Royal Horticultural Society, there was also the show of the National Auricula Society, which of itself formed a large exhibition, and was, indeed, larger than it has been for some years past, and occupied about twice as much space as last year. It was also very gratifying to see a large attendance of visitors, and during the afternoon the hall was crowded. The Rev. C. Wolley Dod gave a very interesting lecture on Primulas, speaking of the cultural peculiarities of the best known species, and lovers of this charming genus of rock-garden plants will doubtless learn many valuable hints from this lecture when it appears in the *Journal* of the Society. Mr. Dod called attention to the methods of root-growth of the different species, pointing out how that should regulate their cultivation, and referred to the article by Dr. Masters on that subject, which was read before the Primula Conference of 1886, and appeared, with illustrations, in the *Gardeners' Chronicle* for April 24 of that year. The lecturer advised growing from seed which should be sown as soon as ripe. The varieties and hybrids of P. acaulis are easy to cultivate, and are of more value than any others to the gardener. Root-stocks should be reduced as much as possible, and divisions should frequently be made, as otherwise the young roots could not push through the mass of dead tissue to the outside soil, as so the plants died. P. rosea was of very easy cultivation, if this point is remembered. Mr. Dod showed specimens to illustrate these points. The species calycina, Auricula, Clusiana, and intermedia were of the most easy cultivation by any one. The Primulas of the Caucasus and Asia were generally disappointing. P. elatior, for instance, was not so good as our native Cowslip. The Himalayan species cannot stand sunshine. Speaking of P. denticulata and P. capitata, Mr. Dod said that to a cultivator there was a great difference between them, the latter was of much more easy cultivation.

Before Mr. Dod's lecture, Sir Trevor Lawrence, Bart., M.P., the President of the Society, performed the pleasing ceremony of presenting, on behalf of the Veitch Memorial Committee, a Silver Veitch Memorial Medal to Mr. David Thomson and to Mr. Bruce Findlay. He spoke of Mr. Thomson's high attainments in all branches of horticulture, and also of the books he had written on the subject. In replying, Mr. Thomson said that he felt greatly honoured in being the recipient of such a distinction, he had been in private gardens all his life, and had served seven employers, and that he had no greater ambition in life than to be a successful servant.

The President, in handing the Medal to Mr. Findlay, adverted to Mr. Findlay's success at Manchester, and in reply Mr. Findlay allluded to the high aims and national importance of Horticulture. Not one of the speakers could be heard a yard from the table. The Society should take steps to procure a screen, such as was formerly in use at South Kensington, while a raised desk on which the speaker could rest his notes without depressing his head would also be advantageous.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. S. Hibberd, H. Herbst, B. Findlay, E. Molyneux, J. Walker, F. W. Burbidge, F. Ross, W. C. Leach, H. B. May, C. T. Druery, H. H. D'Ombrain, T. Baines, C. Noble, H. Cannell, J. Paul, J. Fraser, H. Turner, W. Holmes, and C. Nicholson.

An extensive group of plants was staged by Messrs. B. S. Williams & Son, Victoria and Paradise Nurseries, Upper Holloway, N., a fine display being made by sixteen well-flowered Cliveas, the varieties Scarlet Perfection, Ambroise Verschaffelt, and robusta being most noticeble. Plants of Spiræa astilboides and dwarf Rhododendron Williamsi with numerous moderate sized trusses of flowers, white with the faintest trace of purple and a yellowish throat, were also very effective. A collection of dwarf Amaryllis was also contributed, and included a very dark coloured variety, The Mahdi, the flower of which is also of good regular form.

A collection of plants from the Royal Gardens, Kew, contained some rare specimens, and excited considerable interest: foremost was a flower of Aristolochia Goldieana, 1 foot in diameter, and twice as long (see fig. 83), pale yellow veined inside with chocolate; Amherstia nobilis with brilliant rose-flesh flowers relieved by a spot of pure golden yellow, a most conspicuous object. Cyrtanthus obliquus, with a scape bearing some half-dozen orange-yellow and green variegated flowers, each about 4 inches long; stropæolum azureum, with delicate blue flowers; Crinodendron Hookerianum, a rich red; other plants being Ataccia cristata, Echium callithyrsum, Bossiæa stenophylla, Brugmansia sanguinea, Viburnum plicatum, Streptocarpus Dunni, Hoya multiflora, Narcissus Barnardti, wild from Biarritz; Rhododendron Falconeri, R. arboreum and vars., with a comprehensive collection of species of Primula.

Messrs. Paul & Son, Old Nurseries, Cheshunt, contributed a group of hardy herbaceous plants, in which were cut flowers of Doronicum plantagineum, Tulips, Anemones, the common Fritillaria, Triteleia uniflora lilacina, Empetrum rubrum, a pretty little shrubby plant; Sanguinaria canadensis, and some alpine Auriculas, the best being Thos. Moore, Mrs. Llewellyn, King of the Belgians, and Diadem.

A group of well-grown Ferns came from Mr. H. B. May, Dyson's Lane Nursery, Upper Edmonton, N. Adiantums, which were largely predominant, included the best species, as Veitchii, Pacotii, Rapieri, fragrantissimum, Fergusoni, mundulum, &c.; also Pteris serrulata, and the finely-crested P. s. nobilis; Nephrolepis davallioides plumosa, a heavily crested form of much elegance, and quite new; N. cordifolia compacta, with fronds about 6 inches long, were among other species.

Messrs. Ryder & Son, Sale, near Manchester, staged a large collection of beautiful varieties of Primula Sieboldi, in diverse colours and forms, such as were shown last year. The varieties were grouped in circular patches in a bank of Adiantum, which added greatly to the beauty of this charming species. We have before had occasion to refer to these varieties, and only now select those to which Certificates were awarded, viz., Distinction, shaded crimson, paler towards the centre, and cut edges; and Bruce Findlay, of a slatey-lilac colour. Not the least pleasing feature in several varieties is the laciniate margins of the petals.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., contributed specimens of Chionanthus virginica, laden with its tassel-like, sweetly-scented, white flowers; this is a very effective hardy ornamental shrub, of much merit. The pretty Azalea roseflora, and a rich rose-coloured Pæony, named Reine Elizabeth, completed the group.

Rhododendrons were represented by a well-flowered group from Messrs. H. Lane & Son, Great Berkhamsted, in which the following varieties were included:—Sigismund Rucker, Blandyanum, Marchioness of Lansdowne, Everestianum, Snowflake, and Baroness Rothschild, all with many heavy trusses of bloom. A few hardy Azaleas were also included.

The Rev. G. H. Engleheart sent a few blooms of hybrid Narcissi, one of great interest being a cross from N. poeticus ornatus and the Tazetta variety, Bazelman major; the result, named George Engle-

heart, is what may be called a bunch-flowered ornatus, but the white of the perianth is tinged with yellow, the cup is yellow, tipped with orange-red. Other hybrids from the same exhibition included Garnet (ornatus and Mary Anderson), which has broad white perianth segments, the cup measuring one-third of the perianth, and is of a brick-red. In a cross between ornatus and Hudibras there is a flower with pure-white perianth and a very much expanded flat cup of pure chrome-yellow.

Daffodils and Narcissi were also shown by Messrs. Barr & Son, King Street, Covent Garden, W.C., and embraced the best varieties. Tulips, Anemones, and Muscari were also included.

Among other exhibits were Mignonette, Garraway's Double White Improved, a strong-growing variety, fully described in the name (which is too long), from Messrs. W. A. Garraway & Co., The Nurseries, Bristol.

Maréchal Niel Roses came from Mr. J. Walker, Thame, and from Mr. Shoesmith, gr. to — Hodgson, Esq., Shirley Cottage, Croydon, both exhibitors having first-rate blooms.

Mr. J. T. Gilbert, Dyke Bourne, Brighton, had a beautiful intense coloured double Anemone fulgens, and also some Crown Imperials; while a gorgeous show was made by a collection of varieties of Anemone hortensis, from T. H. Burroughs, Esq., 16, Lower Berkeley Street, W., the variety named græca being of the most brilliant scarlet, which was quite dazzling; the flowers, we believe, had been grown at Kelton, Rutlandshire.

A new seedling Primrose was sent by G. F. Wilson, Esq., Heather Bank, Weybridge, under the name of Red Gauntlet—a somewhat curious name for a flower of deep blue with a crimson-purple eye; it is a very richly-coloured flower, and is quite novel.

Mr. G. Wythes, Syon House Gardens, Brentford, had a collection of finely-berried specimens of Pernettya mucronata; also shoots of Ruscus androgynus; the pretty blue Pea-flowered Clitonia ternata and Anthocercis viscosa with large white flowers.

The brilliant Ochna multiflora was shown by Mr. Seabright, gr. to Miss Grinling, Harrow Weald House, Stanmore, Middlesex.

A pure white Pelargonium was sent by Mr. Simpkins, gr. to R. J. Measures, Esq., Cambridge Lodge, Camberwell, named Miss F. Measures.

The Rev. W. Wilks, Shirley Vicarage, Croydon, showed blooms of Narcissus Madame de Graaff. Rhododendron niveum was sent by J. Bateman, Esq., Worthing. Mr. J. James, Woodside, Farnham Royal, Slough, sent flowers of various laced Polyanthus (the single flowers were stuck into a bed of green moss, and looked like so many buttons—a stiff unnatural style of display which ought to be discountenanced); and from Mr. R. Dean, Ealing, was a plant of Boscawen's double yellow Primrose, a fine form.

Orchid Committee.

Present: T. B. Haywood, Esq., in the chair; and Messrs. J. O'Brien, A. H. Smee, M. T. Masters, S. Courtauld, F. Moore, L. Castle, H. Williams, E. Hill, J. Dominy, H. Ballantine, H. M. Pollett, F. Sander, De B. Crawshay, J. Douglas, and Baron J. H. W. Schroder.

Exhibits in this section were not so numerous as usual; perhaps the plant which attracted the most notice was Cattleya Lawrenceana var. Vinckii, which was sent by Baron Schroder from his collection at The Dell, Egham. The flowers were coloured with crimson-grey, merging into a bluish tinge instead of the rich crimson of the type. The colouring was comparatively less, as the perianth-segments were almost white at the base. The colour is novel and unusual, if not specially pleasing.

Another conspicuous exhibit was Odontoglossum triumphans var. aurea, the flowers of which are rich yellow, mottled with a paler tint. A specimen of the type and a well flowered example of Dendrobium thyrsiflorum was also contributed by A. H. Smee, Esq., The Grange, Wallington, Surrey (gr., Mr. Cummins).

A beautiful variety of Odontoglossum Pescatorei was shown by G. W. Palmer, Esq., Elmhurst, Reading (gr., Mr. Dockerill). The plant had a spike of nine flowers, of the purest white, with numerous medium-sized purple-violet spots over the basal half of each segment. The variety was named Mrs. G. W. Palmer.

From G. Le Doux, Esq., East Molesey, Surrey, came a handsome variety of Miltonia vexillaria; the individual flowers measured 4 inches by 3; the large lip was pure white, and the other parts of the flower faintly suffused with rose.

A variety of Odontoglossum sceptrum, shown as var. alba, was sent by H. M. Pollett, Esq., Fernside, Bickley (gr. Mr. Parkes); this differs from the type in the fact that the yellow ground-colour is replaced by white.

A hybrid Cypripedium (C. Apollo×) from vexillarium and Stonei, was shown by R. J. Measures, Esq., Cambridge Lodge, Camberwell. The flower retained chiefly the colours of the first-named parent, while the influence of C. Stonei was plainly seen in the projecting lip. The upper sepal was vinous-crimson, with darker veins, except down the centre, which was almost green, fading to white at the apex and base; the petals were linear, 2¾ inches long, and deflexed, twisted at the apex, where the colour was rosy-brown, the lower portion being yellowish, lined with brown, and slightly spotted with brown-black, the margin being slightly ciliate towards the base.

Messrs. J. Veitch & Sons sent a specimen of the hybrid Cattleya calummata× (Acklandiæ × intermedia), with prettily-spotted flowers, almost like those of C. Acklandiæ, and a hybrid Cypripedium from philippinense and villosum, but which had not taken much of the feature of the former, and is of no great merit.

Sir Trevor Lawrence, Burford Lodge, Dorking, showed a few examples, including a fine spike of Phalænopsis grandiflora, Dendrobium sulcatum, and Oncidium phymatochilum.

From Malcolm S. Cooke, Esq., Kingston Hill, Surrey (gr., Mr. D. Cullimore), came a small group of well-grown plants, in which were Odontoglossum Rossi majus, with very dark brown tints; Oncidium cuculatum, and Odontoglossum nebulosum; and from F. Lee, Esq., Lynford Hall, Mundford, were flowers of Cymbidium chloranthum, pale greenish-yellow, with the column and lip spotted with brownish-red.

Fruit Committee.

Present: Sir C. W. Strickland, Bart., in the chair; and Messrs. P. Crowley, R. D. Blackmore, T. F. Rivers, G. Cliffe, J. Cheal, G. W. Cummins, A. H. Pearson, G. Bunyard, J. Wright, J. Smith, G. Wythes, J. Hudson, F. Q. Lane, H. Balderson, A. Watkins, David Thomson, and J. Willard.

There were but few exhibits here. Messrs. J. Cheal & Son, Lowfield Nurseries, Crawley, staged a collection of well-kept Apples, in which the best examples were Curltail, Dutch Mignonne, Alfriston, Brabant bellefleur, Cox's Orange, and Betty Geeson. Mr. G. Wythes had some specimens of forced Strawberries, showing fine fruits of President and Keen's Seedling, for which a cultural commendation was given. Mr. W. B. Hartland, Cork, sent heads of a large and rather coarse-looking Broccoli, but of good colour, and firm; and Mr. Miller, gr. to Lord Fowley, Esher, sent a basket of Mushrooms.

Awards were made as follows:—

By the Floral Committee.

Awards of Merit.

Mignonette Garraway's Double White Improved, from Messrs. W. A. Garraway & Co.

Nephrolepis davallioides plumosa, from Mr. H. B. May.

Rhododendron Williamsi, from Messrs. B. S. Williams & Son.

Primula Sieboldi Bruce Findlay, from Messrs. Ryder & Son.

Primula Sieboldi Distinction, from Messrs. Ryder & Son.

Primrose Red Gauntlet, from G. F. Wilson, Esq.

Narcissus George Engleheart, from Rev. G. H. Engleheart.

By the Orchid Committee.

First-class Certificates.

Odontoglossum triumphans aureum, from A. H. Smee, Esq.

Cattleya Lawrenceana Vinckii, from Baron Schroder.

Awards of Merit.

Miltonia vexillaria Le Doux's var., from G. Le Doux, Esq.

Odontoglossum Pescatorei var. Mrs. G. W. Palmer, from G. W. Palmer, Esq.

Medals.

Silver-gilt Banksian, to Messrs. Ryder & Son, for Group of Primulas.

Silver Banksian, to Messrs. B. S. Williams & Son, for Group of Plants.

Silver Banksian, to Mr. H. B. May, for Group of Ferns.

Silver Banksian, to Messrs. J. Cheal & Sons, for Collection of Apples.

Bronze Banksian, to Messrs. J. Veitch & Sons, for Group of Plants.

Bronze Banksian, to Messrs. H. Lane & Sons, for Group of Rhododendrons, &c.

Daffodil Conference.

The Natural History and Cultivation of the Trumpet Daffodil.*

The hardiest of the hoop petticoats (N. corbularis), is var. citrina, the only European variety outside the Spanish Peninsula. A line drawn from Bordeaux to Luchon defines its French limits. The white Corbularia of Clusius was var. Graellsi, not var. monophyllus, which never occurred in Europe.

Cultivation and naturalisation have made the wild limits of N. pseudo-Narcissus difficult to fix. Some very fine forms are naturalised in Ireland, where it is not a wild plant. The friars and monks of the 15th and 16th centuries were also herbalists and physicians, and treating Daffodils for their medicinal virtues, and finding none in Ireland, may have introduced them from the parent institution of their respective orders in Italy, as the Irish varieties are probably of Italian origin.

It is difficult to know by what characters to divide N. pseudo-Narcissus into sections. Perhaps colour distinguishes them better than size or habitat. It is proposed for convenience to divide the species into five: 1, Discolor, including all in which the colour of the crown and the perianth are obviously contrasted in colour, with the exception of one variety; 2, concolor, including all those of uniform yellow; 3, Pallidus, to which belong all the straw-coloured Daffodils; 4, albus, the white flowered trumpet Daffodil; 5, Muticus, the cleft-trunk Daffodil; this last not referring to colours, but having very distinct characters, and being the type from which the largest and best of the cultivated forms are developed.

No. 1 is nearly universal wherever Daffodils are found wild. No. 2 is common in Italy and Northern Spain and Portugal, but rare in France. No. 3 extends from the Pyrenees all along Northern Spain into Galicia. No. 4 abounds in the Pyrenees, perhaps is found amongst the Italian lakes. No. 5 has only been found in recent years in the Spanish Central Pyrenees. These divisions can hardly be extended to cultivated Daffodils, owing to the way in which the sections are mixed together by crossing.

Wild hybrids of pseudo-Narcissus Mr. Dod divides into persistent and nonpersistent, and also into fertile and barren. The first he mentions, N. pseudo-Narcissus × N. muticus, occurs sparingly in one spot in the Pyrenees amongst its parents. It is interesting as representing a cross between the extremes of the genus, and affording fair presumptive evidence that any two members of the genus might cross. The question whether N. incomparabilis and N. odorus, though recognised as species, were originally hybrids, cannot be considered as settled. They are both very persistent, though odorus is barren. The Portuguese and Spanish N. Johnstoni is certainly N. pseudo-Narcissus × N. triandrus, and shows intermediate characters between the parents—though barren it is persistent. N. Bernardi, or N. pseudo-Narcissus × N. poeticus, can hardly be called persistent, as it has not strayed away from its parents, amongst which it occurs wherever they flower simultaneously. It is remarkable for great varieties of form and colouring, as are also the hybrids raised in cultivation from the same parents.

Speaking of double Daffodils, Mr. Dod considers the question of the single wild Daffodil increasing in size, and becoming double under certain conditions in cultivation, as one which is still open, in spite of the large garden double, and the small wild double belonging to distinct varieties. We cannot always fix the variety to which a double belongs, as they tend to assimilate under similar cultivation. The double called Telamonius can be raised from the seed of the single Tenby Daffodil, and the Tenby has been known to produce a single typical flower, and a double exactly like Telamonius on the same bulb. A Daffodil is said to have a good constitution when it endures great changes of soil and

* An abstract of a paper read by Mr. C. W. Dod at the Daffodil Conference, on Thursday April 17, at Chiswick, J. G. Baker, Esq., F.R.S., in the chair. The proceedings on the two first days were recorded in our previous issue.

climate without deteriorating. This is an important factor in judging the merits of a variety. Those which are of a bad constitution are benefited by frequent transplanting. Daffodils should be lifted and replanted when leaves become many in proportion to flowers. They do not suffer by being kept two or three months out of the ground, if airy, dry, and warm; but the time for taking up is as soon as the leaves are dead. The same soil does not suit all varieties, and experience must be consulted.

A destructive disease, probably due to adverse conditions of weather or cultivation, rather than to any more specific cause, is very troublesome to growers of the trumpet Daffodil. The foliage in early spring becomes stunted and brown, and the bulb is found rootless and soft, and watery between the coats. Gardeners are especially requested to notice all the conditions under which this affection occurs, as it is not unlikely to be due to causes in a great measure preventible.

Market Daffodils.

Mr. Walker, whose farm was described in a previous number, then read a paper on Market Daffodils, he pointed out the fact that London was the focus of the market trade in Daffodils, and one of the most important questions of the day was what to grow for profit. There is not so great an acreage under Narcissi as under other marketable crops, but he questioned whether any other crop paid better for its acreage than did the Daffodils. They had in past years paid the growers well, and the main question was, would they continue to do so? Calculating the Narcissus bulbs in cultivation as 10,000,000 in 1884, he now considered that there would be at least 200,000,000 bulbs in cultivation. Now, would it be possible to make them pay at this increase or rate of progression? The lecturer thought that they would, although since 1884 there had been a fall in prices for flowers of 50 per cent. The minimum price he had received for twelve market bunches had been ninepence, while as much as twelve shillings had been received for the same quantity.

The season for Narcissus flowers now extends from January to May. Then came the question as to the most popular and profitable of market kinds. Amongst yellow trumpet Daffodils, he alluded to N. Emperor as superior. N. maximus was a good market flower, but had not the best of constitutions. Golden Spur, spurius, Countess of Annesley, Tenby, and Edward Leeds were also mentioned, the last especially for its late blooming habit. Amongst the N. bicolor kinds, Mr. Walker stated that at Ham, N. Empress was the best and most prolific as a market flower; next came bicolor, John Horsefield; Dean Herbert, and N. bicolor grandis (now to be known as "Grandee"), the latter especially bold, late, of good substance, and an especially desirable variety to grow. N. Empress multiplies itself fast, and the offsets, if separated and replanted, rarely fail to bloom; and the solid blooms of Empress and Grandee, if kept over a day or two, do not suffer as do some of the thinner-petalled sorts.

The white Daffodils are soft, and do not stand well as market flowers; Madame de Graaff promised to become an exception to this rule, but up to the present it had not become plentiful enough to obtain a fair trial for market culture. Sir Watkin was mentioned as one of the best flowers of its class; and Lady Watkin, if not so big, was even more beautiful, with its orange crown, and it is also a "good doer." This last variety Mr. Walker had first in 1884, and from the produce of the bulb then obtained he had nineteen flowers in 1890.

Barri conspicuus was especially good, so also Maurice Vilmorin and Wm. Ingram, &c.; and the various Leedsi varieties, such as Duchess of Westminster, Katherine Spurrell, Madge Matthews, and Beatrice. The larger Nelsoni varieties were also good market bloomers, but the Barbidgei set generally were not popular; still he grew Constance, Falstaff, John Bain, and Mary, amongst others, as being free and distinct. N. poeticus ornatus, grandiflorus, and recurvus, &c., were desirable, as also odorus, rugulosus, &c.

Among the double kinds, mention was made of Sulphur Crown and Orange Phœnix, the latter being the flower which the Princess Mary of Teck likened to a Tangerine Orange wrapped in tissue-paper.

N. poeticus flore-pleno would be a most valuable market plant if its bulbs could be forced early into bloom, but so far the attempts to do so had failed. What is most desirable in market Narcissi are long stems, large flowers of decided colours, and of good substance, and the bulbs should be robust enough in constitution to succeed in a variety of soils. As it was, no general collection of varieties did equally well in the same soil; and his collection was divided into two groups. The wild or collected kinds were planted on land not manured, after a crop of Ryegrass had been taken off, whereas the garden hybrids, &c., did best on well enriched soil.

The double cernuus and the pale yellow Capax, or Eystettensis died out frequently on soils in which N. Empress and N. Emperor increased fourfold. The plough as a cultural implement beat the spade, and it is possible to cultivate large areas of Narcissi at a cheaper and more profitable rate than small plots.

As to marketing, the flowers should be cut in the bud-stage, and opened in water in heat or under glass. N. poeticus recurvus could be cut before the bud emerged from the spathe, whereas N. ornatus did not open well unless the bud had burst forth from the sheath, and so also the buds of the Daffodils should have emerged free of the spathe ere they were cut, and the best results were obtained by cutting just as the perianth segments burst open. These were points of practical detail of importance, and worthy of close attention.

In applying manure, it should be worked deeply into the land, so that the newly planted bulbs did not come into contact with it, but so that the roots would find it as they descended into the soil. Firm soil was also desirable. Mr. Walker believes that by annual replanting, Narcissi can be as well grown in English soil as anywhere in the world, and that we can supply any demand for forcing bulbs that may arise either in England or in America.

In the discussion, Mr. C. W. Dod pointed out that in Cheshire and other places in the north of England, N. Horsefieldii was a better grower than N. Empress, and that it is earlier and larger there.

In the discussion that followed Mr. Dod's and Mr. Walker's papers, it was agreed that as to cultivation and replanting, no general rule would apply to all soils and climates alike, but that replanting should always be done in July to September if the bulbs did badly. Delicate kinds often do better in grass, or among the roots of shrubs and trees; and Mr. Dod especially pointed out the success which attended the planting of Narcissi at Edge Hall near walls or rockwork, stones, &c. It was also pointed out that loose soil was inimical to success, especially in the case of wild or collected Narcissi; and as to manure, Mr. Burbidge pointed out that, while on dry soils on a well-drained or gravelly subsoil manure might be advantageous, nevertheless on cold, wet, and clay soils its use might be risky and destructive. A question arose as to the failure of N. poeticus fl.-pleno, a phase of ill-success known as "blindness" often affecting this variety. Mr. Walker said he thought it originated from weakness, and that by adopting annual replanting, not more than 10 per cent. of failures would be found to result. Altogether, Mr. Walker's contribution was a marked addition to the day's proceedings.

At a meeting of the Narcissus Committee on April 22, the following two varieties were registered: Grandee, known formerly as bicolor maximus, and sometimes as bicolor grandis; and Queen Sophia, an incomparabilis with widely spreading tinted crown.

Mr. Engleheart showed an interesting set of seedlings, consisting of poeticus ornatus × Bazelman major, with their flowers exactly intermediate between the two parents, and for which he received a botanical certificate from the Scientific Committee: ornatus × Hudibras, pure white perianth, with clear yellow widely expanded crown, almost flat; ornatus × Mary Anderson, pure white perianth with deep red crown; tortuosus × poeticus, very like the variety known as Circe; John Horsfield × ornatus, near Humei; Ard Righ × ornatus = an incomparabilis; and Leedsi Gem × cernuus, like a white Ajax, but flowering three weeks later.

Dr. Wallace sent a lemon-coloured variety of incomparabilis plenus, which was stated to have proved constant since shown last in May, 1887.

National Auricula.

The annual exhibition of the National Auricula Society (Southern Section) took place in connection with the meeting of the Royal Horticultural Society in the Drill Hall, Westminster, on the 22nd inst., and was a very large and interesting one, every section being well represented. Some fine types of show Auriculas were exhibited, but not a few appeared to have felt the late ungenial weather; but the lack of strength on the part of the show Auriculas was compensated for by the goodness and quantity of the alpine varieties; and giant Polyanthus and Primroses were remarkable features. Altogether it was a most satisfactory display, and the large attendance must have been very gratifying to the Council of the Society. The staging and judging arrangements were not what they might have been; the awards in one or two classes appeared to have been made in a hap-hazard way, occasioning some grumbling.

Show Auriculas.—The leading class for show Auriculas was one for twelve distinct varieties. The Rev. F. D. Horner, Lowfells, Burton-in-Lonsdale, Kirby Lonsdale, was placed 1st, with green edges—Monarch (Horner), and the Rev. F. D. Horner (Simonite), the latter finely developed, and selected as the premier Auricula of the show; grey edges, George Lightbody, and Rachel (Woodhead); white edges, Snowdrift (Horner), Atalanta (Horner), Magpie (Horner), a lovely flower of high quality, and Desdemona (Horner); and the following selfs—Heroine (Horner), Laura (Horner), plum-coloured, very fine; Iris (Horner), a beautiful bright purple flower; and Favourite (Horner), purple-maroon. 2nd, Mr. T. E. Henwood, Hamilton Road, Reading, who ran Mr. Horner very closely for the premier prize; he had, of grey edges, the Rev. F. D. Horner, Monarch, the latter somewhat stale, and Lancashire Hero in its grey dress; grey edges, George Lightbody, George Rudd (Woodhead), with ten fine pips, Mrs. Moore (Douglas), and Rachel; white edges, Dr. Kidd, and Acme; and of selfs, Mrs. Potts, Black Bess, and Heroine. Mr. Henwood's plants were characterised by a fine bold growth. Mr. James Douglas, gr. to Mrs. Whitbourn, Great Gearies, Ilford, was 3rd; and Mr. A. J. Sanders, gr. to Viscountess Chewton, Brookham Lodge, Cobham, was 4th.

For six Auriculas there were, as in the former class, four exhibitors, and here Mr. Henwood was 1st with green edge, Rev. F. W. Horner; grey edge, George Lightbody; white-edged, Reliance and Mrs. Dodwell (Woodhead); Selfs, Heroine and Mr. Potts; 2nd, Mr. J. Douglas, with green edges, Rev. F. D. Horner and Prince of Greens; grey edge, Mabel; white edge, Conservative and Acme; and self, Heroine; 3rd, the Rev. F. D. Horner.

There were ten collections of four varieties staged: Mr. C. Phillips, Hamilton Road, Reading, was placed 1st with green-edged the Rev. F. D. Horner; grey edge, George Lightbody; white edge, Dr. Kidd; and self, Mrs. Potts. 2nd, Mr. G. W. Wheelwright, Oxford Road, Reading, with green edge, Prince of Greens; white edges, Heather Belle and Acme; and self, Mrs. Potts. 3rd, Mr. W. Badcock, Oxford Road, Reading.

There were nine collections of two varieties, and Mr. C. Phillips was placed 1st with grey edge, George Lightbody, and self, Mr. Potts; Mr. G. Wheelwright was 2nd with green edge, the Rev. F. D. Horner; and self, Mr. Potts; Mr. S. Barlow, J.P., Stakehill House, Manchester, was 3rd, having a good example of his new green edge, Greenfinch, very bright indeed on the petal edge.

In the classes for single specimens, the Rev. F. D. Horner was 1st, with Emerald, a seedling of his own raising; Mr. Wheelwright 2nd, with Colonel Taylor, unusually dense in the paste; and Mr. C. Phillips 3rd, with Lancashire Hero.

In the class for grey-edged flowers, Mr. Wheelwright was 1st, with Mabel; Mr. J. Douglas 2nd, with George Lightbody; and Mr. Henwood 3rd, with Richard Headley.

In the class for white edges, Mr. A. J. Sanders came 1st and 2nd, with Conservative, a flower that was in fine condition; Mr. Douglas being 3rd and 4th, with Read's Acme.

In the self class, Mr. Henwood was 1st, with Mrs. Potts; the Rev. F. D. Horner 2nd and 3rd, with Heroine; and Mr. Henwood 4th, with Black Bess.

Groups of Fifty Auriculas.—As is usual, Messrs. Douglas and Turner were large exhibitors; and the stress put upon the latter was shown by the fact that a very large portion of his plants were of alpine varieties. For all practical purposes, it is a thoroughly useless class, as into it go those varieties which have not enough good quality to enable them to compete in the other classes; and, moreover, only those who grow large numbers can compete in this class.

Alpine varieties.—These, as has already been stated, were numerous and fine, and they were apparently much admired. The best twelve, which came from Mr. T. E. Henwood, consisted of the following varieties

raised by Mr. Turner, viz., Charles Turner, Defiance, Marvel, Phillip Frost, Edith—a pretty white centred variety, Mungo McGeorge, Sunrise, and Miss Blackburn, and the rest, seedlings raised by the exhibitor, were of high promise; 2nd, Mr. C. Turner, Royal Nursery, Slough, also with a very fine lot of flowers, and consisting of Charles Phillips, Olympia, Nemesis —very fine, Troubadour, Jewess, Wrestler, Sunrise, T. E. Henwood, Alarm, Countess, and seedlings; 3rd, Mr. J. Douglas, with varieties of remarkable goodness.

Mr. C. Phillips had the best six, though the selection by the judges was somewhat condemned, his varieties were Diadem, Emperor, Mrs. Dodwell, and the rest unnamed; 2nd, Mr. J. Douglas, with Diadem, Lovebird, Toujours Gaie, and seedlings; 3rd, Mr. G. Wheelwright. The latter had the best four varieties, staging T. E. Henwood, Mungo McGeorge, Rosalind, and Sunrise; Mr. C. Phillips being 2nd, with Edith, Mariner, Pallas, and Sunrise. Mr. W. L. Walker, Bulmirshe Road, Reading, was 3rd; the Reading growers thus giving a good account of themselves.

In the classes for single specimens, the best golden-centred flowers were William Coomber, from Mr. T. Henwood. 2nd, J. J. Colman; and Mr. Wheelwright 3rd, with Hotspur.

The best white-centred flower was Miss Rae, from Mr. C. Turner; Mr. T. E. Henwood 2nd and 3rd, with very promising seedlings.

Polyanthus, Gold-laced.—With the exception of a few well-finished plants, contributed by Mr. Samuel Barlow, the varieties were mainly seedlings of a poor character. Mr. Barlow had the best six, staging Prince Regent, Lancer, Exile, Cheshire Favourite, George IV., and John Bright; Mr. R. Dean was 2nd, and Mr. J. Douglas 3rd, mainly with seedlings.

Mr. Barlow had the best three plants, also having Cheshire Favourite, Exile, and George IV.; Mr. J. Douglas being 2nd, and Mr. R. Dean 3rd, with seedlings.

In the class for single specimens, Mr. Barlow was 1st and 2nd with Cheshire Favourite and Prince Regent; and Mr. R. Dean 3rd and 4th with Prince Regent and Sir Sidney Smith.

Polyanthus, giant or fancy.—These were a great feature, the large and brilliant heads of bloom making the gold-laced varieties look very poor indeed; with 12 pots, Mr. R. Dean was 1st with varieties of high quality; Mr. J. Douglas 2nd with some good varieties also; and Mr. W. Harper, Millmead Nursery, 3rd.

Primroses.—These were very bright and fine also. Mr. R. Dean was 1st, with some superb varieties: Brilliant, ruby-crimson; Mr. Gladstone, bright ruby-purple; Samuel Barlow, rich crimson; and Mrs. Gladstone, white. Mr. J. Douglas coming 2nd with well-bloomed plants, a few particularly good varieties being among them. The only exhibitor of double Primroses were Messrs. Paul & Son, Old Nurseries, Cheshunt, who had large pans of platypetala plena, Croussii, white, lilac, sulphur, and Scotch red, misnamed crimson. Baskets of Primroses were an excellent feature: Mr. R. Dean was 1st, with one containing about twenty plants, the deep yellow varieties being very striking; Messrs. Paul & Son were 2nd, and Mr. W. Harper 3rd.

Fancy Auriculas.—The best twelve plants of these came from Mr. Douglas, who had some very striking golden-edged varieties; Mr. Samuel Barlow was 2nd, and Mr. R. Dean 3rd.

Seedling Show Auriculas.—Prizes were offered for these, but, with the exception of a charming yellow self, named Buttercup, from the Rev. F. D. Horner, there was nothing of importance. Green edges:—The Rev. F. D. Horner was 1st, with Dragon Fly, a somewhat rough flower as shown. Grey edges:—Mr. Horner was 1st, with Irreproachable, a promising variety; and in the white-edged class he was 1st, with Miranda; and 2nd, with Snowdrift—both promising flowers. In the self class he was 1st, with Buttercup; and 2nd with Dimple, a smooth dark plum-coloured variety. A First-class Certificate of Merit was awarded to Buttercup, undoubtedly the best yellow self ever seen.

Seedling Alpine Auriculas.—A 1st prize and First-class Certificate of Merit was awarded to Mr. T. E. Henwood, for Florrie Henwood, rich golden centre, shaded with rosy salmon deepening to crimson—a smooth variety of high quality. Mr. J. S. Hedderley, Sneinton, Notts, had a 2nd prize and a Certificate of Merit, which it scarcely deserved, for Jenny, golden centre, and maroon shaded with crimson, but decidedly rough.

The premier Auricula, selected from the whole show, was green-edged, the Rev. F. D. Horner, shown by Mr. Horner in his 1st prize of twelve show varieties, having eight pips, some of them very fine indeed.

Species of Primulas.—Very good collections of these were staged, and very interesting they proved; it is also satisfactory that more exhibitors are being drawn into the competition. An excellent twelve were staged by Mr. J. Douglas who had large examples of P. Sieboldi laciniata, P. verticillata, P. obconica, P. japonica alba, P. rosea, P. nivea, P. intermedia, P. obtusifolia, P. auricula, P. denticulata purpurea, and marginata cœrulea; 2nd, Mr. W. Harper, nurseryman, Guildford, who had distinct from the foregoing, P. involucrata, P. ciliata, var. Crimson King and P. intermedia; O. T. Hodges, Esq., Larchine, Chislehurst, was a good 3rd. Mr. Samuel Barlow, had the best six, staging good examples of P. obconica, P. denticulata, P. verticiliata, P. intermedia, P. viscosa, and P. vulgaris; Mr. R. Dean was 2nd, having a fine yellow semi duplex form of P. elatior. Altogether it was a most successful exhibition.

ROYAL BOTANIC.

April 23.—The second spring show of this Society would have proved a rather poor affair had it not been for the trade collections. In the competing classes, there seemed to be no energy and interest. Messrs. Ryder & Sons' varieties of Primula Sieboldi attracted much notice on account of their variety of form and colour.

Azaleas were better than usual. Mr. H. Eason, Hope Cottage, Highgate, led in the amateurs' class, with finely flowered plants; Mr. C. Turner, Slough, having the best in the nurserymen's section.

Auriculas were very good. Mr. C. Turner had the best twelve alpine, and also showed a collection.

Mr. J. Douglas led for twelve of any sort, and also for Polyanthus, having well flowered plants. He also led for a collection of hardy Primulas, showing handsome plants; Messrs. Paul & Son, Cheshunt, being 2nd. The same firm was leading for Amaryllis, with twelve well flowered, good coloured varieties, and again for a collection of nine pot Roses.

Messrs. Paul were 1st, having plants in their usual good style; Mr. Rumsey, Joyning's nursery, Waltham Cross, being a close 2nd.

Cinerarias were best from Mr. D. Phillips, Langley Broom, Slough, who had a nice lot of Cinerarias, and another of Pelargoniums, being placed 1st in each class.

Hardy herbaceous plants were very good, Mr. T. S. Ware showing a nice collection, for which he was awarded the 1st prize. Primula Sieboldi vars. were good.

A collection of alpines came from Messrs. Paul & Son, and received 1st, Adonis vernalis and alpine Auriculas being included; for Amaryllis the same firm led.

Tuberous Begonias were shown by Messrs. H. Cannell & Sons, Swanley, a very showy lot, and were placed 1st.

Non-competing Exhibits.

From Messrs. B. S. Williams, Upper Holloway, came a group of Cliveas and Amaryllis, with Rhododendron Williamsii and Spiræa astilboides, and had a Silver Medal awarded.

Messrs. Ryder & Sons, Sale, sent a collection of Primula Sieboldi vars., very pretty, for which a Silver Medal was also given; and a small Silver Medal was given to Messrs. Laing & Sons, Forest Hill, for a collection of miscellaneous plants, with a fine Rhododendron, Countess of Haddington, as a centre-piece; and a large Bronze Medal was given to Messrs. Barr & Son, Covent Garden, and to Mr. T. S. Ware, Tottenham, for comprehensive collections of Daffodils, &c.; a similar award being made to Mr. W. Morle, 283, Regent Street, for a decorative group of plants, containing Palms, Crotons, Azaleas, Ericas, &c.

T. H. Burroughes, Esq., Ketton, Rutland, made a bright show of Anemone hortensis vars., and also had a fine lot of fruits of Bramley's Seedling Apple.

Bronze Medals were also given for fine boxes of Maréchal Niel Roses from Mr. J. Walker, Thame, and Mr. W. Robbins, Aylesbury. For a collection of Rhododendrons, Messrs. H. Lane & Son, Berkhampsted, had a Large Bronze Medal; and Mr. Rumsey, Joyning's Nursery, Waltham Cross, Herts, a Silver Medal, for a collection of well-flowered pot Roses; and to Mr. J. Douglas, for a collection of Auriculas and Primulas, a Large Bronze Medal was given. A collection of hardy herbaceous plants, well flowered, from Messrs. Paul & Son, was awarded a Bronze Medal.

Certificates were awarded as follows:—

Pelargonium Duchess of Fife (decorative), large flower, pure white, with a small delicate purple veining on one petal, from Mr. D. Phillips.

Narcissus Madame de Graaff, from Messrs. Barr & Son.

Narcissus Mrs. G. Cammell, from Messrs. Barr & Son.

Pæony (Tree) Mrs. S. Low, blush pink, fading to white at the tips, from Messrs. J. Laing & Sonp.

Pæony (Tree) Triomphe de Milan, self rose, paler towards the tips, from Messrs. J. Laing & Son.

Carnation Madame A. Warocque, from Messrs. J. Laing & Sons.

Primula Sieboldi lilacina marginata, white, with lilac marginal suffusion, from Mr. T. S. Ware.

Clivea cruenta, deep-coloured short flower, from Messrs. B. S. Williams & Sons.

Clivea Ambroise Verschaffelt, long rich-coloured flower, from Messrs. B. S. Williams & Son.

Begonia Lord Salisbury, light brick-red, single, from Messrs. H. Cannell & Sons.

Begonia Duke of Sutherland, rich carmine, very bright, single, from Messrs. H. Cannell & Sons.

Mignonette, Garraway's Double White Improved, from Messrs. Garraway, Bristol. (See Royal Horticultural Society's Report.)

Primula Sieboldi alba magnifica, pure white, trilobed and toothed, from Messrs. Ryder & Son.

Primula Sieboldi Ruby Queen, bright rosy-purple, from Messrs. Ryder & Son.

Primula Sieboldi Bruce Findlay, from Messrs. Ryder & Son. (See Royal Horticultural Society's Report.)

Primula Sieboldi Harry Leigh, pale slatey-purple, from Messrs. Ryder & Son.

Primula Sieboldi Mrs. Ryder, white, with pale rose suffusion on the margins, edge crenate, from Messrs. Ryder & Son.

Auricula Magpie (Horner), white-edged, show, purple-black body colour, throat yellow, good paste, from Mr. J. Douglas.

THE NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

The monthly meeting of this Association was held in the Upper Hall, Christian Institute, Aberdeen, on Wednesday evening the 16th inst. There was a large attendance. The chief business on the card was a paper on "Daffodils and other Spring Flowers," by Mr. George Leslie, Covent Garden, London, and was read by the Secretary, Mr. W. Reid. In the paper some valuable practical suggestions were made concerning the cultivation of the Daffodil and Narcissi generally, either as border flowers, or for the embellishment of the conservatory or greenhouse when grown in pots. The speaker entered rather fully into the cultivation of the flower in the open air and in pots.

A long discussion followed the reading of the paper, taken part in by Mr. Muirhead, factor to the Earl of Aberdeen, Haddo House; and Messrs. C. D. France, Harper, Cocker, Robson, Edwards, Grigor, and Mr. Smith, the President. All the speakers agreed as to the excellence of the paper; but exception was taken to the statement that manures should be avoided. The members then proceeded to inspect the exhibition, the report of which will be found below.

The Exhibition of spring flowers.—This Society deserves to be congratulated on the magnificent collection of Daffodils, Hyacinths, Tulips, and other spring flowers which were brought together under its auspices in the Christian Institute, Aberdeen, on Thursday, 17th inst. The object in view in getting up the collection is to create and stimulate an interest in spring flowers in Aberdeenshire, which have been to a large extent neglected. This object was thoroughly well attained if the numbers visiting the exhibition be taken as a criterion.

Mr. C. W. Cowan, Valleyfield, Penicuik (near Edinburgh), forwarded a collection of Daffodils, embracing 56 varieties. In this collection, the individual flowers were reckoned much finer and better coloured than in any of the other collections, and as they were grown at an elevation of some 600 or 700 feet above the sea level, they afforded proof of the suitability of the Daffodil for outdoor cultivation in the comparatively exposed parts of Scotland.

Messrs. Barr & Son, London, contributed fifty varieties of the Daffodil, among which was a very

choice selection of the smaller alpine varieties, and a notable display of Anemone fulgens.

Much attention was directed to a large collection of Hyacinths from a Dutch grower, embracing no fewer than one hundred varieties, double and single, all correctly named. This collection showed the best varieties in each class, represented all the shades of colour, and included varieties best adapted for pot culture and culture under glass. There was another exceptionally fine collection from Holland of Hyacinths, Tulips, and Daffodils; but from the fact that the specimens were not named, they did not possess for the visitor the same interest as they would otherwise have done. Mr. Proctor, gr. to Mr. William Henderson, Devanha House, Aberdeen, had forwarded a valuable collection of Orchids and greenhouse plants, for which the Association awarded their Cultural Certificate.

Obituary.

George Firth.—We regret to announce the death of this gentleman, of Manningham Thorpe, Bradford, which occurred at his residence on Thursday, the 17th inst., after a week's illness. Mr. Firth was widely known as an horticultural amateur, and had made a good collection of plants. He was an especial lover of Orchids and hybrid Rhododendrons, and many of his possessions have been noted from time to time in the horticultural press. Local horticultural movements also received much support from him.

George Thurber — Beyond the immediate circle of his personal friends and botanical associates, the name of Dr. Thurber is not much known in this country; nor, indeed, do we think it is likely to be otherwise in the United States. For all that, Thurber did excellent work as a botanist, whilst as editor of the *American Agriculturist* he occupied a unique position, and delighted and instructed thousands who knew nothing of his personality, and who were ignorant even of the "Doctor's" name. Thurber was born in 1821, and was one of the band of young men (of whom at an earlier period Asa Gray was one) whose good fortune it was to have fallen under the sway of the late Dr. Torrey's influence. Forsaking pharmacy, he was appointed naturalist and quartermaster to the expedition sent out to survey the Mexican boundary, and for four years he was engaged in this occupation, sending his plants to Gray for determination and publication, but himself making a special study of the grasses on which he became an acknowledged authority. On the completion of his duties with the Survey, he occupied himself with lecturing on botanical and chemical subjects at colleges of pharmacy and agriculture.

In consideration of his eminence as a teacher of materia medica, the degree of Doctor of Medicine was conferred on him by the Brown University (New Jersey). In 1867 he became editor of the *American Agriculturist*, a position he held till a few years ago with singular success, his articles being characterised by science without pedantry, an easy but accurate style, abundant good sense and not a little humour.

A marked trait in his character was his love of children, his great delight being to aid them in their studies or in their childish troubles; and many, who in point of years were not children, relished the "Doctor's Talks," and were glad to obtain their scientific information so pleasantly and at so little trouble. A man of broad sympathies and clear sense of right, he was an ardent abolitionist when such views were not popular with the authorities, and Thurber had to suffer for his addiction to those political views which he had the happiness to live to see fully carried out. Thurber visited this country in 1879, when his abounding kindliness, his humour, his real or affected amusement at our backwardness and want of "go-aheadness" were amusingly manifested. Standing one day with the present writer in the Strand, in attire sufficiently unconventional, at least as to his head-gear, to attract the notice of the street boys, he was discoursing on the influence that editors exerted over their readers, and yet, said he, stopping in the middle of the pavement to enforce his views, if these paving-stones were to suddenly lift themselves and bury us beneath them, this great throng of passers-by would go on their way as if nothing had happened! His letters were excellent specimens of the epistolary art, not frequent, but brim full of information, original views of things, and hearty good feeling. His garden, "The Pines," at Passaic, New Jersey, was a great delight to him, and of value as an experimental garden. By this means, the Doctor was enabled to render great service to Messrs. Woolson & Co., as well as to lovers of hardy plants generally.

James Alexander.—It is with sincere regret that we have to announce the death of Mr. James Alexander, of Redbraes, and partner in the firm of Dicksons & Co., Nurserymen and Seedsmen, Edinburgh, which took place at Hastings, on his way home from the South of France, on the 21st inst., at the early age of 45 years. Mr. Alexander was a native of Banff, and came to Edinburgh in 1865, and was trained under his uncle, the late James Alexander, at that time senior partner in the firm named; and to whose interest in the business he succeeded a few years ago. Altough of a retiring disposition he took a lively interest in everything appertaining to the progress of horticulture, and that at all affected the moral and material well-being of gardeners, foresters, and nursery employés; and contributed liberally and unostentatiously to movements organised by them. In the wide circle of his personal friends his sterling worth and kindly nature inspired esteem and affection.

The Weather.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 19.	Accumulated Above 42° for the Week.	Accumulated Below 42° for the Week.	Accumulated Above 42°, difference from Mean since Jan. 1, 1890.	Accumulated Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day deg.	Day deg.	Day deg.	Day deg.	100ths Inch.		In.		
1	2	20	29	+ 52	− 17	4 —	76	18.7	18	24
2	4	15	30	+ 58	50	3 —	63	8.7	18	27
3	5	8	17	+ 12	− 86	4 —	56	5.7	9	23
4	1	28	10	— 5	50	3 —	69	6.2	30	31
5	4	30	11	— 2	— 17	2 —	54	5.9	11	26
6	1	38	0	— 9	— 74	3 +	56	6.9	29	29
7	3	27	14	+ 30	— 62	4 —	66	14.5	24	26
8	1	24	10	+ 17	— 71	4 —	63	9.8	13	25
9	2 —	36	0	+ 5	+ 19	2 —	63	10.2	21	33
10	3 —	28	9	— 4	33	4 —	70	9.5	12	27
11	2 —	36	2	— 7	— 3	3 —	68	13.5	20	32
12	0 av.	51	0	+ 75	— 22	0 av.	86	9.0	18	37

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

The Past Week.

The following summary record of the weather for the week ending April 19, is furnished from the Meteorological Office:—

"The *weather* during this week has been fair and dry, except over the southern and south-western parts of the kingdom, where after the earlier days it became dull and unsettled, with frequent falls of rain. In many parts of England and Ireland thunder-storms were experienced.

"The *temperature* has continued below the mean in all districts excepting the 'Channel Islands,' the deficit ranging from 1° in 'England, S.' to 5° in 'England, N.E.' The highest of the maxima, which were recorded either on the 14th or 15th, varied from 65° in 'England, S.,' and 63° in 'England, E. and the 'Channel Islands,' to 53° in 'Scotland, E., and 52° in 'England, N.E.' Towards the end of the period the daily maxima at all but the extreme western stations were considerably below 50°. The lowest of the minima were registered on the 13th, and varied from 22° in the north and east of Scotland to 33° in 'England, S.W.,' and to 40° in the 'Channel Islands.'

"The *rainfall* has been more than the mean in 'England, S.,' and has just equalled the normal value in the 'Channel Islands,' but in all other districts a decided deficit is shown.

"*Bright sunshine* has been more prevalent in 'Scotland, N.' than it was last week, but less so in all other parts of the kingdom. The percentage of the possible duration ranged from 9 in 'England, N.E.,' 11 in the 'Midland Counties,' and 12 in 'Ireland, N.,' to 30 in 'England, E.,' and to 48 in 'Scotland, N.'"

Markets.

COVENT GARDEN, April 24.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who peruse the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. Ed.]

The first cargo of Tasmanian Apples reached our market this week in very good condition, the early sales making high prices, but later on prices fell to a more reasonable state. Trade steady, with prices scarcely altered. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ...	1 6– 7 0	Melons, each ...	3 6– 5 0
— Nova Scotia, brl.	12 0–25 0	Pine-apples, St. Michael, each ...	2 0– 6 0
— Tasmanian, case	15 0–25 0		
Grapes, new, lb.	5 0– 7 0	Strawberries, lb. ...	2 0– 8 0
Lemons, per case ...	12 0–20 0		

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per bundle ...	12 0– ...	Mustard and Cress, punnet ...	0 4 ...
Beans, French, lb. ...	2 0– ...	Onions, per bunch ...	0 5– ...
Beet, red, per dozen	1 0– 2 0	Parsley, per bunch ...	0 6– ...
Carrots, per bunch ...	0 6– ...	Rhubarb, per bundle	0 6 ...
Cauliflowers, each ...	0 3– ...	Seakale, punnet ...	2 0– ...
Celery, per bundle ...	1 6– 2 0	Shallots, per lb. ...	0 6– ...
Cucumbers, each ...	1 0– 1 6	Spinach, per bushel ...	6 0– ...
Endive, per dozen ...	2 0– ...	Sprue, per bundle ...	1 6– ...
Herbs, per bunch ...	0 4– ...	Brussel Sprouts, per lb.	0 3– ...
Leeks, per bunch ...	0 3– ...	Tomatos, per lb. ...	1 0– ...
Lettuces, per dozen ...	1 6– ...	Turnips, per bunch, new	0 4– ...
Mushrooms, punnet ...	1 6– ...		

Potatoes.—In consequence of colder weather prices for Old Potatos have had a tendency to rise in advance of 5s. to 7s. 6d. per ton in many instances. Arrivals of New fairly heavy, and late prices have been maintained. *J. B. Thomas.*

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0–18 0	Ferns, in var., doz.	4 0–18 0
Arum Lilies, per doz.	8 0–12 0	Ficus elastica, each	1 6– 7 0
Aspidistria, doz. ...	18 0–42 0	Foliage plants, various, each ...	2 0–10 0
— speci. plants, each	7 6–10 6	Genista, per doz. ...	8 0–12 0
Azaleas, various, each	2 0– 3 0	Heliotrope, per doz.	6 0– 9 0
Cineraria, per doz. ...	6 0–10 0	Hyacinths, p. doz ...	6 0– 9 0
Cyclamen, dozen ...	6 0–18 0	Hydrangeas, doz. ...	12 0–18 0
Cyperus, per dozen	4 0–12 0	Lily of the Valley, p. doz. pots ...	12 0–18 0
Dielytra, per doz. ...	9 0–12 0	Marguerites, doz. ...	6 0–12 0
Dracæna terminalis, per dozen ...	30 0–60 0	Palms in var., each	2 6–21 0
— viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen ...	6 0– 8 0
Erica Cavendishii, per dozen ...	18 0–48 0	— per doz. ...	12 0–24 0
— ventricosa, doz.	15 0–24 0	Roses, various, doz.	12 0–24 0
Euonymus, in var., per dozen ...	6 0–18 0	— (Fairy), per doz.	8 0–10 0
Evergreens, in var., per dozen ...	6 0–24 0	Solanums, per dozen	6 0–12 0
Ericas, various, doz.	8 0–24 0	Tulips, doz. pots ...	6 0– 9 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun. ...	2 0- 4 0	Maiden Hair Fern,	
Azaleas, doz. sprays	0 6- 1 0	12 bun.	4 0- 9 0
Bouvardias, per bun.	0 8- 1 0	Mignonette, 12 bun.	2 0- 4 0
Callaethiopica, 12 bl.	3 0- 5 0	— French, per bun.	1 6- 2 0
Camellias, white, per dozen	2 0- 4 0	Marguerites, 12 bun.	3 0- 6 0
— various, per doz.	1 0- 2 0	Narcissus, various, doz. bun.	1 6- 6 0
Carnations, 12 blms.	1 0- 2 0	Pelargoniums, scarlet,	
Crocuses, 12 bun. ...	1 0- 2 0	12 spr.	0 4- 0 6
Cyclamens, 12 blms.	0 4- 0 6	— dozen sprays...	0 9- 1 0
Daffodils, 12 bunches	3 0- 6 0	Primroses, 12 bun. ...	0 6- 0 9
Eucharis, per dozen	4 0- 8 0	Primulas, double, 12	
Gardenias, 12 blooms	2 0- 4 0	sprays	1 0- 1 6
Heliotropes, 12 spr.	0 6- 1 0	Roses, Tea, per doz.	1 0- 3 0
Hyacinths (French),		— coloured, dozen.	2 0- 4 0
per bunch	1 0- 2 0	— French, dozen ...	1 0- 2 0
— (Dutch), in boxes, white, per box ...	2 0- 4 0	— red, per dozen ...	2 0- 4 0
— (Dutch), in boxes, various, per box ...	1 6- 3 0	— Safrano, dozen ...	1 0- 2 0
Lilac, white, Fr., bun.	4 0- 6 0	Spirea, doz. sprays...	0 6- 1 0
Lilium, var., 12 bl....	2 0- 6 0	Stephanotis, 12 spr.	4 0- 6 0
Lily of the Valley,		Tuberoses, 12 blms....	1 6- 2 0
doz. sprays ...	0 6- 1 0	Tulips, doz. blooms...	0 4- 0 6
		Violets, 12 bun. ...	1 0- 2 0
		— French, bunch ...	1 0- 2 0
		— Parma, bunch ...	3 0- 5 0

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *April* 23.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, describe the seed market to-day as scantily attended, and but a limited business doing. The orders which still drop in are small, and of a retail character. The speculative purchasing of Red Clover seed has caused the article to become very firm, and 2*s.* more money is now demanded. Cables just to hand report the American markets excited and dearer. Trefoil also is considered worth buying. Fine Alsike is still tending upwards. White Clover is, however, out of the running. Grasses move off freely on former terms. Spring Tares on spot are scarce. Sanfoin is very cheap.

CORN.

Averages. — Official statement of the average prices of British corn, imperial measure, for the week ending April 19:—Wheat, 29*s.* 10*d.*; Barley, 29*s.* 10*d.*; Oats, 18*s.* 6*d.* For the corresponding period in 1889:—Wheat, 29*s.* 10*d.*; Barley, 25*s.* 1*d.*; Oats, 17*s.* 9*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *April* 23—Good supplies of all kinds of fresh vegetables. Moderate supply of fruit. Demand good. Very large supply of Potatos, trade exceedingly slow. Prices:—English Apples, 4*s.* to 7*s.* 6*d.* per bushel; American Apples, 15*s.* to 25*s.* per barrel; forced Rhubarb, 1*s.* 3*d.* to 1*s.* 9*d.* per dozen bundles; natural ditto, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Cabbages, 2*s.* to 4*s.* per tally; Seakale, 1*s.* 3*d.* to 1*s.* 6*d.* per punnet; Spinach, 1*s.* 6*d.* to 2*s.* per bushel; Sprouting Broccoli, 9*d.* to 1*s.* per sieve; do., 1*s.* 6*d.* to 2*s.* per sack; Cauliflowers, 1*s.* to 2*s.* 6*d.* per dozen; French Radishes, 1*s.* 6*d.* to 1*s.* 9*d.* per tally; Beetroots, 4*d.* to 8*d.* per dozen; Greens, 3*s.* to 4*s.* per dozen bunches; Carrots, 2*s.* to 3*s.* do.; Parsley, 2*s.* to 3*s.* do.; Mint, 2*s.* 6*d.* to 3*s.* per dozen bundles; Horseradish, 1*s.* 1*d.* to 1*s.* 4*d.* per bundle; Mustard and Cress, 1*s.* 6*d.* to 1*s.* 9*d.* per dozen baskets; Cabbage Lettuce, 1*s.* 6*d.* to 1*s.* 9*d.* per dozen; Endive, 1*s.* 3*d.* to 1*s.* 6*d.* do.; Spring Onions, 2*s.* 6*d.* to 4*s.* per dozen bunches; English Onions, 11*s.* to 12*s.* per cwt.; Bordeaux do., 6*s.* 6*d.* to 7*s.* per case; Egyptian do., 9*s.* 6*d.* to 10*s.* do.; Carrots, 16*s.* to 28*s.* per ton.

STRATFORD: *April* 22.—Supply has been good during the past week, and a fair trade was done at the following prices: Cabbages, 3*s.* to 5*s.* per tally; Greens, 2*s.* 6*d.* to 4*s.* 6*d.* per dozen bunches; Cauliflowers, 1*s.* 9*d.* to 2*s.* 6*d.* per dozen; Turnips, 2*s.* to 3*s.* per dozen bunches; Carrots (household), 30*s.* to 40*s.* per ton; do. (cattle feeding), 14*s.* to 18*s.* do.; Parsnips, 25*s.* to 32*s.* 6*d.* do; Mangolds, 14*s.* to 17*s.* do.; Swedes, 16*s.* to 20*s.* do.; Onions, Egyptian, 9*s.* to 10*s.* 6*d.* per bag; do., Dutch, 7*s.* to 7*s.* 6*d.* do.; Watercress, 6*d.* per dozen; Celery, 3*s.* to 6*s.* per dozen bundles; Lettuce, 2*s.* to 2*s.* 6*d.* per pad; Radishes, 6*d.* to 9*d.* per dozen bundles.

POTATOS.

BOROUGH AND SPITALFIELDS: *April* 22.—Quotations:—Regents, 40*s.* to 85*s.*; Hebrons, 30*s.* to 80*s.*; Magnums, blacklands, 35*s.* to 40*s.*; Bedfords, 40*s.* to 50*s.*; Lincolns, 40*s.* to 80*s.*; Yorks, 45*s.* to 75*s.*; Scotch, 60*s.* to 100*s.*; Imperators, 40*s.* to 70*s.* per ton.

SPITALFIELDS: *April* 23.—Quotations:—Magnums, 30*s.* to 50*s.*; Regents, 60*s.* to 65*s.*; Champions, 30*s.* to 40*s.*; Imperators, 40*s.* to 70*s.*; Hebrons, 25*s.* to 35*s.* per ton.

STRATFORD: *April* 22.—Quotations:—Scotch Magnums, 60*s.* to 85*s.*; do. Regents, 50*s.* to 70*s.*; light English Magnums, 45*s.* to 60*s.*; dark do., 32*s.* 6*d.* to 37*s.* 6*d.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 75*s.* to 92*s.*; inferior do., 40*s.* to 75*s.*; hay, best, 60*s.* to 87*s.*; inferior do., 26*s.* to 50*s.*; and straw, 20*s.* to 30*s.* per load.

NOTICES TO CORRESPONDENTS.

*** **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

ASSESSMENT OF GREENHOUSES: *Market Florist.* If you will have patience, you will soon be put out of your misery. See article on p. 515 of present issue, on "Rating of Nurseries and Market Gardens."

BOOKS: *A Beginner* will find no one book that will supply him with "coloured illustrations of the various flowering plants, Ferns, &c." Nicholson's *Dictionary of Gardening* (Upcot Gill, 170, Strand, London, W.C.) will give him much of the information he is in need of. MANUALS: *G. C. Cucumber Culture for Amateurs*, W. J. May; *Raspberry and Strawberry*, D. T. Fish (*Bazaar* Office, 170, Strand, London, W.C.); *Peaches*, Robt. Smith (Simpkin, Marshall & Co., London); the *Grape Vine*, A. F. Barron (Royal Horticultural Society's Garden, Chiswick).

CARPET-BEDS: *P. J.* Messrs. H. Cannell & Sons, Swanley, Kent, will doubtless supply designs.

CONIFER SEEDS: *H. J. C.* We know of no methods of testing the germinating power of the seeds other than those in use for other seeds.

CROTONS: *P. S.* Croton house temperature, night 65° to 70°, with a proportionate rise in the daytime. Overwatering the plants might cause the leaves to fall. It is yet too early to shade Crotons, in fact, shade is at all times opposed to good colour in the leaves, and should not be used until the sun gets more powerful than now. Scale insects were in profusion.

CYTISUS LOSING ITS FLOWERS: *Cytisus.* It was doubtless bought when in full bloom, and fresh from a market nursery, where it had received special treatment and some special kind of manure. These conditions fail under your treatment, hence its collapse. Cut it back—each shoot separately to half its length; and when it breaks, repot it in sandy loam and peat. Cytisus will do very well out-of-doors from the middle of June to September in almost full sunshine; but the pot must be plunged to the rim in coal-ashes.

DENDROBIUM FIMBRIATUM VAR. OCULATUM: *L. L., Brussels.* Union of two flowers or synanthy. Many thanks.

DOUBLE HYACINTH: *H. H.* When these were grown more frequently than they now are, this change was often met with. It is a reversion to the primitive condition of things.

INVERTED MUSHROOM: *R. P.* A very good illustration of a common malformation. Scarcely a week, at this season, passes that we do not receive one or two specimens. It has frequently been figured. The reason why is not known beyond dispute.

NAMES OF FRUIT: *G. W. O.* Apple Mère de Ménage.

NAMES OF PLANTS: *W. Chaffer.* 4, Aubrietia deltoides var.; 6, Alyssum saxatile. No. 1 is a Polygonatum, which, with Nos. 2, 3, and 5, should be sent when in flower.—*D. T.* The publisher is the business manager. The Austrian Pine is covered with fungus (Peridermium pini) to such an extent, that remedy is impossible. Burn the affected twigs as far as you can. 1, apparently Gualtheria shallon; 2, Juniperus virginiana.—*E. D. L.* 1, Acer platanoides, or one of its varieties; 2, Acer pseudoplatanus; 3, Salix repens; 4, Hippophae rhamnoides.—*W. H. M.* Toxicophlæa spectabilis.—*O. Orpet.* 1, Dendrobium pulchellum of Loddiges = D. Loddigesi, Rolfe; 2, D. Pierardi; 3, D. cretaceum.—*G. Ward.* 1, Miltonia stellata; 2, Cattleya Forbesii; 3, Forsythia viridissima; 4, Berberis dulcis; 5, B. Darwinii; 6, Rhipsalis salicornioides.—*T. T. W.* We cannot name garden forms of flowers.—*G. Paul.* Lathræa squamaria, an unusual colour.

ODONTOGLOSSUM (=MILTONIA) VEXILLARIUM: *H. B.* A very brightly coloured form.

ROSES: *J. Edwards.* The blooms were very nice of their kind, especially those of M. Brunner and Dr. Andry.

SEEDS NOT GERMINATING: *T. H.* Grevillea robusta seeds should be raised in a greenhouse, or if heat be employed, it should be of a mild nature. Strong bottom-heat sometimes destroys the vitality of the seed, especially if the pots be plunged. Aralia Sieboldi grows best in the greenhouse. It takes several weeks to germinate if sown in the early spring. Mandevilla suaveolens is a greenhouse plant, and does not require heat at any time. The first two are more satisfactory when sown late in the autumn, and kept in a cold pit, out of the reach of frost, covering the seed-pots with a piece of tile to exclude mice. The seeds will germinate during the winter, and should be potted singly before many roots are made. In sowing seeds of hard-wooded greenhouse plants, the layer immediately under the surface soil, which should be fine, should consist of nodules of peat and loam—or either separately—of the size of Hazel-nuts. The roots seize upon these, and upon being turned out of the seed-pots are not entirely denuded of soil, as occurs when finely-sifted mould only is employed, and there is consequently less check to growth caused by the operation of potting.

STOVE: *W. P. T.* The two flow-pipes and the return-pipe should not pass under the bed first, but be carried round the house—or at least the sides and front of it. They may then pass under the bed; but there should be a valve in, and a separate connection with, the return-pipe, just outside the bed, so that when the bed was sufficiently warm the water in the two flow-pipes could be diverted. There must be no valve in the return-pipe.

STRAWBERRY NOBLE: *H. M.* The fine large fruits sent were of very poor flavour, but so have some other early forced Strawberries. We think there are several which are much better, but the market growers will like it, if it sets well, as you say it does, and is robust, and we may expect to see it in quantity in the shops very soon.

STRAWBERRIES: *R. C.* Your fruit arrived in a state of fermentation, so that we are quite unable to advise you.

TRAMETES: *H. J. C.* The fungus you send is a Trametes, probably the one you speak of.

CATALOGUES RECEIVED.

WM. PAUL & SON, Waltham Cross, Herts New Roses, &c.

EDWARD H. CUTLER, 60 and 61, Covered Market, Leeds—Vegetable and Flower Seeds.

PAUL & SON, Old Nurseries, Cheshunt, Herts—Alpine and Hardy Herbaceous Plants; also, Bedding Plants, &c.

CHAS. A. MCBRIDE, Commercial Nurseries, Jacksonville, Fla., U.S.A.—Ornamental Trees, Roses, &c.

W. and J. BIRKENHEAD, Fern Nursery, 19, Washway Road, Sale, Manchester—Ferns and Selaginellas.

BRUANT, Boulevard St. Cyprien, Poitiers, Vienne, France—General Plant List.

COMMUNICATIONS RECEIVED.—J. Rothschild.—C. Whitehead.—J. S.—J. W.—B. O.—F. W. B.—C. W. D.—C. G. van Subergen & Co. (many thanks.)—J. A.—Prof. Colmeiro, Madrid.—G. C. W., New Jersey.—G. D.—J. C.—F. B.—T. W.—E. C.—H. Mayr, Tokio.—F. Kerr—J. B.—E. Bonavia.—W. Brockbank.—B. B.—J. S.—Dr. J. MacFarlane.—J. W.—J. O'B.—R. A. R.—W. A. C.—Market Gardener.—W. C.—Hurst & Son.—A. D.—Dr. Morton.—J. H. M.—A. M., both next week.—D. Radclyffe.—W. M. C. & Sons.—C. W. D.—H. Correvon, Geneva.

DIED, on April 18, at Knockmullen, Gorey, Ireland, MYSIE C. M. OWEN, daughter of the late Admiral Owen.

WORM DESTROYER, for eradicating every kind of Worm from the roots of large Specimen Plants, Pots, Lawns, &c. It is easily and cheaply applied, and will not harm the most delicate plant. In bottles, 1s., 2s. 6d., 7s., and 12s. 6d. each.

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FOWLER'S MEALY-BUG DESTROYER, for the Special Eradication of this most troublesome of Stovehouse Plant Pests. It is easily applied, either with a small brush or vaporiser; is instant destruction to both insects and ova, and does not stain or injure the foliage. In Bottles, 1s., 2s. 6d., 5s., and 10s.; Half-gallon, 21s.; One Gallon, 42s. each.

ELLIOT'S "SUMMER CLOUD" SHADING, for Greenhouses, Conservatories, Skylights, and all Glass Structures that require Shading Material. In packets, 1s. each.

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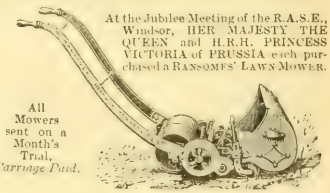
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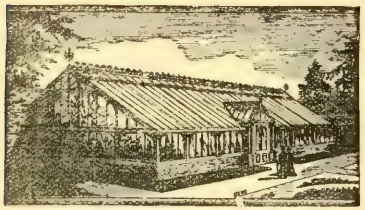
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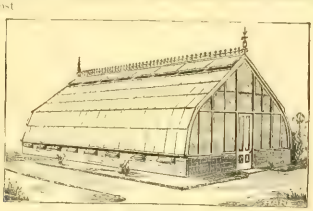
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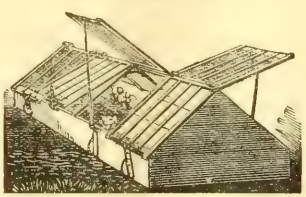
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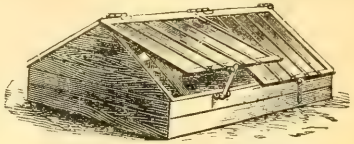
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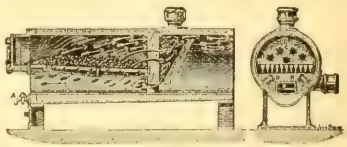
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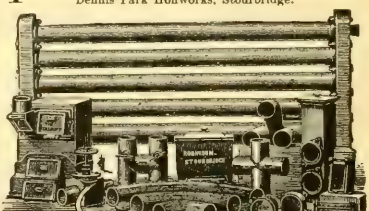
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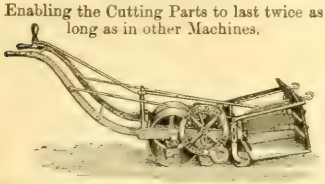
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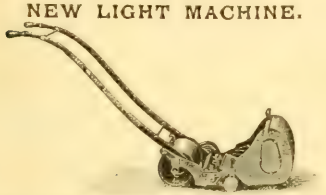
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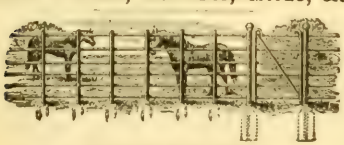
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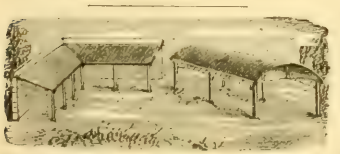
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The words "Frigi Domo" are registered as a Trade Mark, and in two recent actions of Benjamin Edgington, Limited, Plaintiffs, *v.* John Edgington & Co., Defendants, and Benjamin Edgington, Limited, Plaintiffs, *v.* Osman & Co., Defendants, judgments have been obtained against the Defendants for a Perpetual Injunction, restraining them from using the words "Frigi Domo" as a Trade Mark for any material intended to be used for Horticultural or similar purposes not manufactured by or for the Plaintiffs or selected by them, and the Defendants, John Edgington & Co., and Osman & Co., were ordered to pay Damages and Costs.

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Mr. W. J. WELCH, for the past six years Foreman in the Gardens, Easton Park, Wickham Market, has been engaged as Head Gardener to Sir JOHN D. POYNDRE, Bart., Hartham Park, Corsham, Wilts.

Mr. JOHN JEFFERSON, late Gardener at Totley Grange, Sheffield, as Head Gardener to the Right Honourable Viscount BURY, The Hyde, Luton, Beds.

Mr. R. WADHAM, for the last two years employed in Holly Lodge Gardens, Highgate, London, as Gardener to Admiral BRADSHAW, The Grange, Steeple Aston, Oxford.

Mr. G. H. SMITH, as Head Gardener and Bailiff to the Rev. Canon CHAPMAN, Paul's Cray Hill, Kent.

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FOREMAN, in a good Establishment.—Age 27; five and a half years previously as such. Can be highly recommended by present employer, and by Mr. Herrin, Broxmore, Maresfield.—T. DANCER, The Gardens, West Dean Park, near Chichester.

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JOURNEYMAN (First), in the Houses.—Age 26; abstainer. Eight years' experience. Excellent references. Bothy preferred.—J. THORBURN, 32, Prospect Road, Sydenham, S.E.

JOURNEYMAN, in the Houses.—Age 23; good reference.—G. PLUMTREE, Stoke Rochford, Grantham, Lincolnshire.

JOURNEYMAN, in the Houses, in a good Establishment.—Age 21, eight years' experience. Good references.—W. B. AVISFORD, Arundel, Sussex.

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Now ready, in cloth, 11s. 6d.

THE GARDENERS' CHRONICLE, Vol. VI., Third Series, JULY to DEC., 1889.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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The Subscription to America, including Postage, is $4.30 for Twelve Months.
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See large Advertisement, page 542.

SALES BY AUCTION.

Exeter.

HIGHLY IMPORTANT Three Days' UNRESERVED SALE of particularly well-grown STOVE and GREENHOUSE PLANTS, by order of Messrs. Lucombe, Pince & Co., who are relinquishing their business.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Exeter Nurseries, Exeter, on TUESDAY NEXT, May 6, and two following days, at 12 o'Clock precisely each day, without the slightest reserve, the first portion of the extensive and valuable Stock of STOVE and GREENHOUSE PLANTS, comprising 200 specimens, such as Stephanotis, Lapageries, Azaleas, Orchids, Ixoras, and other Palms; 2000 Stove Plants, including Crotons, Anthuriums, Dracænas, Hoyas, Ixoras, Allamandas, &c.; 4000 Greenhouse Plants, consisting of Lapagerias, Rhododendrons, Roses, Azaleas, Begonias, Ericas, and numerous others; 600 Orchids, including Cattleyas, Cypripediums, Cœlogynes, Cymbidiums, Dendrobiums, Odontoglossums, Lælias, Vandas, and others; 2000 Show and Regal Pelargoniums, 3000 Exotic and Hardy Ferns, 1500 choice Carnations, Picotees, and 10,000 Herbaceous Alpine Rock and Bedding Plants.

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CARNATIONS and PICOTEES, about 800 named varieties, from a well-known grower; Crimson CLOVES, a choice assortment of FERNS and GREENHOUSE PLANTS, named RHODODENDRONS with Buds, VINES, an assortment of various LILIES and hardy BULBS, LATTICE WOODWORK, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 7, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Friday Next.

ESTABLISHED and SEMI-ESTABLISHED ORCHIDS.

A further portion of the stock of Messrs. J. W. Steel & Co., of Chigwell, who are relinquishing their business, without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 9, at half-past 12 o'Clock precisely, without reserve, a large quantity of various ESTABLISHED and SEMI-ESTABLISHED ORCHIDS, suitable for Gentlemen forming collections; and a large number of ORCHIDS in flower, &c.

On view morning of Sale, and Catalogues had.

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Fuller particulars will appear next week.

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MESSRS. JOHN MARGETTS AND SON will SELL by AUCTION, in the Castle Gardens, Warwick, on WEDNESDAY and THURSDAY, May 7 and 8, 1890, by direction of the Right Hon. the Earl of Warwick, 10,000 extra choice STOVE, GREENHOUSE, FLOWERING and FOLIAGE, FERNS, MOSSES, and BEDDING-OUT PLANTS, comprising grand specimens of Chrysanthemums, Azaleas, Camellias, Agapanthus umbellatum, Aspidistra, Cytisus, Cyclamen, Aloysia, Erythrina, Fuchsia, Abutilon, Clianthus, Callicarpa, Choysia, Heaths, Deutzia, Epacris, Eulalia, Eupatorium, Farfugium, Calla, Gladioli, Habrothamnus Newelli, Rhynchospermum jasminoides, Hydrangea, Imantophyllum, Kalosanthes, Lilium, Lagerstrœmia alba, Myrtus, Rhododendron; Figs in pots (grand specimens for forcing); the expensive and noble collection of upwards of 200 Orchids, finest named and best varieties, including many rare and scarce specimens, the whole of grand growth, free flowering, fine variety, and large size, many of them having from 2 to 3 feet through; the unique collection of Stove Plants, Acalypha musaica, Amaryllis, Alocasia metallica, Gloxinia, Anthurium magnificum, Bougainvillea, Caladium, Pandanus Veitchii, Pancratium, Jasminum, Ixora, Hoya, Justicia, Maranta, Palm, Fittonia, Gardenia, Gracœna, Hibiscus rosa, Stephanotis, Tabernæmontana, Poinsettias, Roses in pots, Cactus, &c.; 600 Chrysanthemums, Japanese, Incurved, Reflexed, Anemone; superb assortment of Ferns and Mosses, Adiantum, Asplenium, Blechnum, Davallia, Gymnogramma, Lastrea, Lomaria, Lygodium, Nephrodium, Nephrolepis, Phlebodium, Platzcerium, Pteris, Woodwardia, Selaginella. All the large collection of Bedding Plants, Geraniums, &c., in great variety—Marshal MacMahon, Mrs. Perry, Mrs. Pollock, Crystal Palace Gem, Madame Crousse, Jeanne d'Arc, La Rosière, White Vesuvius, Manglesii, Corsair, Duke of Edinburgh, Henry Jacoby, Queen of the Belgians, Gem, Lady Plymouth, and other scented varieties and specimens. Dahlias, Lobelia, &c., fully described in Catalogues now in circulation.

Sale will commence each day punctually at 11 o'Clock in the forenoon.

May be viewed on Tuesday, May 6, between the hours of 11 and 4 o'Clock, by Ticket, to be obtained at the Office of the Auctioneers, 12, High Street, Warwick, or at the Estate Offices.

Catalogues may be obtained at the Offices of the Auctioneers.

Thursday, May 15.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 15, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will please SEND LISTS NOT LATER THAN THURSDAY NEXT.

Barnes Common and Mortlake, Surrey.

By Order of the Executors of the late Mr. William Clifford, Senr.

To Cowkeepers, Dairymen, Market Gardeners, Salesmen, Dealers, and Others.

MR. WOODS begs to announce that he has been instructed to SELL by AUCTION, on the Premises, Rose Acre Dairy, Barnes Common, Surrey, on TUESDAY, May 6, 1890, at 1 for 2 o'Clock precisely, the WELL-KNOWN HEALTHY STOCK of 7 Cows and a Calf, the Dairy Utensils, Head Collars, Chains, Tubs, Chestnut Mare, Black Mare, Harness, Boxes, Baskets, Ladders, Spring Market Van, Wash Cart, Liquid Manure Cart, Ditto Light Cart, Corn Bins, about 20 Head of Poultry, Erection of Sheds, and Outdoor Effects, also a small quantity of Furniture, Pianoforte, and other Domestic Items.

Previous to the Sale of the above will be offered for competition, the BENEFICIAL INTEREST and GOODWILL of the DAIRY BUSINESS and FOLLOWING HOLDINGS, in Lots, viz., the Homestead, known as Rose Acre Dairy, Barnes Common, comprising a comfortable Detached Residence, Dairy Premises, and miniature Market Garden, about 1 a. 1 r. 13 p.; Collins's Field or Jewel Close, and Penson's Piece, 7 a. 0 r. 24 p.; Gambridge, Palewell or Tittleburry Hill, part of Sir Knight Bruce's Cemetery Field, Popham's, &c., about 5 a. 2 r. 5 p.; total, 14 a. 0 r. 0 p. The Stock, Crop, &c., will have to be taken at a valuation in the usual way. At the same time will be offered this year's SUPERB CROP of ASPARAGUS, in well matured Beds, at Popham's, Mortlake, Surrey, which on date of Sale will be ripe for Marketing, and can be Cut till July 1, 1890.

May be viewed morning of Sale, and Catalogues and Particulars obtained on the Premises; of F. SENIOR, Esq., Solicitor, Richmond, Surrey; or of Mr. WOODS, Auctioneer and Valuer, Hounslow, Middlesex.

To Greengrocers, Fishmongers, Florists, Market Gardeners, Seedsmen, and others.

TO BE DISPOSED OF, by Private Treaty, one of the best GREENGROCER'S, FISHMONGER'S, and FLORIST'S BUSINESS, in one of the principal thoroughfares of the city of Manchester. Returns over £10,000 per annum. To anyone of push and energy, a rare opportunity presents itself. Present owner giving up in consequence of going into the wholesale exclusively.

For further particulars apply to C. W. PROVIS AND CO., 4, Chapel Walks, Manchester.

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FOR SALE, with immediate possession, Long LEASEHOLD PREMISES and GOODWILL. Capital House, eight rooms, fitted Bath, &c.; three large Span-roof Glass Houses, with improved Heating Apparatus, Cold Frames, Potting Shed, &c.; all in excellent order; long frontage to main road. Rapidly increasing suburb, with opportunities for unlimited trade. Present owner retiring. Stock optional.

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TO BE SOLD, a First-class NURSERY, within 7 miles of Covent Garden, comprising about 1 acre of Land, with two Cottages and eight large Greenhouses thereon, all well stocked, and heated with hot-water. Lease 15 years. Terms moderate.

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NURSERY FOR SALE, near London. Well Stocked. Going concern. In thorough working order. Replete with best Heating Apparatus. A fortune for a practical man with about £800.

Apply, GIBBS, Australian Hotel, Langham Street, London.

FOR SALE, COURT FLORISTS' BUSINESS (under management). Aristocratic suburb, good trade, long lease, suitable for Lady or Gentleman.

Address, FLORIST, Heywood & Co., Ltd., Advertisement Contractors, 62 and 64, Ludgate Hill, E.C.

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TO BE LET, from Michaelmas next, about 35 acres of valuable LAND, in the town of Eltham, as a Nursery or Market Garden.

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INEXPENSIVE yet ATTRACTIVE GARDEN and GROUNDS of 2 or 3½ Acres (one man only required), TO BE LET. Capital moderate-sized house; stabling, Cow and Greenhouses. In Kent, 28 minutes by train from Cannon Street. Rent, £130. Drawing-room, 36 by 21 feet; Billiard-room, good Dining-room, &c.

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GREAT INTERNATIONAL SHOW will be held in the Waverley Market, Edinburgh, SEPTEMBER, 1891, when PRIZES of ONE THOUSAND POUNDS will be offered. Special Prizes will be received up to June 1, 1890, when the Prize List will be sent out.

SUBSCRIPTIONS ALREADY INTIMATED:—

WILLIAM THOMSON AND SONS, Clovenfords ...	£20	0	0
DICKSONS AND CO., 1, Waterloo Place, Edinburgh	10	18	0
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IRELAND AND THOMSON, Edinburgh	10	10	0
JAMES DICKSON AND SONS, Edinburgh	10	10	0
THOMAS METHVEN AND SONS, Edinburgh ...	10	10	0
R. B. LAIRD AND SONS, Edinburgh	10	10	0
LITTLE AND BALLANTYNE, Carlisle	10	10	0
JOHN DOWNIE, 141, Princes Street, Edinburgh ...	5	5	0
ANGUS M'LEOD, Superintendent Public Parks and Gardens, Edinburgh.	2	2	0
DOBIE AND CO., Seedsmen, Rothsay	16	0	0
STUART AND MEIN, The Nurseries, Kelso	7	0	0
Mr. BROWN, Gardener, Gosford	2	0	0
Mr. CAMPBELL, The Nurseries, Blantyre	1	1	0
Mr. D. ROBERTSON, Hedensburgh	1	0	0
Mr. BRYDON, Tweed Bank	1	0	0
Mr. M'INTYRE, The Glen	1	0	0
Mr. PRIEST, Gardener, Eglinton Castle	1	1	0
Mr. GORDON, Gardener, Niddrie	1	1	0
Mr. M'KINNON, Scone Palace	1	1	0
Mr. SMITH, Gardener, Hopetoun House	1	1	0
Mr. MURRAY, Culzean Castle	1	1	0
CANNELL AND SON, Swanley, Kent	5	5	0
Mr. METHVEN, Blythwood	1	1	0
Mr. MORRISON, Archerfield	1	1	0
Mr. H. DICKSON, Belmont, Belfast	2	2	0
Mr. M'INDOE, Hutton Hall	2	0	0
Mr. HUNTER, Lambton	2	2	0
Mr. SHARP, Freeland	10	6	
Mr. JAMES BRYSON, Hedensburgh	10	0	
Mr. SMITH, Cullen Garden	10	0	
Mr. M'KINNON, Melville Castle	2	0	0
Mr. POTTER, Scaudiff	10	0	
Mr. LUNT, Ardgowan	1	1	0
Mr. BOYD, Callender	1	1	0
Mr. GRASSART, Oswald House, Edinburgh ...	2	2	0
Mr. DUNN, Palace Garden, Dalkeith	3	3	0
GEORGE BUNYARD AND CO., Maidstone, Kent ...	2	2	0
Mr. ERSKINE, 81, George Street, Edinburgh ...	1	1	0

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18, *Waverley Market, Edinburgh.*

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Telegrams—"SPRECKER, Antwerp."
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CHAMÆROPS FORTUNEI, 22*s.* per 1000.
COCOS WEDDELIANA, 12*s.* per 100.
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CATALOGUES gratis.
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NEW REGAL PELARGONIUMS, PRINCE HENRY and PRINCESS BEATRICE.
FREDK. PERKINS has great pleasure in offering the above New Pelargoniums, being very distinct from any yet sent out, quite new in colour, robust habits, and perpetual bloomers. Can be seen at my Nursery, or Flowers sent by post on application. Strong flowering plants now ready, 7s. 6d. each.
FREDK. PERKINS, Nurseryman, Leamington.
Sufficient Telegraph Address.—FRED. PERKINS, Leamington.

POTATOS "Bedfordshire-grown" POTATOS.
Highly recommended to all "who require change of seed." Special cash offer:—Myatt's Prolific Ashleaf, Sutton's Abundance, Ashleaf of Hebron, New Early Monarch, Schoolmaster, Sutton's Early Regents, White Elephants, Reading Russets, Early Rose, Imperators (large), and Vicar of Lakeham, all at £3 10s. per ton, 4s. 6d. per cwt. Magnum Bonum, "Sutton's," 50s. per ton, 3s. per cwt. Free delivery on to rail (Great Northern Railway). Bags included for cash with orders.
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(Please name *Gardeners' Chronicle* when ordering.)

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SELECTIONS of VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s. and upwards.
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Descriptive LIST free on application.
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WILLIAM BADMAN offers as under from Store-pots, all well-rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter.
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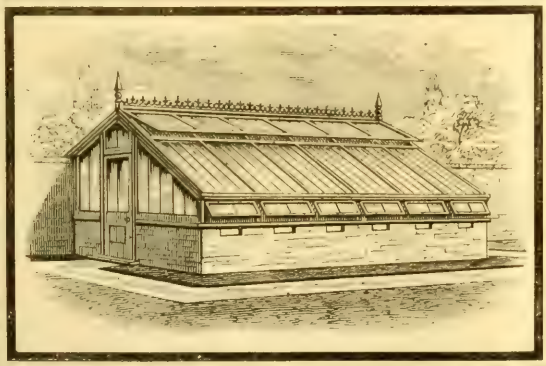
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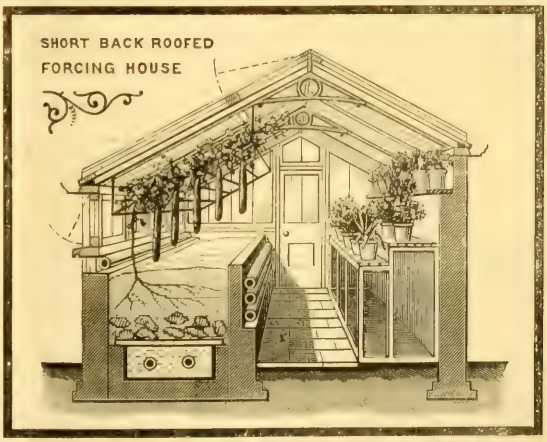
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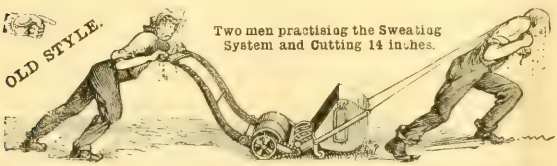
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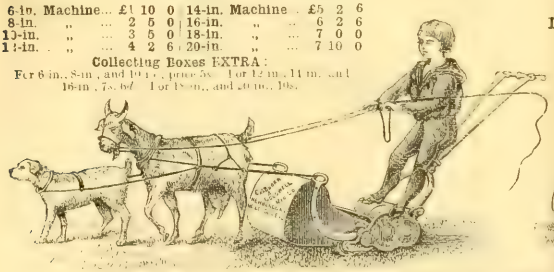
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THE

Gardeners' Chronicle.

SATURDAY, MAY 3, 1890.

THE MICROSCOPIC STRUCTURE OF HYBRIDS.

AT the March meeting of the Edinburgh Botanical Society, I gave a microscopic demonstration of the structure of hybrid plants and of their parents; at the same time I made a few explanatory remarks, and I propose now to expand these into a short communication. I trust that this may prove interesting to those at least of your readers who look to hybridisation as to the great field of promise for experimental horticulturists.

During the last few years I have studied minutely the general and microscopic structure of pitchered insectivorous plants. At an early stage in my investigations, I was struck by the perfect blendings in certain well known hybrids of the appearances presented by their parents, and this not merely in habit, consistence, shape, and colour, but even in such minute details as the relative number of stomata in a given area, the size and shape of cell hairs and of the cells from which these sprung, and the mode of deposition of thickening substance on their primary cell wall.

The fine series of hybrid Nepenthes, raised by the late Professor Dickson and Mr. Lindsay, or presented to the Royal Botanic Garden by the Messrs. Veitch, formed a rich field for study, but my attention was specially arrested on examination of a set of seventeen hybrid Sarracenias, kindly supplied to me some months since by Mr. Moore, of Glasnevin Garden. As one after another of these was passed under the microscope, I was gradually inclined to believe that a hybrid plant may exhibit blending of parent peculiarities in every cell. This was easily demonstrated in the case of epidermal tissues which are apparently the most plastic of all.

Unwilling to trust the evidence of such highly specialised plants, I examined other hybrids belonging to various orders, as Dianthus Lindsayii, Philageria Veitchii, Saxifraga Andrewsii and Churchillii, Hedychium Sadlerianum, and also the supposed doubtful hybrid Bryanthus erectus: these not only verified my previous

conclusions, but enabled me to extend them in a convincing way. I now subjoin descriptive notes of the more striking parts which may be readily examined by any one conversant with microscopic work.

The first-named hybrid, Dianthus Lindsayii, is not only intermediate between Sweet William (D. barbatus) and the pretty alpine Pink (D. alpinus) in habit and leaf-form, but if we compare the leaf-epidermis of the three, we find that in the field of view of a low-power Zeiss objective (A), Sweet William shows about 900 stomata on its under epidermis, and 100 to 400 on its upper; the alpine Pink shows on its under epidermis 600 stomata, and on its upper 460; the hybrid shows 750 on its lower, and 290 on the upper epidermis. The epidermal cells also of the hybrid are intermediate between those of the parents.

Philageria Veitchii is a remarkable cross. With a decided leaning in naked-eye and microscopic appearance to the seed-parent, Lapageria rosea, it nevertheless shows in cells of the root, stem, leaf, and flower a strong infusion of Philesia buxifolia "blood." Thus the thickened cells in the bundle-sheath of fully matured roots of the hybrid are intermediate between the greatly thickened cells of L. rosea and the slightly thickened cells of P. buxifolia. In the stem, the epidermis, cortex tissue, bundles, and matrix-cells exhibit a similar blending; but as usual it is the leaf which presents the most pronounced union of characteristics. On surface view, the upper epidermis of L. rosea shows thin-walled, wavy cells, that of Philesia buxifolia thick and straight-walled cells; that of the hybrid shows thicker-walled cells than the former, and approaching the latter on being nearly straight; the lower epidermis in L. rosea consists of thin-walled, wavy cells, and amongst these are irregularly scattered stomata, whose guard-cells are fully exposed on the surface. In P. buxifolia, the epidermal cells are straight-walled, but have undulating free surfaces, and embedded deeply beneath these many stomata appear, arranged nearly in parallel rows. The hybrid, though showing a bias towards the female parent, is again intermediate. In the amount of pallisade and loose parenchyma, and the size of the chloroplasts, the same is true.

I have not as yet had opportunities of examining the flowers of many hybrids, but for specimens of that just discussed, I am indebted to my friend, Mr. Dunn, of Dalkeith Palace Gardens. While the echinated pollen grains of the parents appear plump and well filled with protoplasm, those of the hybrid are shrunk and starved looking, with the exception of one here and there, which seem as if they could effect fertilisation. The same apparently holds true so far as I have examined (this includes nine hybrids and their parents), but the more nearly two parent species approach each other in habit and structure the more abundant do the potential pollen grains appear to be.

Saxifraga Andrewsii is a hybrid which perfectly blends the peculiarities of the "Geum" and "Aizoon" sections of the genus. The upper epidermis of the leaf is devoid of ordinary stomata, as in S. Geum and its allies, and in this differs from S. Aizoon and the crusted Saxifrages, which all have an abundance distributed over patch-like areas. The marginal water stomata in size and colouring resemble the former, but the epidermal cells which surround them have little knob-like excrescences on which gathers the calcareous deposit which gives to the crusted Saxifrages their typical character. These are only found in the "Aizoon" group. But the mesophyll tissue and vascular supply in the leaf of the hybrid is also intermediate, for, to refer only to the last, S. Geum has the lowest water stoma on each side of the leaf margin partly supplied by two bundles which spring from the main leaf bundle near its junction with stem, partly by branches of two given off much further up; S. Aizoon has three to five on each side, wholly supplied from the lateral pair; in the hybrid two to three are thus supplied.

The hybrid Hedychiums, in which the late Professor Dickson interested himself greatly, and which were duly described in this periodical, were next examined. I hoped that these would show in the starch granules of the rhizome cells blending of the parent conditions. I was greatly pleased to find my hopes amply realised. Selecting pieces of mature rhizome of H. coronarium, H. Gardnerianum, and the hybrid, I found that while the granules of the first were large, flat, oval plates, and those of the second small triangular shells, those of the hybrid were shaped as if half of H. coronarium granule had been fused with a reduced one of H. Gardnerianum. A study of the hybrid resulting from H. coronarium crossed by H. elatum gave like results.

While treating of cell contents, I may note that by the kindness of Mr. Buchanan, and of his gardener, Mr. Grossart, I have been able to examine the hybrid Masdevallia Chelsoni and one of its parents. The purplish-red sepals of the former owe their colour to large rich yellow granules or chloroplasts present in the epidermal cells, and to vesicular hair cells springing from the epidermis, which are filled with a purple pigment. In M. Chelsoni the yellow chloroplasts are mostly one-third to one-fourth the size of those found in the parent already examined. I fully expect, therefore, to find the chloroplasts in the seed parent as small as, or smaller than, those in M. Chelsoni, when I have an opportunity of looking into it.

For several reasons, I have given considerable attention to the Ericaceæ. The beautiful Bryanthus erectus is a bigeneric hybrid of pronounced type. Totally different as are many of the tissues of the parents, these are blended in the hybrid in a singularly interesting manner. The relative size of the pith and of the individual pith cells, the structure of the phloem and of the outer bark, in stems of equal age, the leaf shape on transverse section, and the disposition of cells in it, also the structure of the floral parts in the hybrid, are all intermediate between the parents. Erica Watsoni (a wild cross between E. ciliaris and E. tetralix) is a very evenly balanced hybrid, but I will only refer in detail to its anther structure. In E. ciliaris the anthers have no tails, in E. tetralix tails about one-twentieth of an inch long are produced from each anther lobe, in E. Watsoni the tails are exactly half as long as in the latter. In E. tetralix each cell of the anther wall is swollen out into a short conical mamilla; in E. ciliaris this mamilla is strongly developed, and is often constricted in the middle. Erica Watsoni has mamillæ exactly intermediate in size and shape. I have carefully worked over Erica Mackayii, but will defer discussion of it for the present.

The numerous crosses of Rhododendron effected by Mr. Grieve, of Messrs. Dickson's nurseries; by Mr. Fraser, of Messrs. Methven's nurseries; and by Mr. Lindsay, have further verified the line of investigation. The cross between R. ciliatum and R. Edgworthii greatly resembles the former, but scarcely at all the latter, in naked-eye appearance; so much is this the case, that I doubted the accuracy of the supposed parentage when I received specimens of the three from Mr. Lindsay. An examination of the leaf alone sufficed to set my doubts at rest. In the number and mode of distribution of the stomata, the structure and cell contents of the scurf-scales, the distribution and shape of the hairs, and the leaf-structure when seen on transverse section, the minute features on both parents were strongly traceable in the hybrid. R. præcox and R. glaucociliatum, are equally deserving the attention of any who wish to follow out for themselves this line of inquiry.

A comparison of the stomatic distribution in many hybrids and their parents shows how constant and regular such minute tissue-modifications may be, specially if one observes previously whether the hybrid inclines more to the pollen or the seed parent.

Thus, under the field of view of No. 7, Zeiss objective, Cypripedium insigne shows 11 to 12 stomata, C. villosum shows 21 to 23, the hybrid 16 to 17, C. barbatum has 3 to 4, C. insigne has 11 to 12, C. Ashburtoniæ (which more nearly resembles the former) has 6 to 7. Dianthus Lindsayi has already been referred to, and I may further cite Philageria Veitchii, various Saxifrages, Sempervivums, Ericas, Rhododendrons, Daphne, &c.

Enough has been adduced to show that, as the result of union of the fertilising contents of the pollen-tube with the egg-cell of a plant, a new character is assumed by the egg-cell, and that as it grows and divides to form the embryo plant, every cell of that plant inherits the peculiarities of both parents at times in a perfectly balanced way, so far as our limited powers of study can carry us, at times with an evident leaning or bias to one parent. It is, therefore, evident that a wide field for observation and experimental research is open alike to the biologist and horticulturist. For the biologist, many problems bearing on heredity, on cell-history, on the relation of species to each other, on the production of hybrids [bud spots], and on the evolutionary origin of organisms, which have hitherto been greatly confined to the region of speculation, may thus be reduced to accurate scientific study. For the horticulturist, who has already opened the way so much, further incentives to the prosecution of hybridisation experiments present themselves.

About sixty hybrids and their parents have now been examined by me, and I hope in time to publish an account of these, and others which may reach me. May I be allowed to solicit from your wide circle of readers, specimens of such hybrids and their parents as can be spared. A bit of root, stem (rhizome, tuber, or other part, if such is developed), a leaf or two, and flower, will amply suffice, or any of these will prove helpful, specially leaf and flower. It is only by comparison by a wide series of plants that such investigations can be fruitful in good results to the horticulturists. I feel sure that many will be willing to aid me in the way indicated.

I may be allowed to express best thanks to the Directors and Curators of the Kew, Glasnevin, Trinity College, and Edinburgh Botanic Gardens, as well as to several private donors, who have generously supplied me with material. *Dr. J. Macfarlane, Botanical Laboratory, Royal Botanic Garden, Edinburgh.*

New or Noteworthy Plants.

ZYGOPETALUM CAULESCENS, *Rolfe, n. sp.**

A very interesting and remarkable Zygopetalum was introduced some time ago by Messrs. F. Sander & Co., of St. Albans, I think from Brazil, but unfortunately I have mislaid the letter, which came with the original specimens. It has now passed into several collections, and specimens have been received for determination from the Rev. F. D. Horner and Mr. J. O'Brien, those from the latter having been sent by some correspondent of his. I can find nothing at all like it, and therefore propose for it the above name, in allusion to its remarkable caulescent habit. It belongs to the section Euzygopetalum. The material to hand is ample, consisting of two pseudo-bulbs, several leaves, two racemes, and several flowers, but from the appearance of the plants I saw at St. Albans, I should say they are much weakened by their long journey. How far it will prove of value as a garden plant can better be decided when the plants are fully established, but at present the

* *Zygopetalum caulescens*, n. sp.—Caulescent, stems from ½ to 2 feet high, clothed with the sheathing bases of the old leaves, rooting below. Leaves distichous, linear-lanceolate to linear, acute, 5 to 7 inches long, but probably longer when the plant is developed. Racemes erect, at present 6 to 8 inches long, two to three-flowered. Bracts lanceolate, acute, conduplicate, 1½ to 2 inches long. Flowers 1½ to 2 inches across. Sepals and petals lanceolate-linear, acute, very pale green, blotched with maroon-purple. Lip cuneate obovate, truncate or slightly emarginate, hairy, white, the radiating nerves with interrupted violet lines, from which arise stronger violet hairs; base with a pair of minute auricles; crest semicircular, fleshy, with several radiating keels and rows of violet hairs. Column elongate, hairy in front, with a pair of narrow wings on either side of the stigma.



FIG. 85.—CYPRIPEDIUM MORGANÆ×. (SEE P. 552.)

flowers are smaller than those of Z. Mackayi, and the colours less brilliant. Notwithstanding the totally diverse habit, I should think our novelty is as much allied to this species as to any other. The species of this affinity are so puzzling, that it is a relief to find one which has some really distinctive characteristics. *R. A. Rolfe.*

MULCHING FRUIT TREES, ETC.

There is one matter of modern practice which gets insisted on in and out of season, by gardeners in print and in speech, and which runs the risk of getting overdone, and that is mulching as applied to the roots of trees in our orchards and kitchen gardens.

Mulching, as applied to trees newly planted, is right enough, and is a help to speedy rooting, equally applicable to the forest tree or garden shrub. Even in these cases the amount should be small, and not extend much beyond the root area, its sole object being the retention of moisture in the soil; for if the latter becomes evaporated by hot sun and parching wind, the interstices of the soil become filled with air, which draws the moisture, or in other words the sap, out of the roots in a harmful degree, and the exhaustion of moisture from the soil is only partially replaced in the warm season by capillary attraction from below, or by uncertain rains. Before mulching became so generally advised, we were taught to rely on a crumbly surface to retain moisture in the land, and for all subjects not recently planted, I prefer it to mulching, as being better adapted to our moist climate and weak sunshine. For if mulching has its benefits, it also has the one great drawback of hindering the action of the sun in aërating and warming the earth. We look to the sun as the one source of heat wherewith plants are enabled to grow, and yet we do much by putting on masses of non-conducting material like wet straw and Fern, and even short grass, to hinder the access of sun-heat to the soil surrounding the roots of our trees. I well remember an instance of successful Peach, Apricot, and Fig growing in a garden 300 miles north of London, where the gardener—who, by the way, had never missed a crop in the thirty years he held the situation—never employed mulching to his wall trees after the first summer following replanting. The border was of moderate depth, of lightish loam resting on basalt rock, or the overlying strata of heavy loam inclining to clay. The soil of this south border was warmed to the depth of one and a half feet, because there was no non-conducting medium spread on its surface; growth on the trees was moderate, and it ripened satisfactorily, forming plenty of blossom buds. The surface was pricked up twice during the summer, and hoed as often as became necessary to keep down weeds; and walking on it was by no means forbidden—and this was quite judicious, for nothing tends to good rooting, short growth, and fruitfulness like a firmly trodden soil. In wet weather only were the gardeners directed to keep to the row of rough plants, which stretched from end to end of the border.

Mulching, unless it be very light indeed, has a tendency to prolong growth in the autumn, and hinder its commencement in the spring, and is wanted only in the lightest of soils, at least so far as established trees are concerned. Rosarians will tell us that exhibition blooms cannot be got without mulching, and the season of bloom would be unduly shortened without it, and yet good Roses can be obtained without its aid. The Rose grower finds it an easy way of feeding his plants, as by employing strong farm dung for the purpose he is able to do that, and needs not to go round to his pets with a potful of stinking manure-water from the piggeries or the stable, but instead thereof waters his mulching with clean water. That is entirely a matter of convenience, and does not touch the real point of the case. He is satisfied if his Rose blooms beat those of his rivals, and, moreover, the Rose puts forth its shoots at an early part of the season, and become early matured even under this treatment; and the Rose grower does not look for a big crop, but only a few superlatively good flowers. Here, therefore, the man who mulches does but little harm, even from my point of view.

Where mulching is of the greatest use, and does scarcely any injury to the plants over which it is placed, unless a great thickness is made use of, is on plants on the rockery, in the flower-beds, Strawberry beds, edible, and sweet Peas in beds or rows, Hyacinths, Tulips, Dahlias, Hollyhocks, Rhododendrons, &c., which in the main exist by means of roots near the surface of the soil. To encourage the growth of these roots by means of mulching containing little or no manurial elements, or still better in the case of the vegetables named, with one that may consist chiefly of dung and straw, is quite reasonable and legitimate practice.

Cocoa-nut fibre refuse is now greatly in favour as a mulching material, and for covering the soil beneath plants with small sparse foliage, as bulbs which flower in spring, beds formed of plants in pots for immediate and temporary effects, or where it is desired to hide the soil before the plants cover the same. The use of this kind of fibre rests chiefly on the nice contrasts of colour obtained, and the greater degree of finish and neatness its employment imparts to beds of plants; and as it contains nothing that is edible it is not disturbed by birds in search of food, nor do earth-worms throw their cast up through it. It contains no plant-food whatever, and may therefore never find employment as a feeding mulch.

To plants which are not expected to carry exhaustive crops of fruits, one of the best mulches is half-decayed leaves, or rather leaves left to decay about plants with many surface-roots. These should lay not more than 1 inch in thickness, and may be kept in place by a little soil being sprinkled over them. In beds of shrubs, the wind will disturb the leaves at the outside, and these parts only will require to be kept in place in the manner above stated. It may seem odd to many to recommend pieces of stone, boulders, or pebbles as a mulching, and yet these things rank among the best retainers of moisture and also of warmth—points of great importance. Our ordinary mulches are not bad moisture-keepers, but they are the worst of heat-keepers; whereas dark-coloured boulders are about as good as could be found. Roofing tiles, and less so roofing slates, are excellent means of drawing roots to the surface, when laid down pretty close together over the soil. This was recognised by our forefathers in growing the Strawberry, for they lined the rows of plants with the common red tiles, and obtained clean fruits, and plenty of roots near the top. Of course, the tiles were only down in the summer-time. It is a capital plan for growing early crops of these fruits on steep sloping banks facing south.

Those who have had the management of gardens in some parts of Hampshire where flints abound, will readily recognise the usefulness of stones on the surface.

In the Alpine Garden, amongst the smaller gems, including Primula, Androsace, Arnica, Aubrietia, Calandrinia, Celandine, Cistus, Cortusa, Cyclamen, Gentians, Lithospermum, Phyteuma, Saxifraga, Thymus, and many others; stones placed over the roots in small numbers, and around the plants, or amongst which they may be planted, are amongst the great points of successful culture. The stones conserve moisture in the driest times, shelter the surface-roots, whilst at the same time they induce them to keep near the source of warmth, preserve the crown from dangerous wind-rocking, and form suitable spots for the germination of seed dropped by the plants, and for other natural modes of increase. And it must be said that most alpines seem much more at home when nestling amongst stones and rocks than when placed on the level surface of a border, and liable to injury from hoe and rake.

Most Ferns are benefited by growing amongst stones, if the soil employed be suitable, or by having stones placed around them; and as a rule the more stone and the less soil the better do the plants grow. In cases where boulders or sandstone cannot readily be obtained, and the Ferns grow on the level land, it will be found good practice to employ a mulch of leaf-mould, which should be only partially decayed. In all that has been above stated, there is nothing whatever that can claim to be new; but it is obviously of benefit to bring out of the horticultural arsenal some of the old appliances, for fear they should become rusty and forgotten. *A. F. E.*

ORCHIDS IN SIKKIM.

When an error gets to be periodically repeated, without contradiction, it becomes a duty to try to set it right, and such an error is the recorded altitude at which Cymbidium eburneum is naturally found. This, as frequently quoted by *Gardeners' Chronicle* correspondents, on the authority of Griffiths, is 5-6000 feet, in the Khasia Hills, which I believe to be incorrect. The plant is not uncommon in the Sikkim Himalayas, but does not occur over 3000 feet. Its usual position is high up on the spreading limbs or forks of trees, by river beds, in the hot, steamy valleys, from 1000 to 3000 feet above sea level, and, judging from well-known localities of other plants common to Sikkim and Khasia, it ought to be found in the Khasia Hills, at rather lower elevations than it is in Sikkim. It would surprise me greatly to learn that it really thrives—or even lives for many years—under cultivation, in anything near the temperature of that of 5-6000 feet, at the latitude of the Khasia Hills, which would be that of a greenhouse in England with the frost barely kept out. Naturally, it is a plant for the warm and not for the cool Orchid-house. Many species of Orchids, as well as of other plants appear to have accommodating constitutions, and are found growing equally well at widely different altitudes, but Cymbidium eburneum is not one of them.

In the *Gardeners' Chronicle* of March 1, p. 266, it is stated that Pleiones are found in the mountains of India "clinging to moist rocks, in positions exposed to full sunlight," as well as on the trunks of trees; and that "many growers fail with them, through giving them tropical treatment and excessive coddling." It seems to me that both of the above quotations, although correct in part, contain possible sources of error. Most people, I think, would picture a "moist rock" as one with more or less water trickling pretty constantly over it; but in such situations Pleiones are never naturally found. The cool section of the Sikkim Pleiones grow abundantly on moss-covered rocks, and on the trunks and branches of trees, but those rocks never have any water running over them, except in the shape of rain as it falls from the clouds, and for a great portion of the year they are anything but moist rocks. For six months on end—October till April—they may get but two or three wettings, whilst from the middle of June till the middle of September they are usually in an almost constant state of saturation. In Sikkim, Pleiones certainly do not love "positions exposed to full sunlight," but rather court the chequered shade. It is also a mistake to lump Pleiones all together in their treatment, as it is, too, for Cymbidiums; and therefore the suggestion, without any qualification, against giving Pleiones tropical treatment, although right in the main, is partly misleading. I know of four species of Pleione in Sikkim, viz., Hookeriana, humilis, Wallichiana, and maculata. The mean altitudes at which they are respectively found, in their above order, are 9000, 8000, 7000, and 2500 feet. It naturally follows that P. maculata should get tropical treatment, and the three others cool. Pleiones flower so luxuriantly in these hills, that I can hardly imagine them to be finer under cultivation; but this is a mere hazard on my part, as I cannot call to mind having ever seen one of the genus in flower under cultivation, and certainly have not done so for the last quarter of a century; but were they as fine under cultivation in Europe as they are here under natural conditions, I cannot help thinking they would be more often noticed in horticultural papers than they are.

I have mentioned that some species of Orchids appear to have accommodating constitutions, and to thrive equally well at widely different altitudes. Dendrobium nobile is one of them. But I am not sure that the climatic conditions vary so excessively as they at first sight appear to do, or as the mean temperatures of the extreme elevations, between which they are found, would indicate. In Sikkim, Dendrobium nobile is found from about 1000 up to over 5000 feet. Until lately I considered 4800 feet to be its upper limit, but last year I found a big, healthy plant growing at 5300 feet. It was, however, in a favoured position. It was on the top of a big rock, among Ferns and other dwarf-growing plants, under the friendly shelter of overhanging boughs of trees growing behind the rock, whilst the face of the rock was bare, and fully exposed to the rays of the noon-day sun. Consequently, during the cold nights, it got the full benefit of the radiated heat from the mass of rock; for in the winter season our days are almost always bright and sunny. Without those friendly conditions the plant, at this high elevation, could have barely, if at all, existed; with them it flourished. It is on these sun-heated and sheltered rocks that Dendrobium nobile must be looked for in the cool regions of 4000 feet and upwards, but in the low, stifling valleys it chooses the topmost boughs of tall trees, where it is fully exposed to all winds and weathers, thus, seemingly, courting the cooling breezes in the hot valleys, and creeping into the warm corners at the cold heights. *J. A. Gammie, Darjeeling, April 5*, 1890.

[Orchid growers will cordially thank our correspondent, and we trust that he, and others placed like him, will favour us with their observations on plants as they grow in nature. Ed.]

Orchid Notes and Gleanings.

A COMPLEX HYBRID CYPRIPEDIUM.

A curiously complex hybrid has just flowered in Messrs. James Veitch & Sons' collection. It was raised between Cypripedium × Harrisianum superbum and C. × œnanthum superbum, though the accompanying note does not state which was the seed parent. Both these plants are themselves hybrids, and the last-named has also a hybrid parentage on the one side.

The case stands thus: – Cypripedium villosum was fertilised with the pollen of C. barbatum, thus producing C. × Harrisianum. This hybrid was now fertilised with the pollen of C insigne Maulei, when C. × œnanthum superbum was the result, or what may perhaps be called a secondary hybrid. Once more this was crossed (one way or the other) with one of the best varieties of C × Harrisianum, the result being a hybrid of the third degree. Its parentage is thus made up in the following proportions, C. barbatum, ⅜; C. villosum, ⅜; C. insigne, ¼. It is said to be quite inferior to either of its parents in point of beauty, though a hybrid has not always attained its full development at its first time of flowering. From a scientific point of view, the point of interest is, that there should be complete fertility even when both parents are themselves hybrids, though probably many other such cases could be cited amongst garden plants. Such causes may yet throw light on the supposed multiple origin of certain races of florists' flowers. *R. A. Rolfe.*

Orchids at Cheam Park.

The collection of F. C. Jacomb, Esq., Cheam, Surrey, is famed for the excellence of its large-flowered forms of Odontoglossum crispum, and for some remarkable and handsome hybrid Odontoglossums, several of which we have had occasion to note recently. At present, in the cool-houses are numerous massive sprays of O. crispum of the large white or blush-tinted type. Of the latter, the variety named roseum is a superb flower, and that named guttatum fastuosum, in addition to the rich rose colouring of the back as well in the front surface of the flower, is heavily spotted with rich chestnut-brown.

Of the hybrid Odontoglossums, O. Jacombianum, with its crimson markings on pale cream ground, stands first, although there are in bloom some fine examples of O. Ruckerianum and O. Andersonianum, one of the latter being in the way of, but an improvement on, the form named O. a. lobatum.

In the same house were in flower Odontoglossum Cervantesii roseum, some fine O. luteo-purpureum, and O. Wilckeanum; also O. citrosmum, suspended plants, one with three fine spikes, and another with a spike of twenty-four flowers; some excellent forms of O. Pescatorei, well-flowered Oncidium concolor, the fragrant Cattleya citrina, and other good plants. It is noteworthy that the gardener, Mr. W. May, had to entirely change his treatment of these cool-house Orchids to that he pursued with good results at Stamford Hill. The soil at Cheam is warmer and drier, and the plants did not thrive nearly so well under that treatment. Mr. May therefore kept the houses much closer, giving less ventilation, and the plants have now returned to their old form, and this hint may be useful to gardeners having Orchids in chalky or gravelly districts, and whose plants do not quite satisfy them. In a small warm house the lesser Cypripediums are doing well, one monstrous form of C. bellatulum being in bloom. The Phalænopsis are thriving vigorously, and some Aërides and Vandas also occupy places in the house. The next house to this is one in which are displayed all Orchids in flower which may conveniently be moved. These are arranged with Ferns, which always remain in the house, and consist of very nice species and varieties. Here were specimens in flower of the pretty and fragrant Cattleya Schroderæ, the white-flowered Angræcum Sanderianum, some fine sprays of Phalænopsis grandiflora, P. amabilis and P. Sanderiana; several Cypripedium callosum – one peculiar variety having blackish warts on the surface of the petals as well as on the edge; the noble C. Schroderæ ×, with its large carmine-rose flowers; Dendrobium Devonianum, and a curious upright growing D. Pierardii and other species.

The Cattleya-houses contained fine specimens, among others Lælia purpurata, well-sheathed, one mass having nearly two hundred pseudobulbs. Here, again, Cattleya Schroderæ and C. Mendelii were in bloom; and a plant of Platyclinis glumacea which had borne sixty flower-spikes; a Cymbidium Lowianum was in bloom, and Angulos Ruckeriana in bud. The house also accommodated a number of thriving Miltonia vexillaria, of which some were in flower; others being Aërides Fieldingii, A. crispum, Cypripedium Druryii, and other Cypripediums. In addition to Orchids, is a general collection of plants and fruits, and a large garden, containing specimens of variegated Hollies, and other shrubs and trees which time alone could produce.

Odontoglossum Horsmani ×, *Rchb. f.*

Among the numerous hybrid Odontoglossums that have been described is one between O. Pescatorei and O. luteo-purpureum, bearing the above name. Among those which have at different times passed through my hands, I was never able to detect one bearing this parentage until now, when Mr. J. Fraser has brought a flower for determination from Mr. Pollett's collection. It is from the plant mentioned at p. 526, as exhibited at the last meeting of the Royal Horticultural Society. "A variety of Odontoglossum sceptrum, shown as var. alba, was sent by H. M. Pollett, Esq., Fernside, Bickley (gr., Mr. Parkes); this differs from the type in the fact that the yellow ground-colour is replaced by white." It is a rare and charming little hybrid, the cinnamon spots on the nearly white ground and the yellow disc of the lip forming a bright and effective contrast. It agrees fairly well with the description, but if compared with the original specimen, might not be found quite identical, as these hybrids are known to vary. Of the parentage I see no reason to doubt. The colour, shape, and crests of lip, and the more entire wings with the minute spots, are all markedly characteristic of O. Pescatorei, and considerably different from those of the other parent. In fact, it is thoroughly intermediate. Whether the variety sceptrum or another form of luteo-purpureum is concerned in the parentage, it would, perhaps, be difficult to say. *R. A. Rolfe.*

Angræcum sesquipedale.

Whether it is the result of difference of cultivation, or of variation, I have noticed that those plants which flower late in the season generally have the best blooms. I am inclined to believe that there are varieties of the species, as not only are the flowers of the earlier flowering plants usually inferior, but there is a more or less marked difference in the foliage, the early plants generally having smaller and thinner leaves, and of a lighter green than the late ones. But although these differences may be observed, I am not certain that they might not be brought about by conditions of culture, for where the differences were the most marked – that is, in the late flowerers – the plants were grown cooler, with much light and more air than was the case with the early-flowered plants. Moreover, I have observed that where Vandas grow in an ill-balanced, stuffy atmosphere, somewhat similar results are brought about—at least, as regards the foliage, which either gets spotted, or has a lax, half-etiolated appearance, which of itself proves that the treatment afforded the plants is not the right one. Here we grow them at one end of the Cattleya-house, where there is a maximum of light and air, and their growth is very satisfactory. The leaves of great breadth, and of a hard, horny texture slightly glaucous, and dark green in colour. The plant stands 2 feet high, the leaves being almost down to the base of the stem; and it bore this season two racemes of three and four flowers respectively, and of an ivory-white, 8½ inches over, the spur being about 12 inches long. Sometimes it has developed three racemes, and a single flower on a fourth, but the lesser the number the larger the flowers.

A point which I should like to know is, has any one ever succeeded in developing the second series of flower-buds which form on the opposite side of the raceme, and which usually fall off as the first series expand? This was, I thought, owing to their being very prominent before the others expanded, and these, with the exception of the one next the point, fall off. *F. R.*

Cattleya citrina.

Let those who find it difficult to grow this Orchid read what is said of it in the *Journal des Orchidées*. In the last number of this publication M. Vasseur describes how he succeeded in flowering Cattleya citrina in his sitting-room. He obtained the plant in October, 1888, and kept it through the winter in a room without a fire, but where frost did not penetrate. In fine weather, when the outer temperature did not fall below 12° C. (54° F.), the windows were opened, and throughout the following summer the Cattleya remained in the room, of which the windows were open day and night, shading being afforded, when necessary, by a curtain. At the end of October, 1889, the plant was transferred to the dining-room, where it remained all the winter, subjected to considerable fluctuations in temperature, and exposed to but little light, nevertheless, the plant produced four shoots, one of which flowered in March, and another will shortly do so, whilst new roots are being produced. The plant has been syringed daily, and is growing on a block placed near the window, and near to two porous vessels of water, the evaporation from which supplies the necessary atmospheric moisture. In the same room is a zinc trough (*baquet*) filled with water, in which are plunged some bricks, which support other Orchids, Ferns, and Palms. The late Mr. Skinner, it may be remembered, succeeded in flowering Lycaste Skinneri in his drawing-room.

THE VEGETABLE CONFERENCE.

The papers read at the Vegetable Conference, and published in a recent issue of the *Journal of the Royal Horticultural Society*, are well worth the attention of every one interested in growing good vegetables, and it would be desirable that a conference should be held every year, in order that the various effects of the different seasons might be thoroughly studied, new varieties of vegetables compared with standard kinds, and the results of experiments with manures, &c., demonstrated. At meetings such as this, information may be obtained which will do much to advance the various branches of horticulture.

Sir T. Lawrence did well in calling attention to the preserving of vegetables, and it would be desirable at another conference if this part of the subject could have more attention, and systems be introduced whereby some of our choicest summer vegetables could be preserved for winter use.

Mr. Veitch touched the right chord in his opening address by welcoming the gardeners to the Conference. Let us hope the words so fitly spoken will induce many who read them to rally round the Society, now that it is giving such practical proofs of its usefulness in the series of conferences that have been held of late years. He was emphatically right in saying it was a gardeners' exhibition, yet its value to the community generally was far greater than one of showy flowers. We cannot live on the latter, no matter how much they may please the eye; on the other hand, the whole of our food is derived either directly or indirectly from vegetables and plants that are mostly not celebrated for their flowers.

The improvement in the Pea during the period mentioned has been great as regards size of pods and the number of Peas contained; some worthless varieties have also disappeared; but as regards flavour the progress is *nil*. Ne plus Ultra is still the best-flavoured Pea we have, and one of the best croppers.

Among new Cabbages, Mein's No. 1 should have been mentioned. When obtained true, this is one of the very best, coming into use very quickly, and keeping in good condition much longer than some.

The new varieties of Broccoli are of better colour, the late ones showing a great improvement in that respect over Cattell's Eclipse, which was at one time the best late variety. I quite agree with Mr. Veitch that Brussels Sprouts are much improved, but these remarks do not apply to varieties of the giant type, which find great favour with some. This vegetable has always a strong taste; we want more of the Cauliflower flavour without much increase in size.

A variety of dwarf French Bean, called Paris Red, is the finest for length of pod, and for remaining a long time in good condition. It was introduced some years ago by Mr. Bunyard, but is very little known. If a variety of the French Bean could be found that would lengthen the season outdoors by increased hardiness, it would be a valuable acquisition, especially in northern parts of the kingdom.

In connection with Early Milan Turnip, it should be noted that its introduction has given us a Turnip that will bear a moderate amount of forcing better than the older varieties.

Among Onions the new varieties which grow to such enormous proportions are practically of very little use; moderate-sized roots are preferable for their keeping qualities. There is still room for a variety that will prolong the season after James' Long Keeping is over.

The Cucumber has, on the whole, made the least advance. Why it has been so unfortunate is hard to determine; for although it is perhaps more of a luxury than most things mentioned, here it is very much in request during the summer months, and the consumption of it increases. There is plenty of room for improvement in the miserable specimens of outdoor growth which are to be seen in towns during August and September.

Mr. Veitch's remarks on multiplying varieties by giving new names to old sorts are not by any means too severe. This practice is very much in the way of a steady advance in vegetable culture. Few things are more disappointing to an intelligent cultivator than to find he has been deceived after several months of painstaking interest, and has only got an old acquaintance under a new name, or possibly something new, but not so good or useful as what had been depended on before. The Royal Horticultural Society does good service in the trials it institutes at Chiswick of Peas, Tomatos, &c., and also in examining and granting Certificates to really good introductions. If all growers could agree not to notice so-called "new" varieties, unless duly certificated, the sending out of worthless things would soon cease. We want a catalogue of vegetables, with a list of their varieties and synonyms—after the style of the National Chrysanthemum Catalogue—got up by some reliable and independent authority such as the Royal Horticultural Society.

Mr. Shirley Hibberd's paper is well worthy of perusal by every one interested in growing Asparagus, and the specimens he exhibited at the Conference showed what can be accomplished by intelligence and perseverance, even under the most adverse circumstances; but why a space of 9 feet was wanted between the beds, I fail to see. I cannot agree with him, either, when he says there are no peculiar varieties of Asparagus. I have found the Early Purple Argenteuil comes into use before the other, when grown side by side; of course I admit all are the same from a botanist's point of view. Again, seed saved from extra strong plants must have an inevitable tendency to produce a giant race, as is the case also with all other vegetables, and most cultivators know the importance of making a good selection of plants for seed-bearing. A "giant" race is obtained by this means, after a few generations from selected seed. Mr. Hibberd appears to use as much manure as anyone in his system of cultivation, and liquid manure in addition, although he characterises the ordinary system of manuring as "extravagant waste." Briefly, his system may be summed up in good drainage, a moist bottom, raised beds, limestone in abundance, plenty of space, and careful attention in developing the growth of the plant to the fullest extent by manuring, &c. M. de Vilmorin said the French growers used "abundance of manure," and plant 4 feet apart in the rows, and 3 feet between the rows. The use of raised beds for Asparagus is fast dying out in this country; they



Fig. 86.—cypripedium stonei, var. platytænium: the premier cypripædium. (see p. 552.)

can only be recommended on cold heavy soils, and in wet localities, neither of which should be selected for Asparagus culture.

Few persons could speak with such authority on "Winter Salads" as Mr. Norman, as few have to meet such a large demand as he does. His paper might well have been extended a little, so as to include a few more subjects sometimes used in salads, such as Mustard and Cress, Cucumbers, &c., which are by no means easily grown during the dark days of winter. Endive is often more conveniently blanched if taken up and placed in a warm and dark chamber, like Chicory.

The paper by Mr. J. Wright, on "The Food of Plants," should be well studied by every young gardener who aspires to eminence in his profession. There is ample room for experiment on this subject; we want a series of observations with the various manures and vegetables carried on for a number of years, in a similar manner to what Sir J. Lawes has so carefully done at Rothamsted with farm crops. Books of reference on chemistry suitable for a gardener are also scarce; one is especially wanted that would give analyses of the various vegetables in general use. By a judicious use of manures it is often possible to get more than double the ordinary produce from a piece of land. Exposure of the soil to the action of a winter's frost will sometimes do as much good as manuring, from the disintegration of the component parts.

Mr. T. Laxton is a great authority on raising new Peas, and one regrets to hear he finds it an "unprofitable occupation." His classification is somewhat curious. Surely "farinaceous" Peas, as in Class 2, are in very small request, and those of Class 3 would answer the purpose quite as well. If, as Mr. Laxton says, the increased size of the pods is a benefit to the market grower, it is by no means a boon to a private gardener who has a family to keep supplied. He has to supply enough Peas for each person at dinner to have sufficient; the pods count for nothing. In order to do this with such varieties as Evolution, Duke of Albany, &c., almost double the measure of pods must be supplied, as they are puffed out to an abnormal extent; and again, the quantity of seed produced by these large-podded varieties is far less than such kinds as Ne plus Ultra, Standard, Marvel, &c.; a larger piece of ground has, therefore, to be planted, which means an excess of labour, and other expenses, and all that is gained—viz., the increased size of the pods—eventually finds its way to the swill-tub for the pigs. What is especially wanted among Peas is a dwarf Ne plus Ultra that will stand an ordinary winter, and come in for use in spring, at the same time as our small early varieties do now. On p. 39, "to the former a few days gained," should read, "to the latter."

In the paper entitled "Potato Improvements during the Last Twenty-five Years," by Mr. A. Dean, the once famous Scotch Champion deserved a slight recognition for past services. Although the celebrated Magnum Bonum has now almost driven it from the field, it is still much appreciated by some as one of the best Potatos for flavour. What caused it to lose its disease-resisting properties so quickly is a mystery. Potato raisers would confer a great boon on the nation generally if they would give us an early Ashleaf suitable for strong loamy soils; the present race will only thrive satisfactorily in old gardens, and other light soils.

"Maintaining a Supply of Vegetables," the subject allotted to Mr. Smith, of Mentmore, is far too extensive to allow of full justice being done to it on such an occasion as this, although Mr. Smith has got a good deal of information into a small space. As regards varieties, he says it is beyond the scope of his paper to recommend them, but in many instances one or two particular varieties—say of Broccoli, Peas, &c.—make all the difference between success and failure as regards "maintaining a supply." In sowing Peas, "the end of November" is too late for many places; if not got in by the middle of the month, there is often very little chance of doing it afterwards. On p. 49 we are told, "French Beans transplant well, and come much earlier than from seed;" but how they are obtained in the first instance, if not from seed, is by no means clear. A distinction should have been made between early and late Broccoli. May is too late for sowing the early kinds, and if sown in June they would be worthless. Very few persons would allow Cauliflowers to "come to perfection" in the seed-beds, neither is it necessary, if a good selection of varieties is grown, and a little care and judgment used in transplanting. If any difficulty is experienced in exceptional cases, sowing thinly in rows, and thinning them after, would be preferable to leaving them in seed-beds. In very light soils Spinach in summer is almost an impossibility, but the leaves of Spinach Beet answer the same purpose without giving half the trouble.

As mentioned in the introduction, a vegetable conference early in the season would be desirable at a future time, in order to complete or advance the work thus so well begun by the Royal Horticultural Society; vegetables being in many instances of such a successional nature, it is impossible to get the representatives of a year's supply all present at one time. *W. H. Divers, Ketton Hall, Stamford.*



Fig. 87.—New narcissus Prodigy.

NEW NARCISSUS.

Before the periodical attack of Daffodil fever is quite expended, we may lay before our readers an illustration of one of the novelties exhibited by Messrs. J. Veitch & Sons, of Chelsea (fig. 87). The perianth segments are lemon-yellow; the corona of a deeper hue, cylindrical, but contracted at the throat. The margin of the tube is divided into shallow rounded lobes. It is the contraction at the end of the corona, as a lady's-sleeve is gathered in at the wrist, which has suggested the name of Prodigy for this variety which, as shown at the Daffodil Conference, was both novel and pretty.

NANT-Y-GLYN, COLWYN BAY.

Mr. Alfred O. Walker's garden at Colwyn Bay is well known to readers of the *Gardeners' Chronicle*, from the occasional notes which its owner communicates from time to time, generally referring to rare and half-hardy plants, which are grown at Nant-y-Glyn. It appears strange to many gardeners, in similar latitudes, that such plants flourish there, just as they flourish in the favoured gardens of Plymouth, Lammorran, and other Devon and Cornwall localities; but the matter is readily understood when the garden is seen. At the same time it must not be overlooked, that Mr. Walker is a very able and accomplished botanist, and that he, for many years, managed the large garden at the Chester Lead Works under much less favourable conditions. He is now steadily showing us that many plants can be grown in our Northern gardens if proper means are adopted for their culture and protection, and we must not lay too much stress on his especially favourable environments.

The shores of Colwyn Bay are of clays and sands of glacial origin, resting upon the Wenlock shales of the Silurian group, the carboniferous limestones having been denuded. The rains of ages have worn deep narrow ravines through the boulder clays down to the sea, widening out inland when the hard shales are reached. In one of these deep sheltered valleys, Mr. Walker's house is built on the higher slopes, backed by Pine woods. The garden slopes down to a little brook, which runs through the grounds, and works a hydraulic ram, which furnishes an abundant supply of water for the house and garden. The whole is surrounded by fine trees, and is thus completely sheltered from cutting winds, whilst, at the same time, it enjoys abundant sunshine. These are most favourable conditions, and the genial climate of Colwyn Bay adds to the advantages which produce such excellent results. It does not follow, therefore, that plants which grow in Mr. Walker's garden will succeed elsewhere. It rather shows the extreme limits under most favourable conditions. Mr. Walker has at Nant-y-Glyn a most interesting collection of

plants, trees, and shrubs—such as are not to be found north of Devonshire in any other garden with which I am acquainted. The garden was formed about twenty years ago, so that the trees have attained to a considerable size. Of Eucalyptus there are five varieties, from 20 to 30 feet high, and all in perfect condition; the reddish branches contrasting strongly with the grey-green foliage. These have withstood five or six severe winters. Pittosporum tenuifolium has grown to 20 feet high, and is a remarkable tree with wavy leaves and dark purple flowers, which give out a strong honey-like perfume at nightfall. The narrow Laurel-like leaves with wavy margins give a play of light to the tree which adds greatly to its picturesque effect; it is a New Zealand tree, and was grown from seed by Mr. Walker, the native name for it is the *Matapo*. Pittosporum eugenioides bears a greenish-yellow flower, and the same wavy leaf, which is said to be lemon-scented. This we found to be the case with the young leaves. P. tobira is an Asiatic variety (the other two being from New Zealand). It has yellowish-white flowers, and bloomed throughout the winter, being now covered with seeds. Benthamia fragifera is 10 feet high, and in vigorous growth, but has not yet shown any signs of bearing the Strawberry-like fruit for which it is named. The Arbutus was, however, completely covered with its Strawberry fruit already, and was everywhere quite at home in Mr. Walker's garden. Of Fremontia californica there was a grand specimen on the lawn, 10 feet high. I saw it in bloom last autumn, when it was covered with its large golden yellow flowers, one of the most beautiful plants I ever beheld; now it is covered with Nut-like fruit, bearing ripe seeds. Another gem was Grevillea rosmarinifolia, a Tasmanian plant, which was in full bloom, and presented a remarkable appearance. The leaf is exactly like Rosemary, a beautiful greyish-green, and the flowers are in clusters of brightest red, with a coral-like lustre. A most curious contrast was Colletia horrida, a very strong grower, with large whin-like spines for leaves, and minute white flowers. Eugenia apiculata was 15 feet high; it bears Myrtle-like flowers, and ripens fruit. Skimmia japonica was also both in flower and fruit, and very beautiful. Mr. Walker takes especial interest in this plant, which has a curious history. The old S. japonica of gardens (=S. Fortunei, Mast.) was not the true plant, and does not occur in Japan. It has hermaphrodite flowers, and bears a small oval berry. The true S. japonica is dicœcious, and was known, awhile ago, in gardens under two names, S. oblata and S. fragrans. It is now known that these two are the same plant. S. oblata is the true S. japonica of Thunberg and the female plant, whilst S. fragrans is the male.* The appearance of these two Skimmias, large bushes, planted side by side was a surprise to me, as I have only the old form at Brockhurst, a very inferior variety both in leaf and fruit. Mr. Walker's variety has much larger fruit of a better colour, and the foliage is also more effective. As a decorative plant throughout the winter it certainly holds a very high place, and should not be omitted in any good garden—care being taken to obtain the true forms, male and female. Berberis nepalensis was also a noteworthy shrub; it carries long racemes of yellow flowers, and has fine foliage. Veronica Hulkeana, which one usually sees in a greenhouse, was here in bud in the open garden. It has long panicles of lavender coloured flowers, and will shortly be a mass of bloom. There were many interesting climbing plants on the house and walls. A climbing Hydrangea from Japan, Schizophragma hydrangeoides was covered with white flowers. Choisya ternata covered a large extent of wall, and will soon be beautifully in flower. Akebia quinata, a most interesting plant to the botanist, was covered with ragrant purple flowers in clusters—male and female—on the same stalk. A very effective dark foliaged climber was Ampelopsis sempervirens. For boad effects there was nothing to beat that produced by a long row of Berberis Darwinii, which lined the carriage drive on the approach to the house. Of course there were hosts of Conifers, Cupressus macrocarpa and Pinus insignis being the most vigorous. There were also a good collection of the Himalayan Rhododendrons nearly in flower, and a fine lot of alpine plants. Down by the brook were large masses of Bamboos, and a grand plant of Chamærops excelsa, twenty years old; a good fernery with fine specimen Todeas and filmy Ferns; and lastly, an excellent collection of herbaceous plants.

The enumeration might be greatly extended, but the above will show the character of the garden at Nant-y-Glyn. With Mr. Walker for a guide through this interesting collection, one cannot fail to learn much, and to unlearn a good deal more. *Wm. Brockbank, Brockhurst, Didsbury, April* 17, 1890.

* See paper and illustrations by Dr Masters, *Gardeners' Chronicle*, April 27, 1889, on the Skimmias.

GARDEN ARBOURS.

It may be said that we do not require much defence from the too ardent rays of the sun, but generally there are some few weeks in our apology for a summer when retreats, leafy or otherwise, form grateful adjuncts to a garden. I will mention a few names of plants adapted for covering such arbours:—Aristolochia sipho, Hops, Virginian Creeper, Clematis of most climbing species of their varieties; Caprifolium periclymenum, the Woodbine and its varieties, vulgaris, serotinum, and quercifolium; the Chinese Lonicera flexuosa and L. f. variegata; the Fly Honeysuckles are also rapid growers, and not much attacked by aphis—always a drawback to arbour plants; the hardy Grape-vines are good examples of this kind of climbing plants. The Rose affords a number of suitable subjects for planting, and selecting those which flower in summer, when an arbour is most used, we have the almost evergreen Banksian Roses, the amazingly floriferous Polyantha, the rapid-growing Ayrshire Roses, like Ruga, Dundee Rambler, splendens, and Boursault. Evergreen Roses of tolerable rampant habit are—Felicité Perpetuel, Myrianthes, Renonculi, Rampant, and Flora; the H.P.'s Bessie Johnson and Jules Margottin, both climbers. To these may be added Hybrid China Roses, Blairii No. 2, Brennus, Chênédolle, and Paul Verdier. Most of the above are deficient in fragrance, and the following Teas are worthy of being planted; Jaune Desprez, Devoniensis the climbing variety, Niphetos, Waltham Climber, Safrano, Gloire de Dijon; and, in very warm spots, La Marck, and Maréchal Niel. Of Noisettes, mention may be made of Aimée Vibert, Bouquet d'Or, Celine Forestier and W. Allen Richardson.

It will be apparent to most persons that the proper place for a retreat is in a sunny part of the garden, the air there being soft, warm, and buoyant, and devoid of any objectionable dampness. In such positions, if the preparations as to soil for the plants, good drainage and freedom from shade of dense trees, which always, by the way, are provocative of draughts, have been attended to, the climbing plants will do well. A narrow border round the sides of the arbor might be planted with Carnations, and Musk, Martynia fragrans; sweet herbs, like Thyme, Lavender, Rosemary, Aloysia citriodora should find a place, and many other old fashioned plants about which tender memories cling.

What kind of floor should an arbour have? An important question not always answered in the best manner. One may divide roughly these buildings into the architectural and the rustic. The former agreeing with the canons of harmony if placed near the dwelling-house, or the glasshouses, if any such be in the flower or pleasure garden; the latter being more in unison with the more natural features of a place. In the former case a floor, raised an inch or two, may be made of shells or pebbles imbedded in cement, parquet blocks, tiles in pattern, or small red bricks on edge. Stone, cement, slate, and asphalte are cold to the feet, apt to become green in the case of some, and scored by innumerable marks of shoe-soles. A veritable horror is a floor consisting of the bottoms of inverted glass, or ginger beer bottles. In a rustic arbor, fine gravel, Derbyshire spar, or even clean yellow or white sand seem the most fitting materials.

PLANTS AND THEIR CULTURE.

The Conservatory.—The different species of plants in bloom at this date will make this house very gay. Cyclamens will soon be getting past their best, and should get placed in cold frames or on shelves, and water gradually withheld from them till the leaves decay. They do best in a frame facing south, so as to have sunlight to ripen their corms. Young plants should get close attention, and be kept close to the glass in a temperature of 60°, keeping them clean and growing freely. Late sown seedings of Cyclamen should now be in small 60's, and still earlier plants should be shifted if necessary. These plants ought never to be checked in growth, and should be kept clean and free from aphis. Late Tulips, Narcissus, Spiræas, Prunus, Gueldre Rose, and similar plants, should be placed on the north side of a wall to retard them. Spiræas may still be divided and planted on an open border of rich soil, and kept well watered, liquid manure being afforded occasionally. If planted with a basin round each plant, the moisture is well retained about them, which otherwise would not be the case on a slope. If well treated they force readily, but a year's rest from forcing is beneficial. Deutzias need more care, cutting them back hard and affording them a little warmth to assist them to break. Repot any that require it, and syringe them in bright weather to keep down red-spider. Deutzias will do in a cold frame in a few weeks time, and may finally be plunged in an open border facing south. Late Cinerarias should be cleaned from all aphis before removal to the conservatory. I should advise those who have not yet grown the new Deutzia Watererii to do so, it is useful for conservatory work and for cutting; it also forces freely, and its flowers are more than double the size of those of D. gracilis. Dielytra spectabilis should get planted out in a good border. Cytisus needs plenty of moisture, and occasionally some kind of artificial manure, as the pots soon get full of roots.

Pernettyas just at this season are making growth, and do not need any heat. We find them as effective as Solanums, and much cleaner. Early plants of Richardia well past their best and not in need of shifting, when hardened off, may be plunged in their pots on a warm border. We grow a few for early bloom in this way; but the majority of the plants are turned out and divided, and planted in a border with plenty of decayed manure, and watered freely in dry weather, potting them up to about the middle of September. This plant when so treated produces the best spathes.

Intermediate and East Lothian Stocks are now useful, and require plenty of moisture at the root. A few should be kept back so as to form a succession by placing them in the open. Close attention should be paid to the growth of all seedlings required for summer decoration of the conservatory, and all crowding in the seed-pans avoided. Celosias, Cockscombs, Balsams, Impatiens, Sultanai, Schizanthus, Nicotiana affinis, Rhodanthes, Browallia elata, and B. e. alba, may be sown in small quantities; they will now come up quickly in an intermediate-house, and form a succession to the sowings.

Some of the early sown Asters may be potted up and grown in a cold frame. Aquilegias are also of use when sown in the autumn, and cultivated like the Campanulas. Both the foregoing may be put into 5-inch pots. Primulus obconia will now be useful if they were carefully divided and potted some time ago. Shift any young plants of Francoa ramosa, and grow them on in a cold frame. Divide old plants of the same, and give them extra warmth for a time. *G. Wythes, Syon House, Brentford.*

THE ORCHID HOUSES.

In the Intermediate-house Barkerias will be breaking away, and must be well supplied with water. If there are several of these plants in the collection, it is a good plan to hang them up all together where they may receive a thorough drenching from the syringe two or three times a day. Lælia harpophylla, if requiring it should now be repotted, employing a compost of peat, sphagnum moss, and pieces of

potsherd broken small. Vanda Kimballiana and V. Amesiana may be repotted. I find these plants do very much better in this house than when they are grown in greater heat. Anguloa Clowesii and its varieties now sending up their flower-spikes should not be allowed to suffer from want of water, and any plants which have not been repotted this year, the roots of which are filling the pots, may safely be given guano-water in small quantities, as previously advised for other things. A sharp look-out must be kept for the yellow aphis, which is a troublesome pest on the young growth of Anguloas. The plants are very liable also to the attacks of scale insects. The bottom ventilators may be kept open night and day, the night temperature being 60°, and that of the day 10° to 15° higher with sunheat.

East Indian-house.—Epidendrum bicornutum now in flower does not like much compost about the roots, and does better when allowed to ramble over the potsherds and charcoal to which they cling. A copious supply of water the whole year around is another essential point, and during warm weather the plant may be syringed overhead twice a day, and if this be neglected or the leaves of the plant not often sponged, it is liable to thrips and red-spider. The plant is best when grown in baskets, hung well up to the glass.

Thatus tuberculosus now going over may be repotted or rebasketed, as the case may be, a compost consisting of one part turf, fibre, two parts peat, and one of sphagnum moss being employed.

Cattleya superba now breaking into growth must not be allowed to be dry at the root, as readily happens when it is placed on Tree Fern or wood rafts, with little material about the roots. It is best to dip the plants in water morning and afternoon. Coelogyne tomentosa now in flower is a pretty and useful companion to the better known C. Massangeana. Attend to previous directions, and let 70° be the minimum night temperature, and give as much heat as possible during the day with sun-heat, having due regard to shading. *A. G. Catt, Parkfield, Malvern.*

THE FLOWER GARDEN.

The Herbaceous Border.—Weeds of all kinds must be sedulously hoed up, and cleared off these borders, using a Dutch hoe, that may easily be worked around the plants. Having made the borders clean, annuals may be sown in small clumps wherever desirable, leaving spaces for half-hardy plants, as Asters, Phloxes, Ten-week and other varieties of Stocks, which in the course of this month may be safely planted out.

Alpine Auriculas in beds are at the present time a pretty sight, with their varied hues. Much improvement has been made in these plants, and colours come true from seed, so that great variety may be obtained from one packet alone. Seed sown now in the open border, covered lightly with soil, or in pans in a frame, will produce plants to flower next season. Old plants after flowering may be divided in the same manner as Polyanthuses, and planted in the reserve garden, in a shady part if possible, always putting them a little deeper than they were before. With the Narcissus poeticus and p. flore-pleno the Daffodil season is drawing to a close; most varieties are the better for being taken up every second or third year, and transplanted singly in fresh soil, the flowers deteriorating in size and numbers if left in one spot for a longer period. Stout labels should be put to these and other groups of bulbous plants, so that the name and position of them may be known.

Dahlias.—Where the tubers have not been started in heat, the dry roots of Dahlias may be divided, or planted whole in beds by themselves, or in herbaceous borders and shrubberies, having previously enriched the ground with some well-decayed manure, covering the roots from 4 to 6 inches with soil. When the shoots appear, thin them to three, leaving only the stronger. It is advisable to put in the stakes at the time of planting, so that the roots may not be damaged, as they may otherwise be if the former are put in after growth has commenced.

Tuberous-rooted Begonias.—Dry roots of these plants may be planted in specially prepared ground, a light soil and a warm situation being preferred.

Annuals.—Beds sown with annuals should be limed, as during the present mild showery weather slugs are likely to destroy the young plants. Use dry, air-slaked lime, first put through a fine sieve, and either placed in a bag and shaken over the beds, or scattered finely with the hand.

Miscellaneous.—Proceed with the planting of Calceolarias in the open beds, and of all hardy plants used for edgings and carpet bedding, forwarding the work of preparing the beds as much as possible to receive the Pelargoniums, &c., which cannot be safely commenced till the end of the third week in May.

Harden off all the varieties of bedding plants as fast as possible now, taking care to cover up the less hardy kinds, should there be any appearance of frost. Subtropical plants that are becoming pot-bound should receive a shift, so that no check may be occasioned to their growth. *D. C. Powell.*

THE HARDY FRUIT GARDEN.

Strawberry Beds.—The plants are growing apace, and throwing up crowns of more than average vigour. If not already done, the quarters should have a covering applied to keep the fruit clean. The materials used are various, fresh stable manure, which if put on early answers well, becomes clean by the time the fruit is ripe, and it has some value as a manure. Short grass from the lawn, and cocoa-nut fibre are used—but I find in wet weather, and even on dewy mornings, these stick to the fruit. I use clean wheaten straw on the top of the winter mulching; this answers better than anything else that I have tried. It should be remembered that the longer covering beds is delayed, the more labour will be incurred in doing it. I give all fruiting plants before they come into bloom a good sprinkling of soot, then thoroughly soak the soil with the water hose, but then the garden is on a dry sandy hill; watering might be dispensed with in wetter soil. Nets should now be put into proper order for use.

Orchards.—Trees which were late planted should have the stakes put to them now that the soil has consolidated, and mulchings may be put to all recently planted. Where mulchings are liable to be blown about, it is a good plan to lay a few sticks on the surface, and peg them down. All suckers must be removed from the base of the trees as soon as they appear, more especially in the case of Plums. Go over all trees where any trace of American blight is visible, and dress over and gum up all crevices. Insects, after the late cold and biting winds, will spring into life as soon as foliage is developed for them to feed upon. It is now getting late for dressing trees, but so long as the flowers are undeveloped, they may be dressed with simple remedies. Black and green-fly in many gardens give a great deal of trouble, and which might have been overcome if means had been adopted earlier. *A. Evans, Lythe Hill, Haslemere.*

FRUITS UNDER GLASS.

Early Peach and Nectarine House.—The fruits of Alexander, Early Beatrice, Early Louise, and other varieties on trees that were started last December will now be approaching ripeness, and it will be advisable to make sure, by minute examination, if red-spider is infesting the leaves, and if it should be, a few thorough washings of the trees with soft tepid soapy water by means of the garden engine will eradicate it. It is very essential that this be done prior to the gradual ceasing of syringing, the trees during the period of fruit colouring and ripening, otherwise the pest during that brief period will cause very great injury to the foliage, and through that to flavour, besides hindering the growth and maturing of the shoots. Tie in all shoots, and remove leaves where they shade the fruit from sunshine, placing pieces of lath, so as to raise them up to the light, and secure high colour. Give the roots a good soaking of manure water at 90°, the quantity necessary being determined by the condition of the soil of the border. Keep plenty of heat in the hot-water pipes on cloudy days, so as to impart warmth to the air admitted, but carefully avoid having heated pipes during warm sunshine.

The Second Peach-house.—In this house the final disbudding of shoots, and the thinning of the fruits, may be proceeded with, not retaining more shoots than are absolutely necessary to supply bearing wood, but do this work gradually, and not at one time, for it should be borne in mind that there is a reciprocity between leaves and roots, and great loss of foliage at a time is calculated to disturb this. In thinning the fruit, the largest and best placed ought to be retained—those growing on the upper sides of the shoots, or such as can be brought up later by means of pieces of lath being preferred. Syringe the trees occasionally with clarified soot-water, or weak soapy water, to deter insects from attacking them. Stimulate root-action by means of liquid manure, and apply a mulching of Mushroom-bed dung, or other decayed solid manure of a similar nature; above all, not putting on mulching materials that would seal the soil; and the older or weaker the tree the more liberal should be the treatment afforded. Young gross growing trees should be stimulated less, or not at all, as conditions may direct. Give air freely in small quantities in all parts of the house; syringe twice daily, and shut up the house before the sun leaves it, allowing a trifling amount of night ventilation at the front when the hot water-pipes are warm.

Late Unheated Houses and Peach Cases.—The trees should be thinned and disbudded; and as a preventive of mildew, dust the foliage with flowers-of-sulphur. This malady is generally caused by an atmosphere that is cold and stagnant, or by draughts of cold air. The sulphur may remain for twenty-four hours, and then be washed off with the engine, and the dressing repeated. Fresh sulphide of potassium, applied in a weak solution, ½ oz. to a gallon of water, is also an effective remedy, but it is troublesome to clean off painted woodwork. The sulphide must be excluded from the air till used. *W. Crump, Madresfield Court, Worcester.*

THE KITCHEN GARDEN.

Sowing Scarlet Runner Beans.—Where trenches are employed these should be got in readiness, and a few seeds put in for the early crop, but the principal sowing need not be made before the middle of this month, the later sowing frequently catching the earlier ones. The trenches may be 12 feet or more apart, other suitable crops coming between the rows. If the plants are to be pinched at the points, less space will be needed. Prepare the trenches as for Celery, and plant the Beans in pairs, 8 to 10 inches apart in the rows, to be subsequently thinned to one. Carter's Champion and Ne plus Ultra are good varieties, and the latter is as good for exhibition as it is for general consumption.

Thin out the crop of Milan Turnips to 3 inches apart. Snowball and other larger growers need more space. Spinach and Early Horn Carrots will now need to be thinned, doing this work in showery weather if possible, and before the plants get of large size. Broad Beans may be earthed up, and according to the demand more seed may be planted. Greens of all kinds should be dug up, and the land cleared as soon as there is no more need for them, otherwise the land will be impoverished. Get the Cabbage plots heavily manured and deeply dug, making a fine tilth as the work proceeds.

Asparagus Beds should be kept free from weed; and the produce, as it becomes fit to cut, removed every day with an Asparagus knife, or twisted off—a way of gathering the heads that may be practised on light soils without injury to the crowns. The knife must be used so as not to damage the young shoots beneath the soil. Beds partly exhausted will be much benefited with applications of guano-water, or some salt may be sprinkled on the beds, and the plants not distressed by severe cutting. Flower-pots; a small quantity of leaf-mould or soil may be placed over heads, just showing, to safeguard them against frost.

Beet-root.—The main crop may now be sown on land free of rank manure, and deeply dug. Sow for this crop in drills 18 inches apart, and thin out early soon after a shower of rain.

Mint.—Now is the best time to increase the stock of either Spear or Peppermint. Pieces from 6 to 10 inches, if forked up and dibbled into good soil at 6 inches apart and 10 to 12 inches between the rows will make good beds—watering will be required till the plants are well rooted.

Brussels Sprouts.—Plants early raised in heat, and which may have been pricked and properly hardened off, may be planted out before they get drawn, an open spot being chosen, and the soil, if of a light nature, should be trodden very firmly about the plants. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

THURSDAY, May 8—Scottish Primula and Auricula.
SATURDAY, May 10—Crystal Palace.

SALES.

TUESDAY, May 6—Stove and Greenhouse Plants, Orchids, &c., at the Exeter Nurseries, by Protheroe & Morris (three days).
WEDNESDAY, May 7—Carnations, Picotees, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
FRIDAY, May 9—Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—52°.5.

The Berlin Exhibition.

THE great Horticultural Exhibition at Berlin, of the plan of which we have already given illustrations, is a great success. It was opened by the EMPRESS on Friday last, and will remain open till May 5. The special feature consists in the association of decorative plants and architecture; but, independently of that, a very fine display of plants has been got together. Among them are several magnificently flowered examples of Clerodendron Balfouriana; they are the property of Count HENCKEL VON DONNERSMARCK, Vendeck, Upper Silesia, and were grown by his gardener, Mr. JOHN FOX. The plants were from 6 to 7 feet in height, a yard or more in diameter, loosely trained in the form of huge cylinders, the branches of blossoms entirely covering the pots, so that from the base to the apex the plants were one mass of white and red blossoms. Mr. Fox also exhibits the only Smooth Cayenne Pine-apples in the Exhibition.

Messrs. SANDER, of St. Albans, make a magnificent display with their Orchids. Among them are some thirty plants of Cymbidium Lowianum, with an aggregate of over two thousand flowers; an Oncidium ampliatum majus, with over five thousand flowers and buds; Dendrobium Brymerianum, 3 feet across; and a group of Odontoglossum vexillarium covering the whole side of one wing of the large building. Messrs. SANDER received the highest awards for their enterprise and skill. When we get our Horticultural Hall, there may be a chance of our once again taking our proper place among the nations. To the toast of the foreign visitors in Berlin we hear that M. HENRY DE VILMORIN replied in as fluent German as he did here in English the other day. M. DE VILMORIN knew how to do his duty to his country in the terrible times of the war. With what different feelings must he have spoken as the representative in Berlin of foreign horticulture! In our next issue we shall be enabled to give further particulars of this important exhibition.

A Cypripedium Vote.

THE current number of the *Journal des Orchidées*, of which advance sheets have been courteously forwarded to us by the Editor, M. LUCIEN LINDEN, contains the results of an inquiry which was made to elicit a general opinion as to the merits of particular Cypripediums. Our readers will shortly be in possession of the full text, with the reasons that induced M. LINDEN to take a popular vote, so that we need here only say that two main questions were propounded to a number of Orchidists as follows:—

1. What are the twenty-five best Cypripediums, species or varieties, arranged in order of merit?
2. What are the twenty-five next best?

Of course, opinions differed upon points of detail, some amateurs placing some species on a higher pedestal than others; but the net result is that the twenty-five best Cypripediums, arranged in order of merit, are considered to be the following:—

1. Stonei, specially var. platytænium, Borneo (fig. 86, p. 548).
2. Leeanum superbum, hyb. insigne Maulei × Spicerianum.
3. Morganæ, hybr. superbiens × Stonei (fig. 85, p. 545).
4. Argus Moensi, Philippines.
5. œnanthum superbum, hybr. Harrisianum × insigne Maulei.
6. caudatum, chiefly the vars. C. Wallisi and giganteum, Peru, Ecuador.
7. insigne Chantini, India (Sylhet).
8. vexillarium, hybr. barbatum × Fairieanum.
9. Lawrenceanum, North Borneo.
10. Schröderæ, hybr. caudatum × Sedeni.
11. microcheilum, hybr. niveum × Druryi.
12. Harrisianum superbum, hybr. villosum × barbatum.
13. Elliottianum, Philippines.
14. Spicerianum, Assam.
15. grande, hybr. longifolium Roezli × caudatum.
16. tessellatum porphyreum, hybr. concolor × barbatum.
17. bellatulum, Indo-China (see fig. 89, p. 556).
18. Arthurianum, hybr. insigne × Fairieanum.
19. orphanum, hybr. barbatum × Druryi.
20. Curtisi, Sumatra.
21. præstans, Malaya.
22. Sallieri Hyeanum, hybr. villosum × insigne.
23. nitens superbum, hybr. villosum × insigne Maulei.
24. selligerum majus, hybr. barbatum × lævigatum.
25. Ashburtoniæ expansum, hybr. barbatum × insigne.

The next best twenty-five:—

26. Fairieanum, Bhotan.
27. Sedeni candidulum, hybr. longifolium × Schlimii albiflorum.
28. superbiens (Veitchi), Java, Assam.
29. hirsutissimum, Assam.
30. Sanderianum, Malaya.
31. ciliolare Miteauanum, Philippines.
32. villosum, Moulmein.
33. callosum, Siam.
34. barbatum var. Warneri, Malay Archipelago.
35. Boxalli, id.
36. Crossianum, hybr. insigne × venustum.
37. Charles Canham, hybr. villosum × superbiens.
38. Euryandrum, hybr. barbatum × Stonei.
39. Eldorado, hyb. argus × Lawrenceanum.
40. albo-purpureum, hybr. Schlimii × Domini.
41. marmorophyllum, hybr. Hookeræ × barbatum.
42. Tautzianum, hybr. niveum × barbatum.
43. Germinyanum, hybr. villosum × hirsutissimum.
44. niveum, Moulmein.
45. Rothschildianum, New Guinea.
46. politum, hybr. of doubtful origin.
47. cardinale, hybr. Sedeni × Schlimii albiflorum.
48. calurum, hybr. longiflorum × Sedeni.
49. lævigatum, Philippines.
50. Lowianum, Sarawak (Borneo).

A large number of these plants have been illustrated in the *Lindenia*, and we ourselves have given woodcuts of no small number, from which we now select a few of the best to illustrate M. LINDEN'S *plebiscite*.

Other questions were asked concerning the twelve best varieties for cut flowers, and as to what species and varieties should be eliminated from choice collections. The replies to these two questions are too few in number to constitute a fair criterion. It must suffice to say that C. insigne, barbatum, and Lawrenceanum, stand in the order named at the head of the cut-flower section, while only six are marked as unworthy of cultivation, viz., C. Bullenianum, C. turpe, C. Mrs. Canham, C. Pearcei, C. venustum, and C. javanicum.

RE-RATING OF LAND IN RURAL DISTRICTS.—A meeting of the committee of the Market Gardeners, Nurserymen, and Farmers' Association was held on Tuesday last, April 29, at the offices of the Association, 28, Wellington Street, Strand, W.C., to discuss the question of the rating of land in rural districts, and it was decided that a letter be written to the Local Government Board, requesting them to receive a deputation thereon.

THE DELL.—Of the Orchids in BARON SCHRÖDER'S gem of a garden we have often occasion to speak, but it would be a mistake to suppose that the charms of this garden are confined to Orchids. One of the most extraordinary and most beautiful things to be seen there at present is a huge bush of the old double white Camellia some 8 yards across, and 14 to 15 feet high. It originally grew against a kitchen garden wall, a small portion of which still exists, but the bush has long outgrown whatever little shelter this fragment of a wall afforded, and without protection of any kind is in luxuriant health and covered with blossom.

THE ROYAL NATIONAL TULIP SOCIETY.—What is known as the "making-up" meeting of the members of this Society will take place this day, May 3, at the "Bull's Head," near Manchester, to fix the day of exhibition, appoint judges, and revise the schedule of prizes if necessary. The Turner Memorial Trustees offer the following special prizes for competition at the next show:—For twelve distinct named Tulips, six rectified and six breeders, £3, £2, £1; and for six distinct seedling Tulips, three rectified and three breeders, 30*s.* and 20*s.* The exhibition will take place, as usual, at the Botanical Gardens, Manchester, and the date will be announced immediately after the meeting.

NEW ZEALAND INTERNATIONAL EXHIBITION, 1890.—We learn from the *Otago Daily Times* of March 6, that the firm of Messrs. SUTTON & SONS, Reading, received the following awards:—First-class: Preserved fodder and substances specially cultivated for food for cattle; collection of models of vegetables, and of agricultural roots from Nature; and for collective exhibits a special award of the

First-class. Messrs. Hurst & Sons, Houndsditch, London, and Messrs. Arthur Yates & Co., Manchester, received likewise First-class awards.

The French Exhibition.—This exhibition, which will be opened at West Brompton on the 17th inst., promises to be one of great interest. Vegetable products are curiously mixed up in Group 1, with fashions and dress!

British Fruit Growers' Association.—The Duke of Bedford has contributed £25 to the Association for the purpose of opening a fund for the purpose of preparing and publishing a report upon the present condition and prospects of fruit culture in Great Britain and Ireland.

Dates of Rose Shows in the Present Year.—The Rose season is approaching, and in view of this fact, Mr. Edward Mawley, Rosebank, Great Berkhamsted, sends us the following fixtures:—June 19, Ryde; 24, Drill Hall, Westminster (N. R. S.); 25, Richmond, Surrey; 27, Royal Aquarium; 28, Eltham, Reigate; July 1, Canterbury, Hereford, Sutton; 2, Brockham, Croydon, Dursley, Hitchin; 3, Bath, Farningham, Norwich; 5, Crystal Palace (N. R, S.); 8, Gloucester, Ipswich, Winchester; 9, Brighton, Diss, Ealing, Tunbridge Wells; 10, Birkenhead, Worksop; 12, New Brighton; 17, Birmingham (N. R. S.), Helensburgh; 22, Tibshelf. In the case of Brighton and Winchester, where the shows extend over more than one day, the date of the first day's show only is given.

Daffodil Selection.—The Royal Horticultural Society has issued a circular asking for information upon the following points: 1. The best twelve single yellow and bicolor Ajax, for exhibition. 2. The next best twelve (as above). 3. The six best single White Ajax. 4. The six best doubles for general purposes. 5. The twelve best single, for exhibition, of all other classes from incomparabilis to Jonquilla (Polyanthus excluded). 6. The next best twelve (as above). 7. The six best Polyanthus for outdoors. 8. The twelve best Ajax for garden effect, having regard to constitution, vigour, and varied season. 9. The twelve best of other classes (as above). The replies will be incorporated with the Conference Report.

The Paris Exhibition.—M. Rothschild, 13, Rue des Saints Pères, Paris, has published a dainty yet exhaustive souvenir of the great Paris Exhibition. It is prepared by M. Henri de Parville. After a preliminary chapter devoted to the history of this wonderful undertaking, so honourable to the French nation, the author gives a general description of the whole Exhibition, and then in succession gives chapters relating to the preparatory labours, the formation of the parks and gardens, the machinery gallery, the galleries of fine arts, &c., the motor and hydraulic powers, the luminous fountains, the electric supply, the Eiffel Tower, canals, lighthouses, the forest pavilion, statistical and other matters—in fine, a complete account, illustrated by no fewer than 700 woodcuts. We shall take another opportunity of alluding to this remarkable publication, published with all the completeness and care for which M. Rothschild is well known.



Fig. 88.—Peach house at Messrs. T. Rurton and Sons', Bexley, Kent. (See p. 555.)

The Gardeners' Orphan Fund.—The monthly meeting of the Committee took place at the Caledonian Hotel, Adelphi, on April 25, Mr. C. H. Sharman presiding, in the absence of Mr. George Deal, who was unfortunately too unwell to be present. The minutes of the last meeting having been read, a resolution of sympathy with Mr. Deal was passed by acclamation, and the same ordered to be sent to Mr. Deal. The balance at the bank in favour of the fund was stated to be £335 12*s.* 10*d.*, in addition to £300 on deposit. The following candidates,

nominated for election in July next, were accepted, their credentials being found satisfactory:—

Alfred H. Budd, Kingston Road, Ewell, aged 8 years.
Winifred Jones, Fern Lodge, Atcham, Shrewsbury, aged 4 years.
Robert Jas. Phillips, Eridge Green, Tunbridge Wells, aged 7 years.
Arthur J. Rowland, Grange Farm, Crawley Down, aged 8 years.
Geo. P. Shrubb, 57, Thurlow Hill, West Norwood, aged 7 years.
Susan E. Barker, 31, Prospect Road, Cheshunt, aged 8 years.
George Beveridge, 8, Wells Street, Paisley, aged 2 years.
Evans E. Kinch, Margam Post, Talbot Road, aged 10 years.
Sidney A. Offer, Ashford Terrace, Fordingbridge, aged 6 years.
Francis Thos. Bragnell, East Coker, Yeovil, aged 4 years.
William H. Milne, Walpole Street, Peterborough, aged 2 years.

The following candidates, unsuccessful at the last election, were also added to the list:—

Frank Butcher ...	...	aged 7 years.
Bessie S. Deedman	...	„ 8 „
Mary Grieve ...	..	„ 10 „
Arthur Lacey ...	..	„ 4 „
H. E. Skelton ...	...	„ 7 „
Thomas Henderson	...	„ 7 „

making seventeen candidates, from which ten are to be elected. The form of the voting-paper and other preliminaries were agreed to. A sub-committee, consisting of Messrs. A. F. Barron, R. Dean, and B. Wynne, were appointed to arrange the preliminaries of the dinner. Subsequently a meeting of the joint-committee, to carry out the arrangements of the approaching Floral *Fête* in the Wholesale Flower Market in aid of the Fund, was held, Mr. Asbee presiding, the standholders being well represented. Many details were arranged, and it was announced that H.R.H. the Princess Mary, Duchess of Teck, the Duchess of Portland, the Duchess of Abercorn, the Marchioness of Salisbury, and the Marchioness of Tavistock, among others, had permitted their names to be announced as patronesses of the *Fête*. The proceedings closed with a vote of thanks to the chairman.

Cœlogyne Lowiana.—The magnificent plant of this Orchid, at Baron Schröder's, measures about 5 feet across, and has at the present time twenty-nine spikes, with an average of thirty flowers to each spike. The rich colour of the lip is also remarkable.

Odontoglossum liliiflorum.—This plant, now in bloom at Baron Schröder's, at first sight is so unlike an Odontoglossum, that it might well be considered to belong to a different genus. The flower-stalk is erect, and bears a many-flowered panicle of lilac-spotted flowers. It is sometimes considered to be a variety of O. ramossimum.

Ware and District Horticultural Mutual Improvement Society.—This Society has held two successful meetings during the past month. The first was held on April 9, R. Walters, Esq., in the chair. Mr. W. Osborne submitted a very practical paper on "Potatos." A capital discussion followed. Some good dishes of Potatos were exhibited by Messrs. Fulford & Adams. A hearty vote of thanks was accorded the essayist. On April 22, the date of the last meeting, Mr. G. Fulford in the chair, there was a good attendance of members and visitors to hear a paper read by Mr. W. King on "The Greenhouse and its Occupants," and which induced a lengthy discussion. A group of Azalea mollis and Spiræas was staged by Mr. Riding, and some very fine Pansies by Mr. Gull. Votes of thanks to the chairman and essayist terminated the meeting.

Paraguay.—M. Paul Maury has published a monograph of the Cyperaceæ of Paraguay in the *Memoirs of the Société de Physique et d'Histoire Naturelle of Geneva*, illustrated by numerous lithographic plates.

Libocedrus decurrens.—The finest specimen of this handsome tree that we have met with, is in the garden of Baron Schröder at Egham. Its rich dark green foliage and columnar habit, apart from more recondite differences, separate it from Thuia gigantea—a name once applied to it in error.

Spanish Honduras.—An expedition, under the direction of General Lever, is about to proceed to the Republic of Honduras, to investigate the resources of the country. Mr. James Collins will accompany the expedition, and report specially upon vegetable products, india-rubber and balata.

Fernando Noronha.—Mr. Ridley's account of the botany of this Brazilian island, read to the Linnean Society on June 7, 1888, appeared in print in a number of the *Journal* dated April 5, 1890. Horticulturists accustomed to the rapid publications of the weekly press grumble at the delay in publishing Conference papers in the *Journal of the Royal Horticultural Society* when that delay is only for a quarter of a year; but were they Linneans, they would have to wait a much longer time. In the present instance, it is not unlikely that the delay was partly caused by Mr. Ridley's absence in Singapore.

Double Flowers.—In a communication to the *Botanisch Jaarboek*, Professor McLeod and Mr. G. van Eeckhaute, of the Ghent Botanic Garden, have published the results of their experiments made with a view of testing the correctness of some of Dr. Nobbe's conclusions. As we have already noted in these columns, Dr. Nobbe maintained that seeds of Stock (Mathiola), the germination of which was rapid, produced more vigorous seedlings, and, moreover, a larger proportion of double flowers, than in cases where the period of germination is prolonged. The Flemish observers amply confirm Professor Nobbe's conclusions, as is shown by their statistical tables. Similar conclusions, with differences of detail dependent on the different morphological structure of the flower, were observable in Delphinium. Nothing is said about the supposed influence of mites in the production of double flowers, and, indeed, the experiments now recorded seem to be inconsistent with any debilitating process such as would be brought about by insect injury.

Consett Park.—We mentioned in our issue of April 12, that Mr. Duncan Smith had been engaged by the Consett Iron Co., to lay out the park. In justice to Messrs. J. Robson & Son, Nurserymen, of Hexham, we desire to inform our readers that this well-known firm is laying out the park, and supplying trees and shrubs, Mr. D. Smith being specially engaged to carry out the work.

Protection.—In a report to the Chamber of Commerce of Ghent, M. Ed. Pynaert points to the danger looming before the Belgian cultivators by the proposal of the French Government to impose an import duty upon Belgian flowers and fruits in the supposed interests of French horticulturists.

Fertilisation of Flowers.—In the last volume of the *Botanisch Jaarboek*, published under the auspices of the Dodonea Society of Ghent, Professor McLeod gives a list of books and memoirs relating to the fertilisation of flowers published since the catalogue compiled by Mr. D'Arcy W. Thompson in 1883, and inserted as an appendix to the translation of Müller's *Befruchtung*. The literature of this, as of other special subjects, has become so vast that, without such aid as Professor McLeod has afforded, it would be quite impossible for any individual to know what has been written on a particular subject. In the present list no fewer than 638 publications are catalogued, the author explaining that the list is not to be considered as complete, especially as regards American literature.

A Catalogue of Japanese Plants.—It is not often that we can do more than acknowledge the receipt of a trade catalogue, but we are induced to depart from our usual rule in the case of Mr. Louis Boehmer's price list of Japanese bulbs, plants, seeds, &c. Apart from the intrinsic interest and abundance of the subjects catalogued, a word of praise is due for the singularity and elegance of the catalogue, which is itself a pretty "curio," and is printed on a coarse-grained but very tough yet pliable paper, and enclosed in a coloured Japanese cover. Mr. Boehmer's address is 4, Bluff, Yokohama, Japan.

M. Houllet.—We see in the current number of the *Revue Horticole* an announcement of the death of this famous horticulturist at the age of seventy-five. He was attached to a scientific expedition in Brazil, headed by Guillemin, and was for many years Curator of the Jardin des Plantes (indoor department), under M. Decaisne. His name will be commemorated by the genus Houlletia.

Spanish Plants.—Dr. Miguel Colmeiro, Director of the Botanic Garden at Madrid, has published five volumes, comprising a complete description of all the plants of Spain, Portugal, and the Balearic Islands. The first volume was published in 1885, the fifth in 1889.

Vegetable and Fruit Farming.—Mr. Charles Whitehead has reprinted from the *Journal of the Royal Agricultural Society* a reprint of his hints on vegetable and fruit farming, a useful compilation, which may be had from Mr. Murray, Albemarle Street.

"The Flora of British India."—Sir Joseph Hooker has just issued Part 16 of this most useful work. The present part will be specially valuable to orchidists, for it contains a descriptive account of a large proportion of the Orchids of British India—the remainder will be given in the following parts. Among the genera treated of in the present part are Dendrobium, of which no fewer than 158 species are described. Sir Joseph says that his arrangement of the Indian species "is open to much criticism in detail," but he goes on to say that "it has entailed many months of labour, and it must stand or fall according to the verdict of those who may use it. The species are divided first of all into two series, those in which the inflorescence is terminal (sympodial), and those in which it is lateral. The sections are further distinguished by the "habit" and by the conformation of the flower. Nearly eighty species of Bolbophyllum are described, thirty-four of Cirropetalum, ninety-four of Eria, fifty-five of Cœlogyne, thirty-four of Calanthe, whilst the other genera enumerated have fewer species. There is no one now who has had such experience and such opportunities as Sir Joseph Hooker, whilst no one certainly has such competence to turn the advantages to good account. We may, therefore, confidently congratulate orchidists on the appearance of this publication, and look forward with eagerness to its speedy completion.

Chinese Plants.—The enumeration of Chinese plants compiled by F. B. Forbes and W. B. Hemsley, in course of publication in the *Journal of the Linnean Society*, has now got as far as Bignoniaceæ. The twenty-sixth volume of the *Journal* of the Society will be reserved for this useful publication. The newly described species are by Mr. Hemsley, and among them are several of horticultural as well as botanical interest.

Publications Received.—*Annals of Bird Life*, by Charles Dixon. (London: Chapman & Hall, Limited.)—*Complete Press Directory for* 1890. (London: Shelly & Co., 5, Leadenhall Street.)

PEACH GROWING.

Whence comes, we have often wondered, the supply of Peaches that are always to be found in fair abundance in our fruit shops? That they are not grown to anything like the extent Grapes and other fruits are, may be true, and one very rarely finds them to any extent in our market gardens. Is it that Peach growing requires more skill and care, and is a little more difficult to accomplish? or, is it that their culture does not pay so well as other fruits? It must be admitted that Peaches do require some special care and attention at certain periods, and we are afraid that on this account their culture is, to some extent, neglected. That they will pay to grow we have the very best evidence in the high prices that have always to be paid for the fruits.

One of the prettiest sights we have lately seen in the fruit way was the handsome Peach trees in their full blaze of floral beauty in Mr. T. Burton & Sons' gardens at Bexley Heath. Peach blossom is always beautiful, and here were several large houses in full bloom, and altogether charming. We were impressed also by the large size of the blossom, and its great depth of colour, the large size being a good indicator of large fruits to come.

Mr. Barton combines with his business as a hothouse builder the cultivation of Peaches and some other produce for market, and right well they are managed. If extra skill and attention be required in their cultivation, it is here found. The trees throughout are perfect models of health and strength.

The first house is a span-roofed one, 220 feet long, the trees trained to a trellis on both sides, and planted about 10 feet apart, every one occupying its allotted space, and in perfect order. We are afraid to say how many fruits are annually gathered from this one house, but some of the fruits, we were informed, weighed over 21 oz.—many of them over 18 oz.

In the next house, which is 112 feet long by 24 feet broad, the trees are planted out and grown in the most natural bush form. We have never seen larger or better examples of this mode of growth, the average size of the trees being about 10 feet high and 15 feet across. From one tree, we were told, as many as 300 fruits were gathered last year. Originally this house was much smaller, but as the trees grew up, Mr. Burton built another house over the smaller, which was then removed. Mr. Burton commences sending fruit to market early in June. In the month of July as many as 172 dozen have been sent in one week, realizing good prices. (See fig. 88, p. 553)

SILK.

The Silk Association of Great Britain and Ireland will in a few days (the 6th inst.) hold an exhibition of articles of British manufacture, in a large number of specimens, in the mansion, No. 6, St. James's Square, W. Besides manufacturers' galore, many noble ladies, we are informed, will furnish specimens of this beautiful fabric, suitable for various purposes, personal and home decoration, and doubtless the necessities of the electric light—now so largely employed in the lighting of West-end mansions—will be catered for by our more enterprising manufacturers. And when all is over, possibly the question of Mulberry tree culture as an English economy may once again force itself to the front, as it did in the halcyon (!) days of James I., when George Heriot was a court goldsmith, and eke a money-lender, and to whom the citizens of Edinburgh are so largely indebted. The question of this new-old culture may safely be left to the decision of those who have speculated, and such as may patriotically grapple with it once more—if any such are to be found; certainly we do not think any large amount of capital would be subscribed now-a-days for the purpose.

This Exhibition will be found interesting from another point of view, and one is the capacity of silks for the illustration of the uses of vegetable fabrics; and now that walls and ceilings of mansions are panelled with silk, it would certainly appear that efforts are being made to use something more than combinations of colours for such kinds of decoration. One may find on the 6th inst. that botany has been subsidised by the British manufacturer. Conventional botanical illustrations have hitherto often been mere rubbish in so far as design was concerned, but now many beautiful draperies in silk may be seen; not always correct, certainly, as to drawing, or in the weaving, and whether of English or French origin is not generally known. And here is the "rub." It is desired to bring silks of English manufacture to the front, as being equal, if not superior to French, or Italian, or Indian, or Chinese, &c. And this effort deserves the hearty co-operation of all patriotic men—and ladies.

It is claimed by some manufacturers we know of, that our dyes—we cannot say very fast ones now-a-days—are unexcelled; that in the matter of plushes and velvets we stand alone. This may be so; certainly the qualities are gorgeous. And in the matter of economy, ask our friends in the North—say, by the Clyde side—what they fabricate from the "ends" that were formerly of such little use whence they procure these nozles and chenille curtains. The gouty threads of Eastern raw silk have stimulated the ingenuity of our inventors, and now the automatic fingers stop the wandering of gouty silk so soon as a knob is encountered in the process. Very many of our readers will doubtless avail themselves of admission to the St. James's Square ball room, and will judge for themselves on all the matters above mentioned. English ladies, certainly excellent judges in most matters, will fail in this instance. Raw silk from the East is very largely used here—much of it from an uncultivated worm. There are many observers now roaming over the Indian Archipelago and other places, promising surprises, or new sources of supply of articles of known value; it is to be hoped that an observant botanist or two may be found amongst the commercial roamers who possess an eye to the evolution of silk and the food of the evolutionists. Our Antipodean colonists might find it to their interest to bestow more attention on the culture of the Mulberry tree and the breeding of the silkworm than they have done.

From a recently issued Consular report on the trade of Italy, we glean the following particulars respecting silk. In passing, it may be remarked that, although this document consists of only eighteen pages of letterpress, the compiler has in them stowed away a wonderful amount of statistical matter. He says: In the year 1888–1889 over 50,000 quintals (1 q. = 100 lb.) of raw silk were exported from Italy, which, together with the amount of cocoons form 9·10ths of the product exported under the denomination of materials necessary for industries, about 320,000,000 fr., or £12,800,000 sterling. The silk imported is consequently in a very favourable condition, both in a raw and in a manufactured state, while the import is steadily decreasing.

As to the £ *s. d.* aspect of the subject, doubtless information could be obtained from the President of the Association, Thomas Wardle, Esq., F.C.S., F.G.S., Leek.

BOOK NOTICE.

Glimpses into Nature's Secrets. By E. A. Martin. (Published by Elliot Stock.)

A small book, which is partly composed of articles contributed by the author to various magazines. We have seen many similar volumes, but this one seems very pleasantly and readably written, and as it treats of the natural history treasures to be found at certain well-known watering-places, should accompany those travellers who like to improve their holiday by learning a little about the beauties around them in an easy way, without referring to bulky scientific treatises. The geology of cliffs and downs is one of the many studies touched upon by the author, who by the way admits that he regards the eating of oysters with a "feeling akin to disgust," and tries to shock the "maggoty-cheese-eater and his kin," by an appalling account of the diet of some of these "animals" which are specially bred for market. Whether vegetables and fruits that have been highly manured are equally revolting, we are not informed.

PLANTS IN FLOWER AT KEW.

Crotalaria Cunninghamii (Temperate-house).—This is the "Green Bird Flower" of West Australia, where it is found only on the dry, almost desert regions from Shark's Bay to the Gulf of Carpentaria, and southwards towards Spencer's Gulf. Seeds of it were received at Kew five years ago, and from them the plant now in flower was obtained. It has an erect stem 6 feet high, branched near the top, the branches bearing ovate, entire leaves, 2½ inches long, and clothed on both sides with a soft silvery down. The flowers are in erect, compact, terminal racemes, and they are similar in form to the common species, their length being 1½ inch. Their most remarkable character is their colour, a rich pea-green, with numerous longitudinal lines of a darker shade on all the segments. There are very few Leguminous plants in which the flowers are large and of a green colour. A badly-coloured figure of this Crotalaria was published in the *Botanical Magazine*, t. 5710, and was prepared from a plant flowered in Wilson Saunder's garden in 1869.

Barbacenia flava (Stove).—This is probably a new species. It has stems 3 feet high, clothed with the persistent bases of the old leaves. The foliage resembles that of B. purpurea, an old garden plant, introduced as a waif by Dean Herbert, and figured in the *Botanical Magazine*, t. 2777. The scape of the unnamed plant is semi-erect, 1 foot long, smooth, green, and one-flowered. The flower is 1½ inch across, and is composed of six lanceolate, reflexed segments of rich vermilion attached to a trigonous green tube three-quarters of an inch long. The clusters of old flower-scapes on the stems indicate a free-flowering character in this plant. The Barbacenias and their near allies, the Vellozias, form an interesting tribe of the Amaryllideæ, and many of the species are ornamental. Of the seventy or so species described, scarcely half a dozen have been brought into cultivation. They abound in Brazil, where the Vellozias form conspicuous objects in the mountainous regions, some of them being tree-like in dimensions. Young plants, five years old, of one of these arborescent species, are in cultivation at Kew, having been raised from seeds presented by the recently deposed Emperor of Brazil. Collectors in Brazil ought to gather seeds of these plants, and of the Barbacenias whenever met with.

Crinum purpurascens (stove). This distinct species was introduced from West Tropical Africa in the time of Dean Herbert, who described it in his *Amaryllidaceæ*, stating that it is "of easy culture, and increases fast by offsets, but it is not stoloniferous." It was re-introduced about ten years ago, when a plant which flowered at Kew was figured in the *Botanical Magazine*, t. 6525. Notwithstanding Herbert's opinion that this species would be easy of culture, it has never been kept long, and until Mr. Horsman obtained a consignment of bulbs of it from Africa last year, it was often asked for, but never seen in gardens. One of the Kew plants obtained from Mr. Horsman, Colchester, is now in flower. The leaves are narrow, wavy, and dark green; the scape is a foot long, somewhat flattened, and purplish in colour; the flowers, of which there are six in an umbel, are rich purple on the tube and outside the segments, white inside. The tube is 6 inches long, very slender, and the segments, which are narrow, and 3 inches long, are spreading and recurved. The stamens are curved, with crimson filaments and dark purple anthers; the stigma also

is crimson. Herbert appears to have erred in stating that this species was not stoloniferous; on the contrary, we find it is the most stoloniferous of any Crinum cultivated at Kew, the thick, fleshy stolons springing freely from the base of the bulb, and pushing up leaves in a remarkably short time. Apparently this species likes to be kept saturated at the roots. It is said to grow at a low level by the side of streams about Fernando Po and in Old Calabar. Generally we find African bulbous plants like a season of dry rest, and probably it has been through applying this treatment to C. purpurascens that it has hitherto failed in cultivation.

Eurycles. — This genus of Australian bulbous plants is represented by only two species, viz., E. sylvestris and E. Cunninghamii, both of which are now in flower in the stove at Kew. The former has flowers almost as large as those of Eucharis amazonica, and not unlike them in form; indeed, so far as flowers and foliage go, there is less difference between these two genera than there is between, for instance, Eucharis amazonica and E. subedentata. A comparison of the descriptions of Eucharis and Eurycles, as given in Baker's *Amaryllideæ*, show that they are not separated by any well-marked character. Whatever the name, the two species of Eurycles are good garden plants, flowering freely under liberal cultivation. The flowers are white, and borne in umbels on erect scapes. In E. sylvestris they are 3 inches across, and about 1½ inch in E. Cunninghamii.

Orchids.—The most interesting of these now in flower are Saundersia mirabilis, Aërides Wightianum, Cottonia macrostachya, Disa racemosa, Satyrium princeps, Caladenia Patersoni, Masdevallia pulvinaris, Epidendrum bicornutum, Sarcochilus Berkeleyi, Lælia lobata, Phaius Mannii, and Coelogyne pandurata. *W. W.*

Nursery Notes.

ORCHIDS AT MESSRS. J. VEITCH & SONS'

At the above nursery at Chelsea, no difficulty is experienced in making a special display of Orchids in bloom, in the manner that has of late become fashionable early in May, and continuing generally through the season. The houses occupied at one time by seedling Orchids, now removed to the country, are at present filled with Odontoglossums, Masdevallias, and other dwarf-growing Orchids, and rare species which are on trial; and further, the large and very valuable stock of seedling Orchids, which is still in the care of Mr. Seden, afford many objects of beauty and interest not previously seen.

In the cool houses were found numbers of fine forms of Odontoglossum crispum, some having very strong spikes; large specimens of O. Hallii and O. triumphans, one of the latter bearing seven spikes; the fine old O. Uro-Skinneri, some stout spikes of Oncidium macranthum, O. superbiens, and the curious O. insculptum; several hybrid Odontoglossums to which no names are assigned, and notably one with pretty white and purple flowers, having likeness to O. Lucianianum, but the shape of O. Coradinei. Some Ada aurantiaca, Oncidium concolor, and scarlet Sophronitis assist the brightly-coloured Masdevallias most effectively in the arrangement. Among the latter were two which demand notice—the pretty M. caudato-Estradæ, and a curious species of the M. chimaera section near to M. spectrum.

The rockery-house has many specimens in flower, inclusive of several large Dendrobium nobile that were most attractive. Plants of Cypripedium caudatum with seven and more flowers each, and the true C. barbatum nigrum, with fifteen flowers, are objects of much beauty. One of the most interesting and beautiful plants now in bloom is Coelogyne tomentosa, with three spikes, and which until recently was only known through a dried specimen sent by Lobb when he was collecting for Messrs. Veitch. Its flowers are equal to, and produced in the same manner as those of C. Massangeana, a plant of which was in bloom alongside of it. An attractive feature in C. tomentosa is the delicate salmon tint which the sepals and petals take on when the flowers are a day or two old. Among the other fine specimens in the rockery-house were Odontoglossum pulchellum, with forty spikes; O. citrosmum, ranging from white to rose colour; Bifrenaria Harrisoniæ, still well in bloom; Epidendrum leucochilum, with several heads of large green and white flowers; Calanthe veratrifolia australis, a very strong grower, with large heads of snow-white flowers; various Oncidiums, one of the most curious being O. fimbriatum; Maxillaria Sanderiana, Vanda suavis Veitchii, the fine Oncidium luridum, O. tetrapetalum, and O. ampliatum majus. The arrangement in this house displays the Dendrobes capitally, one fine specimen of D. suavissimum having nine spikes, and D. dixanthum, D. Dalhousianum, D. Farmeri, D. cretaceum, D. tortile, D. primulinum, D. aggregatum majus, D. Draconis, D. Parishii, and others being used in varying numbers. Here, too, was a flowering plant of D. atroviolaceum, the latest introduction of Messrs. Veitch, and which has improved since it was exhibited at the Royal Horticultural Society's meeting, its flowers having become larger, the creamy white clearer, and the violet



Fig. 89.—Cypripedium bellatulum. (See p. 552.)

markings brighter. It is an acquisition of some beauty.

The Cattleya-house displayed Lælia purpurata in quantity, and one specimen of the rare L. p. Russelliana; many of the pretty Cattleya Schroderæ, C. Lawrenceana, C. Regnelli, and a most beautiful strain of C. Mendelii, whose tints range from the delicate ones of C. Morganæ to the richly coloured type of which C. M. Rothschildiana is perhaps the best example.

The Phalænopsis-house was rendered beautiful by noble sprays of P. amabilis and P. grandiflora; the Phalænopsis of smaller growth adding their share of beauty. Of Angræcum modestum there were some fine sprays, one of A. Ellisii and several of A. Leonis.

The Cypripediums of many species and varieties were in bloom; and among them the last hybrid of Messrs. Veitch's raising, obtained by intercrossing C. philippinense and C. villosum, and which was prematurely exhibited at the Royal Horticultural Society, since which time it has improved. C. Mrs. Canham was another new hybrid noticed with large and striking flowers; C. virens, also observed, is a very different plant from the form of C. javanicum usually seen under that name. Other specially noteworthy things were Epidendrum O'Brienianum×, with carmine-crimson flowers, and which with its progenitors was illustrated in the *Gardeners' Chronicle*, June 23, 1888, very well grown and flowered; Diacrium bicornutum, the curious Epidendrum bicameratum, and Cattleya calummata×, Chelsea variety.

The house containing varieties of Anthurium Schertzerianum was a brilliant spectacle, and the Nepenthes and other specialties were found up to their usual excellence.

Home Correspondence.

PRIMULA SIEBOLDII.—As one of the chief functions of horticultural conferences is to bring about uniformity of nomenclature, by correcting wrong names, I call attention to this name. It was unfortunately not until I had read my notes to the public that I observed that the Primrose which I had described as P. cortusoides var. amœna was labelled on the stage, in the very fine series exhibited by Mr. Ryder, P. Sieboldi. According to the laws of botanical names, the name of a variety should not be substituted for the specific name, but added after it. Therefore, the question of priority has to be decided between P. cortusoides v. amœna and P. cortusoides v. Sieboldi. I find in Mr. Dewar's carefully compiled list of names at the end of the Report of the Primula Conference of 1886 that P. cortusoides v. Sieboldi (Morren) is preferred to P. cort. v. amœna (hortorum), so I ought to have adopted that name in preference to the name I used, and I wish to correct my error. As there is another P. amœna (M. B.) in the catalogue, ambiguity is avoided by this correction. *C. Wolley Dod, Edge Hall, Malpas.*

LAXTON'S NOBLE STRAWBERRY. — To those who have not forced this variety I would say, try it; to those who have tried it and failed, I would say, try it again. This is my third year's experience of it. I put ninety-six pots of it into a very temperate house the last week in January, on shelves near the glass. This house was occupied by a crop of French Beans up to the end of February, when the temperature was raised for a crop of Melons to 68° by night and 75° by day. As soon as the Strawberry fruits showed colour they were removed to a cooler house. I have now eighty-three pots out of the ninety-six pots put in which are fruiting, and of these there are eight fruits to a pot, on an average, but eleven is the highest number. The first dish was picked on April 16, running twenty-eight fruits to the pound avoirdupois. The first picking is generally looked upon as being the best, but these fruits were not the largest I shall have from this batch of plants. The largest fruit measured 5⅝ inches in circumference, and all were of fine colour and shape, and quite free from any trace of mildew. I am forcing several hundreds of pots of Noble which look equally promising. My employer speaks highly of its flavour. *B. Barham, Croxteth.*

— — This variety in appearance does not belie its name, and it is, moreover, a free cropper and setter in pots, and ripens very early, but I cannot praise the flavour of the fruit. Poorness of flavour will hardly be considered by growers for market, who are sure to cultivate it largely for its showiness, and it is certain to take the popular fancy. Outdoors it was the first to ripen with us last year, being ahead of Keen's Seedling, Vicomtesse Héricart de Thury, and King of the Earlies, the last-named being in a bed alongside one of Noble, and therefore under the same conditions. King of the Earlies is too small, and looks very like Cuthill's Black Prince, a variety hardly ever seen or heard of now. *J. Sheppard.*

APHIS ON PEACH AND OTHER FRUIT TREES.—At this season Peach and Plum trees rapidly get infested with aphis, and require careful attention as soon as discovered, so as to dislodge them. Some varieties of the Peach and Plum are more liable to be attacked by these and other insects than are some others, this being especially true of weak growers, strong, free-growing trees being less liable to be attacked; situation, too, has a good deal to do with the presence of aphis on the young growth of fruit trees, and those growing in sheltered, warm positions are more likely to be attacked, and at an earlier period than those in exposed places even in the same garden. The best remedy against aphis is a solution of water and tobacco-juice, at the rate of 1 quart of the latter to 4 gallons of the former, applying it with a syringe when the sun has left the trees for

the day. Morello Cherries may be syringed in the morning if the trees are on a wall facing north, as the leaves are not exposed to direct sunlight; however, the insecticide is best applied on a sunless day, as it does not then dry so quickly. If the trees are attended to before the aphis effect a firm hold on the leaves by becoming enveloped in them, one application of the tobacco-water will generally prove sufficient for the season, killing the fly, and rendering the leaves distasteful to insects generally. The black aphis, which greatly infests the points of young shoots of Cherries, can only be got rid of by repeated applications of the remedy. *H. W. Ward.*



FIG. 90.—CYPRIPEDIUM CURTISII. (SEE P. 552.)

LECTURES AND SHOWS AT THE DRILL HALL.—I am very glad to see your comment on the great inconvenience suffered by those who attend the lectures at the Royal Horticultural Society's shows—the inability to hear the lecturer or speaker. Spectators of the exhibits cannot be expected to view them in silence; half the pleasure and more than half of the profit of the shows would be lost under such a restriction; their running comments resound through the Drill Hall, and drown the voices of the speakers at the table. Nothing to my mind proves the necessity of the Society having a hall of its own so much as the necessity of separating the lectures and shows—I mean, by having them in different rooms. This we shall not be able to effect till we are in a building of our own. I trust, therefore, that the scheme for the hall commented on by you in your editorial will be supported by all Fellows of the Society. To many I would say: Do not be afraid of giving because you cannot give what others do; give what you can. If you cannot put down what you would like to give, give a part this year and give again next year. I think the sceptical will be surprised at the success which will follow our securing a place of our own. Meanwhile I am thankful for the haven of refuge afforded us by the Drill Hall. *J. A. C., April* 27.

REMOVING VINE FOLIAGE.—I remember Mr. Robert Thompson telling me forty years ago that it was quite a mistake cutting away the leaves of Vines to let the sun in to colour the fruit, and that the more healthy leaves the Vine had the better would be the colour of the Grapes, which exactly agrees with M. Laurent's experiences. I never doubted the truth of Mr. Thompson's advice, and have always acted upon it. *C. W. S.*

MULCHING STRAWBERRIES.—One rather common product of employing clean straw for the top dressing of Strawberry beds, is the after-growth of a quantity of corn left in the straw, through defective threshing. I saw last year a large breadth which had been so dressed, which became in the autumn very like a corn field. Of course the Strawberry plants should have been attended to, but it was beyond the possibilities of deficient labour to do so then. Straw generally of all kinds of corn is imperfectly threshed by machinery, and the unthreshed grains soon make root when laid on the ground. In the market-growing districts, because of the enormous quantity of stable manure available at this particular season, it is the rule to dress Strawberry breadths with the longest shaken out, and specially reserved for the purpose. This having been well trodden in the stable and also repeatedly shaken, is free from grain and seeds of weeds. Laid down almost as soon as it is brought from London, the straw thus becomes washed free from impurities; still, during a dry time it is very little tarnished, whilst being well beaten it is more fitted for the purpose than is clean long straw. Various substitutes for straw or lay litter have been proposed, but few have been found worthy of adoption. Green grass is apt to breed weeds and to generate insects and vermin. Cocoa fibre refuse is too costly, and not at all satisfactory; indeed, there seems to be no material which is more fitly adapted for the object in view, than is well-trodden but fairly clean straw litter. *A. D.*

DOUBLE POET'S NARCISSUS GOING BLIND.—We have annually in the gardening journals a discussion on the cause of this. If my theory is correct, that it is caused by the generation of steam within the air-tight spathe, it is preventible by pinching off or cutting off the tip of the spathe as soon as long enough. If a few growers would try this plan on part of their bulbs, it would settle the question so far. The failure is so rare in my cold climate, that experiments there would prove nothing. *C. W. Dod, Edge Hall.*

ANEMONE FULGENS.—Like Mr. Divers, of Ketton Hall, I do not find this plant fail after the second year, but quite the contrary; a patch of it in the garden here, planted four or five years ago, increases every year both in size and strength, without anything whatever being done to encourage it. It has been in flower ever since Christmas, and during that time has been subjected more than once to 10° of frost without having the flowers in the least injured thereby. *C. W. Strickland.*

PEACHES AND NECTARINES OUTSIDE.—The cold, sunless weather has been too much for outdoor Peaches and Nectarines, which, up to the middle of April, looked very promising, the flowers strong, and which set well, but the fruit remains stationary, and now begins to look pinched and yellow; still a quick change to sunshine and warmth may alter all this, and give us a crop. Fortunately, the weather was very dry at the time, or the cold would have done serious harm, and it is remarkable that the trees are now so clean, slow growth often inviting the aphis plague; but this is absent, as is also the curl. Disbudding will soon be finished, and then the engine will be brought into play. If aphides should show themselves, we first of all puff tobacco-dust into the points of the shoots, and the insects are then easily washed off, and the tobacco-dust is safer than the liquid insecticides at this early stage, for even the best of these are apt to injure the young fruits, especially Peaches. In disbudding, I like to have every shoot on the upper side of the branch, and always leave the best situated one that is near the base of the branch, and no other except that at the end, unless there is some bare wall to cover; and by thinning thus there is little pruning required in the winter, and never any crowding of shoots, and all get well exposed and ripen perfectly. To have the shoots nice and close where they start, without those objectionable elbows at that particular part we too often see, a man gives the shoot a tie at that point, and after that the training is mostly done with Privet twigs, as our walls are all wired in diamond mesh of 6 inches. *J. Sheppard.*

MANURES.—Many artificial manures are now in the market, and circulars pour in by post, so that one is apt to be puzzled to know which was best adapted for his purpose. I should like to state my experience of some of these nostrums for the restoration of waning fertility in the soil. Coles' Blood and Bone Manure is stimulating to the Grape Vine especially. I tried it last year upon Muscats, giving the early house three waterings with this manure. One house only was watered with it, so that I was able to note results. The berries of these Vines were one-third larger than those on Vines which had had none. The quantity used was 1 cwt. in all for the three waterings. Good results were noted from its application to Melons, Cucumbers, and Tomatos. Another manure in the market is especially prepared for Potatos, and it is a very valuable aid to

this root. I have great faith in it, knowing it to be made from animal substances without admixture, and its value has become more than locally known during the last few years, and especially amongst market gardeners, Grape Vine growers, and others. *W. A. Cook, Compton Bassett.* [What is its name? Ed.]

CLOTHES MOTHS.—In my house, naphthaline in its thin flaky crystalline form has been used with success for several years as a preventive. I prefer it to benzine, and not being a liquid it is less volatile. The substance is simply spread copiously amongst the folds of woollen materials in drawers or boxes, and the operation should be repeated at intervals during spring, summer, and autumn. The only drawback is the smell (to those who do not like it), which is rather tenacious, so that a blanket placed freshly on a bed in which a visitor is to sleep is apt to produce an impression that the room is "musty." And one's dress suit, if taken out of its hiding-place immediately before rushing up to town to attend a soirée or festive gathering, does not quite get rid of the odour on the journey. At one time or other I have tried most of the popular preservatives, such as camphor, insect powder, &c., and have found nothing so efficient as naphthaline. *R. McLachlan, Lewisham.*

RHODODENDRON QUEEN OF DWARFS.—This is an entirely new variety, raised and sent out by Messrs. Isaac Davies & Son, nurserymen, of Ormskirk, who have raised several varieties of hybrid Rhododendrons, which are admirably adapted for blooming early in the greenhouse. A plant reached me in the last week in March that had come by parcel-post, quite a small one, but having four shoots, each surmounted by a bold truss of pure white flowers. It is of dwarf habit, with small green leaves, and the flowers are well expanded. It can be grown in the open ground all the summer, lifted in October, placed in pots, and had in bloom at Christmas. I am not sure of its origin, but that it is a very useful hybrid early-flowering Rhododendron there can be no doubt. *R. D.*

ONIONS AT THE VEGETABLE CONFERENCE.—If any of your readers have studied the statistical report of the late Vegetable Conference at Chiswick, perhaps they can enlighten me on the following points, which I confess I do not understand. Taking the section Onions, on what principle were the typical varieties selected, and how can Anglo-Spanish be the type of the Flat, and Ailsa Craig that of the Globe Onions? Should not a "type" be a well-known standard sort? Why is Giant Rocca with its sub-varieties classed amongst the flat Tripolis? Did the Committee adopt a new type for these also? On what principles were Certificates granted? Were they given for improved varieties, or simply because the specimens shown were good? The awards seem comprehensible only on the latter supposition. I could ask many other questions, but fear to trespass too much on your space. *Enquirer.*

A NOTABLE RHODODENDRON NUTTALLI.—At St. Rock's, Edinburgh, the residence of — Cowan, Esq., a remarkable specimen of this rarely seen species of Bhootan Rhododendron bloomed in an exceptionally successful way. The specimen was 6½ feet high, breaking into eight branches, each of which was terminated by a truss of flowers. There were fifty blooms in all in the eight trusses. Each bloom was about 6 inches in length, by about 5 inches across the trumpet-shaped limb of the corolla; the colour, white tinted yellow in the throat. There is at St. Rock's an excellent collection of plants in the houses which, along with the other gardening features of the place, reflect credit on the skill and intelligent management of Mr. Broadfoot, the gardener. *W. S.*

AUTUMN BEARING RASPBERRIES.—Shoots, or rather root-suckers, spring so numerously from old stools of this and other varieties of the Raspberry, that thinning out is very desirable. These suckers should be thinned out to about 6 inches apart, when they are a few inches high, retaining the strongest only, and tying them as they advance to rows of strained wires, or in some other simple fashion. These canes will bear a crop of fruit in the autumn. All future growths arising from the stools should be pulled up or cut off with the hoe. If required, the young plants, which are pulled up, may be transplanted in rows 4 feet apart and 12 inches from plant to plant; watered, and afterwards mulched with manure. *H. W. W.*

THE WILDSMITH MEMORIAL.—As the list of subscriptions now amounts to about the sum needed to put the selected child on the Gardeners' Orphan Fund, the Memorial fund is practically closed. It is but right that very hearty congratulations should be offered to all who have worked so cordially to secure the success of what is most certainly an unique memorial. When it is mentioned that, thanks to the kindness of editors of the horticultural papers and other good friends, the total expense incidental to the promotion of the memorial does not exceed a couple of pounds, it will be recognised that the work has been done most economically. To Mr. Turton, the Hon. Secretary, the warmest thanks of gardeners are due for the admirable results; whilst to Messrs. Arthur Sutton and Harry J. Veitch, the generous treasurers, all praise must be given for their kindly exertions. One admirable feature of the memorial has been the large sum obtained from persons not hitherto subscribers to the general Orphan Fund. It was found at the first that some persons concluded the proposed memorial would be of a permanent kind. That was not only out of the question, but was exceedingly undesirable. A memorial which will endure for ten years or so is sufficient. Death will come and orphans be made so long as humanity endures, and we can hardly find better methods of commemorating the virtues of the dead than by helping the unfortunate living. The Wildsmith memorial will prove to be an undoubted blessing to a poor orphan for eleven years, and I can hardly doubt but that many of our greater gardeners, were they asked as to what form of memorial they would prefer after death, would answer, "As those have done unto him, so do these unto me." Whilst this successful memorial removes as it were from election on the General Fund one prospective candidate, so through the great kindness of the employer of a recently deceased gardener, is yet a second prospective candidate removed from the contest also, and, therefore, the way is made more clear to those various candidates, of whom we have already heard through circulars and other methods of communicating with subscribers. I learn at the last moment that the following amounts have been collected and sent in: Mr. Hughes, Birmingham, £3; and Mr. Amys, Southampton, £1 5s. *A. Dean.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

Present: Dr. M. T. Masters, in the chair; Mr. Morris, Rev. C. W. Dod, Mr. Godman, Mr. Michael, Dr. Müller, Mr. Pascoe, Dr. Scott, Mr. Wilson, and Rev. G. Henslow (Hon. Sec.).

Hybrid Narcissi.—Rev. G. H. Engleheart exhibited a collection of hybrids, amongst which was one called George Engleheart, a cross between N. poeticus ornatus and Narcissus Tazetta, Bazelman major. This was quite new, and received a botanical certificate. Another was between N. poeticus and a trumpet Daffodil, Hudibras; this had a remarkably large and flat crown. A third, between P. poeticus ornatus and Mary Anderson, had an orange-streaked cup, both parents having an orange-bordered cup; the colour had become intensified. Mr. Engelheart observed that the anthers, being situated half-way between the points of the insertion of those of the two parents was a characteristic feature of hybrids amongst Narcissi, and that no appreciable difference occurs on the hybrids raised when the parentage is reversed. He also remarked that Dean Herbert thought that N. Tazetta var. Bazelman major was barren with its pollen, as he could raise no plants from it. This was probably due to a too chilly climate. Mr. Henslow remarked that N. Tazetta is very abundant amongst the rocks in Malta, and has two forms, one with a short stout stem, and many flowers, another with a long slender stem and fewer flowers.

Aristolochia Goldiana.—Mr. Morris commented upon the singular flower of this plant, which had blossomed at Kew (fig. 83, p. 521, April 26). There had been a race between the flower-bud and the shoot-bud. The former was small, and proceeded out of the old wood. The flower-bud finally prevailed, and the shoot was thereby checked. It is a West African species, differing from the South American in having twenty-four stamens, &c. It is figured and described in the *Botanical Magazine*, No. 5672.

Primrose, Variety.—Mr. Wilson exhibited a seedling from "Scott Wilson," of a deep blue-purple, with a red eye.

Plant Diseases.—Rev. C. Wolley Dod gave an interesting account of several diseases of plants in his garden, and commented on the difficulty of finding curative means, or of hearing of other suggestions than burning. He first alluded to a species of smut (Ustilago) on Primula farinosa, which appeared to be indigenous, as the plants were collected in Lancashire; and although it was grown with P. denticulata, the smut was confined to the former species. Æcidium ficariæ had attacked his Hellebores. In this case, a dryer soil was suggested as likely to prove effective in ridding the plants of the fungus. The "Lily spot," due to Polyactis cana, usually appearing late in summer, had been seen in April upon Tulips, and apparently the same species on Daffodils. It was suggested that a mixture of sulphate of copper and quicklime would prove effective, as in the case of Vines, described below. Puccinia Schroeteri had occurred on Daffodils from Portugal, and also upon the common double sorts.

Diseased Vines, treatment of, in France, with "Bouillie Bordelaise." Mr. Dod read the following communication:—"In the Médoc there are three applications of the treatment. (1.) The first is towards the end of May, when the Vine has produced shoots about 30 centimetres long. At this period the flower of the Vine is not yet opened. (2.) A second application is made at the end of June or the beginning of July. (3.) A third, about the first half of August. The first application requires about 2 hectolitres of Bouillie per hectare. The other two, 2½ to 3 hectolitres per hectare. With regard to the preparation of the Bouillie, the following is the method employed:—For a 100 kilos. In one tub is put 50 kilos. of water and 3 kilos. of sulphate of copper; in another tub 50 kilos. of water and 2 of lime. The sulphate of copper having been dissolved, and the lime well soaked, the two liquids are then mixed. Cold water is used and slaked lime. Formerly small brooms made of Heather or Butcher's Broom were used to sprinkle the liquid on the Vines. Several varieties of syringe are now used. It was at first hoped that the Bouillie would destroy both the mildew and the Oidium. Up to the present time such has not been the case; and if the mildew is absolutely destroyed by this treatment, the use of sublimed sulphur has to be continued against the Oidium.

Sulphate of Iron as a Remedy against the Potato Disease.—Rev. G. Henslow quoted the following passage from a report by the late Professor G. Giulia, of Malta, upon the Orange disease; but bearing on the question of the destruction of vegetable parasites:—"Having watered two Aralias, three Begonias, an Orange, and several Rose bushes, with a solution of sulphate of iron, in the proportion of six grains to one litre; these plants, far from sustaining any injury, seemed to gain intensity of colour to their chlorophyll, and their buds shot with greater rapidity and luxuriance. Towards the end of the past year, Potatos were attacked by Phytophthora infestans, to such an extent as to impoverish and destroy the crop of the greater number of fields, especially in the eastern districts of the island. In a small field adjacent to others infected by the fungus, the ground was sprinkled with the solution, prior to the sowing of the Potatos; some young plants sprang up, and the crop was so abundant as to astonish the cultivators of the neighbouring fields, who were seized with a longing to adopt the method in question. Not a single leaf of these plants bore the fatal fungus. This was certainly due to the sulphate of iron which had destroyed the spores buried in the soil, and rendered the plants so vigorous as to impede the growth of the pernicious fungus."

Colours of Flowers, experiments on.—The following communication was received from Mr. Smee: "Some years ago, when experimenting with flowers and plants placed in a weak solution of silicate of soda, I noticed that the plants and flowers were affected by the solution according to their colour. The colours disappear in the following order:—blue, lilac, red, and brown, whilst yellow was the most persistent. Greens behaved according as blue or yellow predominated in its composition. The question has occurred to me whether the white varieties of flowers are not formed among plants in a similar order. We have an example in the blanching of the old flowers of Franciscea. Then

again in the poor varieties of Vanda cærulea, the petals are almost white with very pale blue veining. In Cattleya, the colour of the petals and lip disappear, leaving the yellow throat and the pale pink tint (which so often spoils a white Cattleya from a florist's point of view), as the remains of the red tint in the mauve colour. Therefore, as yellow is so persistent, we cannot expect a C. citrina to appear amongst our white varieties. The white 'crispum' is due to the disappearance of the brown blotches, leaving only the yellow markings on the column; and in the case of the yellow 'triumphans,' which is a poor form of the ordinary type, the brown blotches are either absent or are in process of disappearance. The only pure white forms of Orchids are C. cristata alba and Dendrobium Kingianum album, var. Heathi.

Primrose with Foliaceous Corolla.—Mr. Douglas sent a plant with the corolla foliaceous; the calyx was normal. It is a not uncommon form.

ROYAL AQUARIUM.

This show was held on Tuesday and Wednesday last, and was a very pretty display, much better and larger than on the former occasion. The success of the exhibition was, however, owing to the trade collections, amateurs being poorly represented. The leading group of plants was that of Messrs. J. Laing & Sons, Forest Hill, who showed a group containing some choice Orchids and tuberous Begonias, and arranged in their usual elegant style; they also had the leading prize for a collection of fine Cliveas. For a group from which Orchids were excluded, Mr. W. Morle, 283, Regent Street, W., was 1st, showing a bank chiefly of market flowering plants; and he also won other prizes, as for Mignonette, Spiræas, &c. Messrs. B. S. Williams & Son, Victoria Nurseries, Upper Holloway, contributed an extensive collection of plants similar to what was seen at the shows of last week. The Rhododendron Williamsi×, which was included, is a very charming plant. Rhododendrons in pots came from Messrs. H. Lane & Son, Berkhamsted. Mr. C. Turner, Slough, had some tree Carnations, Mr. W. Gordon, Twickenham, a collection of tree Pæonies tastefully set up with Japanese Maples, and Messrs. Chambers, Isleworth, a large bank of their white Viola Snowflake. Messrs. T. S. Ware, Tottenham, and Barr & Son, Covent Garden, were in competition for a collection of Daffodils, which it was wisely stipulated should be shown with foliage, and were awarded prizes in the order named. Auriculas were a feature, and some good plants were shown. Messrs. J. Douglas R. Dean, and W. Henwood were among the chief prizetakers. Mr. Douglas had the best collection of not less than fifty, and Mr. C. Turner followed closely. Messrs. Dean and Douglas also showed Primroses and Polyanthus, &c., in good examples. Messrs. Sutton & Son, Reading, had a collection of vigorous Calceolarias and some well grown border Auriculas. The premier Auriculas were Nellie Hibberd (alpine) from Mr. Douglas, a large flower of rich port colour and brilliant yellow centre; the show variety being Prince of Greens (Trail), from Mr. G. Wheelwright.

MANCHESTER ROYAL BOTANIC.

April 29.—The Society held its second show of the season in the Town Hall, in conjunction with the National Auricula Society. An Auricula show of itself is not very conspicuous in such a place as the Town Hall, but taken together with the various exhibits which Mr. Findlay has managed to pull together, it makes the whole interesting, and the details more than usually attractive to the lover of spring flowers. With the view of forming a setting to the general cut flowers and other contributions, there were sent up from the Botanical Gardens a lot of miscellaneous flowering and foliage plants, comprising Palms, such as Kentia and Cocos, some well grown and finely coloured Draccenas, some Pandanads, and the robust Grevillea, which when in half specimen, such as with its arching pinnated leaves is not the least valuable plants for decorative work. In addition to these, we single the Rubiaceous, leathery-leaved Rudgea macrophylla, which was loaded with pyramidal umbels of flowers crowded together to form more of a pyramidal than a globose head as it is generally characterised. With its white stamens springing from the base of the petapetalous flower, it is beautiful to look upon, and possibly is one of the best inhabitants of the stove that could be recommended for general culture. Along with it were several good Orchids of the villose lady-slipper kind, as well as a few Cattleyas and Lælias.

Nestling in front of some of those examples of greenery above described, was a really meritorious collection of the Primula Sieboldii, in varied colours. The cortusoides form of the Primula race is a captivating subject, and when one looks at the short peduncles and the crowd of umbels above, it seems almost as if the exhibitor was playing a freak, such as practised by some exhibitors of long-leaved Hyacinths, doubling them down to take the eye. There is nothing of this sort, however, and everyone was pleased with the Queen of Whites, the alba magnifica, the Chinese Primrose-looking Mrs. Geggie, Harry Leigh, Mrs. Ryder, and others, varying in shade of colour from rosy-purple down to white, comprising most of the intermediate shades. These set a nestling among a group of Pteris serrulata in its crested form and Maidenhair, and were confronted with a batch of Beaconsfield Primroses, in variety of shades of yellow, set among the common moss, looked very charming indeed. A Silver Medal was awarded.

Mr. Sam Barlow sent a fine contribution of Polyanthuses and Primroses in various colours, and in fine umbels.

R. S. Williams & Sons had a neat group of Orchids, containing one of the best Odontoglossum luteo-purpureum we have seen, some of those Ladies'-slippers, which are in every collection now, the best of which was a variety of caudatum; and a rather interesting form of Epidendrum, called inversum. The yellow Cattleya citrina was beautiful, and the Amaryllis and Cliveas were showy and good.

Barr & Sons, Covent Garden, had a lot of Daffodils put up among leaves, the best of which, outside of well-known and showy marketable sorts, were Burbidge's Ossian and poeticus poetarum, along with a very fine one, with a good saffron cup, named conspicua, and some Tulips, Frittilarias, Triteleias, &c.

Mr. William Owen, Northwich, had a very choice lot of general things, particularly a Cattleya Mendelii, which had the most prominent lip we have seen, and in every respect one of the best of its class. Another good plant was Dendrobium Wardianum, with twenty-four blooms on one growth. His charming double examples of border Polyanthus, called Queen Victoria, called forth general encomiums; the truss is so large, and so double, and the gold edging is very pronounced.

Messrs. Dicksons, Chester, put up a very striking collection of Daffodils. The pale yellow concolored Dr. Hogg is good, and the deeper yellow maximus, along with Falstaff, Queen of England and bicolor grandis, &c. Messrs. Dickson, Brown & Tait put up a nice contribution of cut Narcissus and superfine Tulips, Proserpine and Gesneriana being striking sorts along with a lot of cut border flowers. Messrs. Dickson & Robinson had also a good lot of spring flowering bulbs, their Tulips being very clean and striking to the eye. An excellent form of Dendrobium Wardianum called Bourdmani variety, with about a 3 feet pseudobulb, the top half covered with flowers of more than ordinary richness, well merited the special certificate awarded. The proprietor is Mrs. Hodginson Bowden.

The Auricula classes were fairly well-filled, and the examples were of about an average character. In the class for six dissimilar varieties, Rev. F. Horner was 1st, with Miranda, George Lightbody, Monarch, Mrs. A. Pott, Richard Headley, and another. Mr. Lord, Todmorden, was 2nd; and Mrs. Penson, Ludlow, 3rd. For the best pair, Rev. Mr. Horner was again 1st, with Mrs. A. Pott, Rev. F. Horner, Magpie, and George Lightbody; Mr. Irving Henn was 2nd, and Mr. Lord 3rd. The best pair came from Mr. E. Shipley; Mr. Middleton and Mr. Shaw following. The best flowers were A. Middleton and Mayflower. The best grey-edged flower was George Lightbody, from Mr. Lord; the best green-edged was Attraction, from Mr. Horner; and the best white-edged was Acme, from Mr. Shipley.

The alpine Auriculas are much more showy than the named show sorts. The "dusty miller"-like character and the dullish colour of the trusses in a town hall look a bit dingy at the best. The alpine sorts lift the eye a little above the common ruck in that way. Mr. J. Beswick, Mr. H. Euggie, Mr. Lord, and Rev. Mr. Horner had the chief prizes. There were others not much behind, such as Mr. Sam Barlow, but prizes after 3rd are not counted for much among horticulturists generally. The 1st prize lot was grandly grown, as if in manure, judging by the foliage, and the trusses, and size of individual flowers. Three unnamed seedlings and a sterling one called Emir, stood out conspicuous above their fellows. Other good ones were Queen Victoria, John Bull, Sensation, Diadem, John Leach, Scarlet Gem, and Lord Lorne. A very beautiful one named Sir Trevor Lawrence, but not fully developed, was shown by Mr. Barlow.

Polyanthuses in their several classes were poor—very poor indeed; most of them evidently had been wrenched out of the border and stuck in pots for show purposes. This will not do in the times we live. The best we noted were Black Knight, Cox's Prince, Cheshire Favourite, and S. Butterworth.

The double Primroses, particularly the crimson velvety double one almost lost to commerce, was fine in Mr. Barlow's stand, and so were the commoner double white and double lilac.

It now remains to notice an extraordinary collection of flowers sent by Mr. Joseph Broome from his garden at Llandudno, comprising thirty or more distinct kinds, all from the open ground, and including Mignonette in large trusses or spikes, Roses, Pæonies, Centaurea montana, Primula cashmeriana, Marguerites, East Lothian Stock, Iris, Gentiana acaulis, &c., all bespeaking to Manchester people the purity and salubrity of the atmosphere in which they were grown.

The day was good, the attendance fair, increasing as we left the hall to pen the above remarks.

ANCIENT SOCIETY OF YORK FLORISTS.

This body held its first show of the season on April 24, at the Guildhall, the public being, as usual, admitted free—a privilege of which a large number of people availed themselves. The arrangements were admirably made, and an excellent show was made. Over 500 specimens were staged by some twenty exhibitors. The display of Hyacinths was exceptionally fine, upwards of 200 pots competing. All the blooms were of good quality. There was a fair average collection of the show varieties of Auriculas and Polyanthus, good heads of Tulips in pots, and excellent specimens of Polyanthus and Narcissus. The new rules of the Society for restricting Auriculas and Polyanthus to pots not exceeding 4 inches, lent uniformity to the exhibition. The chief winner in the classes for Auriculas and Polyanthus was Miss Steward, who was closely pressed by others. Dr. Baker took all the 1st prizes for Tulips, and most of the premier honours for Hyacinths, including a prize given by Messrs. Clues Bros., of 23, Market Street, for six Hyacinths, dissimilar. Other exhibits consisted of Chinese Primulas, Cyclamens, Cinerarias, Spiræas, stove and greenhouse plants. The next show will be held on May 28.

FLORISTS' FLOWERS.

CAULESCENT PHLOXES.

I shall not readily forget a display of these hardy flowers which I saw in the Rev. F. D. Horner's garden, Lowfields, last autumn, and whose agreeable fragrance floated over the whole extent of the same. One may well ask how such a fine display was obtained, for the plants do not always produce such fine heads of flowers on stems 4 and 5 feet high.

Mr. John Fraser used to produce such heads at Lea Bridge, many years ago, and may probable do so now. A plant so hardy and easily grown as the Phlox is apt to get neglected, and one form of neglect is to let the plant grow a long time in one place, and form a thicket of stems, quite exhausting the soil within range of the roots, and, as a consequence, the spikes increase in numbers, and the flowers decrease in quantity and in size in each umbel.

I have been tempted to make these few remarks because most persons would be delighted to own a collection of Phloxes in strength and vigour; moreover, the present is a suitable time to propagate by means of cuttings. The plants may be very easily raised from seeds, but the seeds should be sown on a mild hotbed in February, or at least not later than March 1. The young plants soon appear, and should be pricked out in boxes, and when established inured to the open air soon afterwards. These seed-

lings when planted in rich soil at about a foot apart will, in most cases, flower the first year. Cuttings may be taken now, these should be shoots from the old stools, and should be planted singly in small pots; plants so raised will flower by the end of the year. Or the cuttings may be planted in a border of fine sandy soil; they will root and produce plants strong enough to flower well next season, but not to flower much in the present one. The way to produce strong flowering plants, is to trust to cuttings, they are easily propagated, and the plants strike flower strongly the second year. The soil may be trenched and manured heavily. Avoid propagating the plants by division; this is an easy way of increasing the stock, but the best results can only be obtained by seeds or cuttings. The plants should be about 2 feet apart. *J. Douglas.*

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (−) the Mean for the week ending April 26.	Temperature. Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	0 av.	31	10	+ 59	— 50	6 +	83	18.0	30	24
2	0 av.	39	12	+ 43	— 47	2 +	69	9.4	41	28
3	2 —	37	9	+ 15	— 84	3 —	60	5.8	37	24
4	3 —	44	7	—	— 6	— 32	0 av.	66	6.7	30	30
5	2 —	43	7	—	— 5	— 19	1 —	59	6.2	24	26
6	2 —	40	0	—	— 2	— 61	9 +	62	8.3	18	28
7	1 —	35	5	+	30 —	64	6 +	72	15.7	39	27
8	2 —	35	3	+	14 —	74	1 —	68	9.7	29	26
9	1 —	44	0	+	1 +	16	9 +	69	11.7	39	32
10	1 —	39	2	+	3 —	42	0 av.	76	10.0	42	29
11	0 av.	52	0	+	12 —	7	0 av.	74	14.1	45	33
12	1 —	52	0	+	17 —	22	7 +	72	10.2	19	36

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending April 26, is furnished from the Meteorological Office:—

"The *weather* during this period has been very changeable and unsettled—at times bright and fine, at others dull, with somewhat heavy falls of rain and local showers of hail. Thunderstorms were experienced in many parts of England towards the close of the week.

"The *temperature* has just equalled the mean in the north and east of Scotland and the south of Ireland, but in all other parts of the kingdom it has continued rather low for the time of year, especially over the east of England. The highest of the maxima, which were recorded either on the 21st or 22nd, ranged from 67° in 'Ireland, S.,' and 63° in England, E.,' to 58° in 'Scotland, N.,' and 'Scotland, W.,' and 56° in the 'Channel Islands.' The daily maxima during the latter part of the period were in many instances below 50°. The lowest of the minima were registered either on the 25th or 26th, and varied from 27° to 29° in Scotland, from 28° to 30° over Ireland, and from 30° to 35° over England. In the 'Channel Islands' the thermometer did not fall below 41°.

"The *rainfall* has been a little less than the mean over the north of England, and about the normal amount in Ireland, as well as in 'England, E.,' but more in all other districts. Over southern and south-western England and in the 'Channel Islands' the fall has been heavy.

"*Bright sunshine* has been very little prevalent over southern England and the Channel; but in most other parts of the kingdom an increase is shown. The percentage of possible duration ranged from 45 in 'Ireland, S.,' 42 in 'Ireland, N.,' and 41 in 'Scotland, E.,' to 24 in the 'Midland Counties,' 19 in the 'Channel Islands,' and 18 in England, S.'"

MARKETS.

COVENT GARDEN, May 1.

A steady business all the week, with supplies equal to demand. Another arrival of Tasmanian Apples to hand, but making lower prices. Hothouse goods in fair supply. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d.	s. d.
Apples, ½-sieve	1 0– 7 0	
— Nova Scotia, brl.	12 0–25 0	
— Tasmanian, case	15 0–20 0	
Grapes, new, lb.	5 0– 7 0	
Lemons, per case	12 0–20 0	
Melons, each		2 0– 5 0
Pine-apples, St. Michael, each		2 0– 6 0
Strawberries, lb.		2 0– 8 0

Vegetables.—Average Retail Prices.

	s. d.	s. d.
Asparagus, English, per bdl.	1 0– ...	
Beans, French, lb.	2 0– ...	
Beet, red, per dozen	1 0– 2 0	
Carrots, per bunch	0 6– ...	
Cauliflowers, each	0 3– ...	
Celery, per bundle	1 6– 2 0	
Cucumbers, each	1 0– 1 6	
Endive, per dozen	2 0– ...	
Herbs, per bunch	0 4– ...	
Leeks, per bunch	0 3– ...	
Lettuces, per dozen	1 6– ...	
Mushrooms, punnet	1 6– ...	
Mustard and Cress, punnet	0 4– ...	
Onions, per bunch	0 5– ...	
Parsley, per bunch	0 6– ...	
Rhubarb, per bundle	0 6– ...	
Seakale, punnet	2 0– ...	
Shallots, per lb.	0 6– ...	
Spinach, per bushel	6 0– ...	
Sprue, per bundle	1 6– ...	
Brussel Sprouts, pr lb.	0 3– ...	
Tomatos, per lb.	1 0– ...	
Turnips, per bunch, new	0 4– ...	

Potatos:—In consequence of colder weather prices for Old Potatos have had a tendency to rise—an advance of 5*s.* to 7*s.* 6*d.* per ton in many instances. Arrivals of New fairly heavy, and late prices have been maintained. *J. B. Thomas.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0–18 0	
Arum Lilies, per doz.	8 0–12 0	
Aspidistria, doz.	...18 0–42 0	
— speci. plants, each	7 6–10 6	
Azaleas, various, each	2 0– 3 0	
Cineraria, per doz.	6 0–10 0	
Cyclamen, dozen	6 0–18 0	
Cyperus, per dozen	4 0–12 0	
Dielytra, per doz.	9 0–12 0	
Dracæna terminalis, per dozen	...30 0–60 0	
— viridis, per doz.	12 0–24 0	
Erica Cavendishii, per dozen	...18 0–48 0	
— ventricosa, doz.	15 0–24 0	
Euonymus, in var., per dozen	6 0–18 0	
Evergreens, in var., per dozen	6 0–24 0	
Ericas, various, doz.	8 0–24 0	
Ferns, in var., doz.	4 0–18 0	
Ficus elastica, each	1 6– 7 0	
Foliage plants, various, each	2 0–10 0	
Genista, per doz.	8 0–12 0	
Heliotrope, per doz.	6 0– 9 0	
Hydrangeas, doz.	...12 0–18 0	
Liliums, various, per dozen	...18 0–36 0	
Lily of the Valley, p. doz. pots	...12 0–18 0	
Lobelia, per dozen	5 0– 6 0	
Marguerites, doz.	6 0–12 0	
Mignonette, per doz.	5 0– 9 0	
Musk, per dozen	4 0– 6 0	
Palms in var., each	2 6–21 0	
Pelargoniums, scarlet, per dozen	6 0– 8 0	
— per doz.	...12 0–24 0	
Roses, various, doz.	12 0–24 0	
— (Fairy), per doz.	8 0–10 0	
Saxifrage, per doz.	...18 0–24 0	
Solanums, per dozen	6 0–12 0	
Tulips, doz. pots	6 0– 9 0	

*** Bedding plants in variety in boxes, and also in pots.

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.
Abutilons, 12 bun.	2 0– 4 0	
Azaleas, doz. sprays	0 6– 1 0	
Bluebells, doz. bun.	1 0– 2 0	
Bouvardias, per bun.	0 8– 1 0	
Callæthiopica, 12 bl.	3 0– 5 0	
Camellias, white, per dozen	2 0– 4 0	
— various, per doz.	1 0– 2 0	
Carnations, 12 blms.	0 6– 2 0	
Cowslips, doz. bun.	1 0– 1 6	
Cyclamens, 12 blms.	0 4– 0 6	
Daffodils, 12 bunches	3 0– 6 0	
Eucharis, per dozen	4 0– 6 0	
Gardenias, 12 blooms	1 6– 4 0	
Heliotropes, 12 spr.	0 6– 1 0	
Hyacinths (Dutch), in boxes, various, per box	1 6– 3 0	
Lilac, white, Fr., bun.	4 0– 6 0	
Lilium, var., 12 bl.	2 0– 6 0	
Lily of the Valley, doz. sprays	0 6– 1 0	
Maiden Hair Fern, 12 bun.	4 0– 9 0	
Mignonette, 12 bun.	2 0– 4 0	
— French, per bun.	1 6– 2 0	
Marguerites, 12 bun.	3 0– 6 0	
Narcissus, various, doz. bun.	1 6– 6 0	
Pelargoniums, scarlet, 12 spr.	0 4– 0 6	
— dozen sprays	0 9– 1 0	
Primroses, 12 bun.	0 6– 0 9	
Primulas, double, 12 sprays	1 0– 1 6	
Roses, Tea, per doz.	1 0– 3 0	
— coloured, dozen	2 0– 4 0	
— French, dozen	1 0– 2 0	
— red, per dozen	2 0– 4 0	
— Safrano, dozen	1 0– 2 0	
Spirea, doz. sprays	0 6– 1 0	
Stephanotis, 12 spr.	4 0– 6 0	
Tuberoses, 12 blms.	1 6– 2 0	
Tulips, doz. bunches	3 0– 6 0	
— (Dutch), in boxes	2 0– 4 0	
Violets, 12 bun	1 0– 2 0	
— French, bunch	1 0– 2 0	
— Parma, bunch	3 0– 5 0	

Orchid-bloom in variety.

SEEDS.

London: *April* 30.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, write that very little business was done on the seed market to-day. Red Clover seed steadily maintains the late advance, owing to the support derived from the American and Canadian markets. French Red Clover is also the turn dearer. Several purchases of Trefoil are being made, as the new crop is badly spoken of. Alsike and white remain as previously reported. Italian and perennial Rye-grasses are still wanted. Spring Tares are now very scarce. Rapeseed is dearer. Mustard unchanged. Blue Peas in better demand. Canary firmer. Hemp seed fully as dear.

CORN.

Averages.—Official statement of the averages of the prices of British corn, imperial measure, for the week ending April 26:—Wheat, 30*s.* 4*d.*; Barley, 29*s.* 2*d.*; Oats, 18*s.* 6*d.* For the corresponding period last year:—Wheat, 29*s.* 7*d.*; Barley, 24*s.* 5*d.*; Oats, 17*s.* 8*d.*

FRUIT AND VEGETABLES.

Spitalfields: *April* 30.—Plentiful supplies of green vegetables. Scarce supply of fruit—demand fair. Abundant supplies of Potatos—demand very heavy. Prices:—English Apples, 4*s.* to 7*s.* 6*d.* per bushel; American Apples, 18*s.* to 26*s.* per barrel; forced Rhubarb, 1*s.* 3*d.* to 1*s.* 9*d.* per dozen bundles; natural ditto, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Seakale, 1*s.* 3*d.* to 1*s.* 9*d.* per punnet; Cabbages, 2*s.* to 3*s.* 6*d.* per tally; Cauliflowers, 1*s.* 3*d.* to 2*s.* per dozen; Spinach, 1*s.* to 2*s.* per bushel; Sprouting Broccoli, 1*s.* 3*d.* to 1*s.* 9*d.* per sack; do., 9*d.* to 1*s.* 3*d.* per sieve; Greens, 2*s.* 6*d.* to 4*s.* per dozen bunches; Spring Onions, 2*s.* to 2*s.* 6*d.* do.; Carrots, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Parsley, 1*s.* 6*d.* to 2*s.* do.; Mint, 2*s.* to 3*s.* do.; Horseradish, 1*s.* 1*d.* to 1*s.* 4*d.* per bundle; French Radishes, 2½*d.* to 3*d.* per dozen bunches; Beetroots, 4*d.* to 6*d.* per dozen; Endive, 1*s.* 3*d.* to 1*s.* 6*d.* do.; Cabbage Lettuce, 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress, 1*s.* 3*d.* to 1*s.* 9*d.* per dozen baskets; Leeks, 2*s.* to 2*s.* 6*d.* per dozen; English Onions, 10*s.* per cwt.; Egyptian (Alexandria) Onions, 8*s.* to 9*s.* per cwt.; Carrots, 16*s.* to 26*s.* per ton.

Stratford: *April* 30.—Supply has been good during the past week, and a fair trade was done at the following prices: Cabbages, 3*s.* to 5*s.* per tally; Greens, 3*s.* to 3*s.* 6*d.*, loose; ditto, 2*s.* 6*d.* to 4*s.* per dozen bunches; Cauliflowers, 1*s.* 6*d.* to 2*s.* per dozen; do., 6*s.* to 10*s.* per tally; Turnips, 2*s.* to 3*s.* per dozen bunches; Carrots (household), 30*s.* to 40*s.* per ton; do. (cattle feeding), 15*s.* to 18*s.* do.; Parsnips, 3*d.* to 8*d.* per score; Mangolds, 12*s.* to 17*s.* per ton; Swedes, 16*s.* to 20*s.* do.; Onions, Egyptian, 9*s.* to 10*s.* per cwt.; Radishes, 8*d.* to 9*d.* per dozen bunches; spring Onions, 3*s.* to 4*s.* per dozen bundles; Rhubarb, 2*s.* to 2*s.* 6*d.* per dozen bunches.

POTATOS.

Borough and Spitalfields: *April* 29.—Quotations:—Regents, 40*s.* to 90*s.*; Hebrons, 30*s.* to 80*s.*; Magnums, black, 35*s.* to 40*s.*; Bedfords, 40*s.* to 50*s.*; Lincolns, 40*s.* to 60*s.*; Yorks, 45*s.* to 80*s.*; Scotch, 60*s.* to 100*s.*; Imperators, 40*s.* to 70*s.* per ton.

Spitalfields: *April* 30.—Quotations:—Magnums, 30*s.* to 50*s.*; Imperators, 30*s.* to 70*s.*; Hebrons, 30*s.* to 40*s.* per ton.

Stratford: *April* 30.—Quotations:—Scotch Regents, 55*s.* to 70*s.*; do. Magnums, 60*s.* to 80*s.*; English, light, Magnums, 45*s.* to 65*s.*; dark do., 32*s.* 6*d.* to 40*s.* per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 75*s.* to 92*s.*; inferior do., 46*s.* to 75*s.*; hay, best, 60*s.* to 87*s.*; inferior do., 26*s.* to 50*s.*; and straw, 20*s.* to 38*s.* per load.

Obituary.

Mr. Stuart Henry Low, whose death we deeply regret to have to announce, was born January 4, 1826. He was one of four sons of Mr. Hugh Low, founder of the firm, who died in 1863. The eldest of the four still survives, viz., Sir Hugh Low, G.C.M.G., so well known for his travels and discoveries in Borneo, and in the Malay Archipelago

and Peninsula. In early life Mr. Stuart Low followed a seafaring career, having been mate of the trading ship *Greyhound*, but left the sea to join his father about the time of his brother James' death. He devoted himself with untiring energy to the business, which he increased to a very large extent. Travellers were sent to Mexico and California for coniferous seeds, in which a very large trade was done some thirty years ago, and many hundred thousands of young Pines, Firs, and Wellingtonia, were distributed from the nursery. A large quantity of Australian and Canadian plants were imported, and for many years formed an important feature. Since 1862 Orchids have taken a leading place, and travellers have been sent to South and Central America, Brazil, Mexico, Borneo, Java, the Philippines, Burmah, Madagascar, and other countries which Mr. Low, with his clear judgment, thought would be promising fields of research. Many of the leading varieties now in commerce are the result of his enterprise. In 1882, having to give up part of the land at Clapton, and finding great difficulty in successfully growing plants during the winter months on account of the nursery being so hemmed in with building, the freehold of over 40 acres was purchased at Bush Hill Park, Enfield, and a large part speedily covered with glass, the remainder of the land being devoted principally to fruit trees and Roses, which are grown largely.

Mr. Low was personally a most kind-hearted man, and won the affection of those he employed, a large number, having been with him for twenty-five to thirty-five years more. He was of singularly retiring disposition, not taking the public position a man of his zeal for horticulture might be expected to do; and had to be known to be appreciated. He was a most liberal supporter of many institutions for relief of want and distress. His wife died about twelve years ago, and the loss he then sustained told in a most marked manner upon him, the reverence he had for her memory being very great.

The business, we learn, will in future be carried on by the sons, Mr. Hugh Low, Mr. Stuart Henry Low, and Mr. Edward Valentine Low.

The funeral took place at Abney Park Cemetery on Saturday, April 26, and many of the leading nursery and seedsmen, and others connected with the trade, were there; the men from both nurseries, to the number of about 130, forming round the grave, which was covered with floral tributes from a large number of friends and acquaintances.

NOTICES TO CORRESPONDENTS.

"*" Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.

America: *H. C.* America is a large place. In some parts it is covered with ice, in others the temperature is that of a forcing-house. Do you not think, before asking such questions as you do, that you should make yourself acquainted with the geography of the country? We might then be able to help you. As it is, you might as well ask if a young gardener would do well in the moon, and any answer we could give you would be about as useful.

Auriculas: *A. F. Upstone.* The flowers sent are in no way unusual varieties. They are well grown, however.

Cypripedium caudatum: *F. Millward.* The flowers are very fine, and well coloured, the tails, respectively 2¾ inches and 2⅝ inches in length, being well developed.

Erratum, p. 526.—In the abstract of Mr. Dod's paper on Daffodils, where the habitat of each section is described, the figures No. 5 and No. 4 should be transposed. It is No. 4 "albus" which is so limited in its range.

Eucharis: *Hortus.* In the absence of fuller particulars, we cannot say why your plants die off. There is no disease or mite present, so you had better look to their cultivation.

Grapes: *E. S.* Your Grapes are badly rusted, and will always be disfigured. Rust may be caused by allowing draughts of cold air to reach the bunches whilst wet from syringing, and warm, and it may be induced by putting too much sulphur on the hot-water pipes or flue. The position in which your vinery stands demands much care in the ventilation.

Insects on Vine: *X. Y. Z.* The leaves are covered on the underside with very minute irregular black specks, apparently fungoid, produced, possibly, by the action of the manure-water used. They are also much blotched, as though spotted with water and acted on by sun or over-heating. The roots are almost destitute of rootlets, but do not show trace of Phylloxera. *I. O. W.*

Names of Plants: *A. W.* 1, Adonis vernalis; 2, Anemone pulsatilla.—*N. B.* Phylica ericoides.—*P. R. D.* Babiana ringens, and B. villosa.—*A. W.* Eria obesa, Lindl.—*Camjee.* Dendrobium suavissimum.—*W. C.* We cannot undertake to name varieties of Daffodils.—*W. Horton.* Tropæolum polyphyllum.—*Nero.* 1, Kerria japonica; 2, Forsythia viridissima; 3, Gesnera elongata, probably: you should send flowers; 4, Reineckea japonica variegata; 5, a Pitcairnea: we cannot say more from the scrap sent; 6, Poa trivialis variegata.—*J. A.* 1, Franciscea calycina; 2, Podocarpus neriifolia; 3, Bilbergia? specimen insufficient; 4, Sempervivum: 5, Agathea cœlestis.—*A. W. D.* We take it to be a form of Viola odorata, on account of the lateral shoots.—*W. H. H.* Specimens insufficient for identification.

Spots on Tomato Leaves. *J. H. N.* We cannot give the cause of the little discoloured places on leaf sent. They are mechanical; not caused by insects or fungi, so not likely to spread.

Strawberry Plants Killed: *T. J.* We still think it was the quantity of artificial manure that was put into the potting soil. Rough and ready methods adopted by the gardeners favour accidents of that kind.

Thompson's Vine Manure: *Taymouth.* We are unable to answer your question.

Tomato Leaves: *A. M.* There is no disease on these leaves as caused by insects or fungi. The appearances are brought about by some defect in culture.

Tulips Going Blind: *T. W.* Cause is not ascertained. These and other bulbs are perhaps less liable in soils that become impervious to air if mulched with leaf-mould when planted.

Vines: *J. H. B.* Mildew. Try dusting with flowers of sulphur, or Sulphur vivum (black sulphur), over the leaves.

Vines: *Flying Cloud.* In the absence of full details of management, we should say that the Vines have suffered from deficient ventilation, producing scalding of the leaves. The roots must be in bad condition for such miserable leaves as those sent to be produced.

White Sussex Figs: *A Constant Reader.* We cannot say which, without seeing fruits.

CATALOGUES RECEIVED.

John Laing & Sons, Forest Hill, London, S.E.—New Fuchsias.

B. S. Williams & Son. Victoria and Paradise Nurseries, Upper Holloway, N.—General Plant List.

H. Meyers (late Woolson & Co.), Passaic, New Jersey, U.S.A.—Hardy Perennials, Bulbs, Ferns, and Climbers.

Merryweather & Son, 63, Long Acre, London, W.C.—Fire Hydrants, Hoses, &c.

A. M. C. Jongkindt Coninck, Dedemsvaart, near Zwolle, Holland — Wholesale Trade List of Conifers, Rhododendrons, Fruit Trees, Ericas, Aquatics, Hardy Perennials, Rock-plants, &c.

Ed. Pynaert Van Geert, Ghent, Belgium—General Plant List.

J. Bennett, Pedigree Rose Nursery, Shepperton, Middlesex—New French Roses.

Communications Received.—W. W.—W. F.—W. E. B.—E. M. W. C. (next week, blocks to hand).—A. W. E.—W., Birkenhead.—C. H. H.—Sprague & Co.—T. E. H.—A. H. W. D.—J. R. H. N. R., Singapore.—W. A. S., New York.—L. C.—F. B. Dr. M'L., Ghent.—L. L., Brussels.—W. G.—J. W. H.—J. R., Paris.—W. K., St. Petersburgh.—J. C.—F. S. & Co.—J. H. B. and X. Y. Z. (next week).



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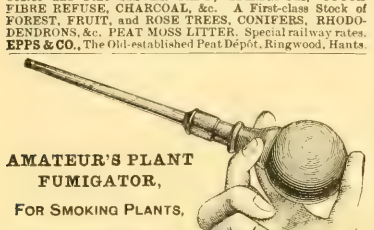
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PRICE—Gallon, 2/-; 5 gal., 1/9 per gal.; 10 gal. 1/6 per gal.; 40 gal. 1/4 per gal. SPECIAL QUOTATIONS FOR QUANTITIES. *Carriage paid on 10 gals. and upwards.*

DISTRIBUTOR for "Perfect" Weed Killer.



Holds 40 gallons. Wrought-iron frame-work neatly painted. Galvanized tubes with tap to regulate flow. Gives spray 36 ins. wide. Price £4 net on rail Glasgow.

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NOTICE.—*We originally had our Works at Tonbridge, Kent, but removed them to* GLASGOW *in January, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.

SOLD by SEEDSMEN and FLORISTS.

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Sold in Packets, 6d. and 1s. each, and in
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Kills Fly, Thrip, and Spider, in the easiest, cheapest, and most harmless way to Flowers, Fruit, or Foliage, even if treble the necessary quantity is used. The best of all Insecticides for Orchids. Try it. In Rolls for houses of a capacity of—

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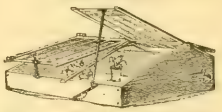
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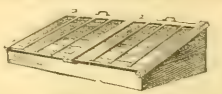
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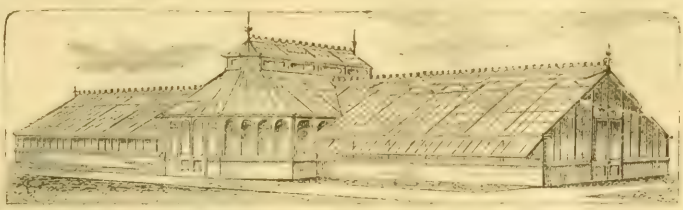
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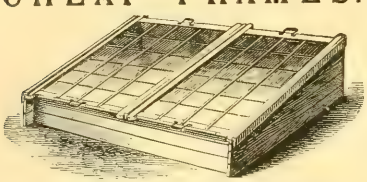
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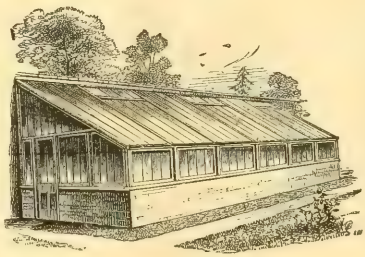
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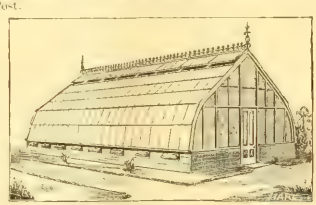
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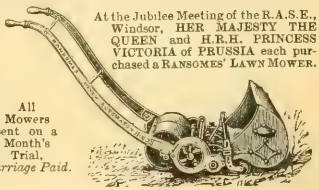
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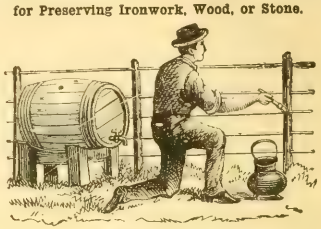
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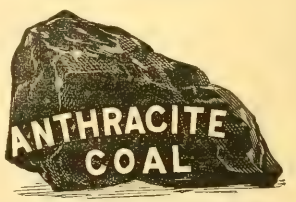
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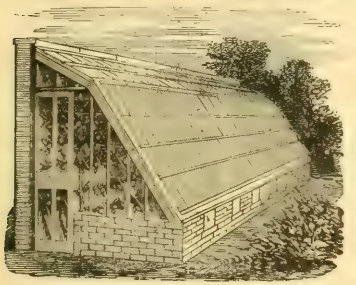
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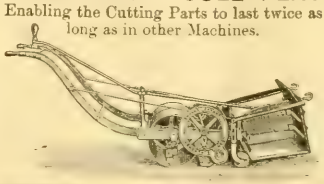
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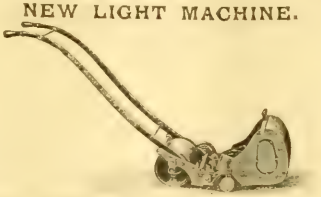
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THE ORIGINAL LAWN MOWER FITTED WITH
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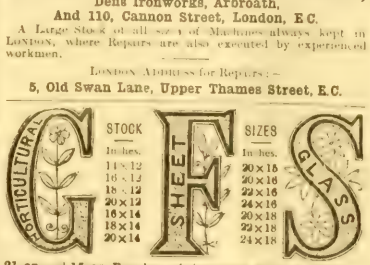
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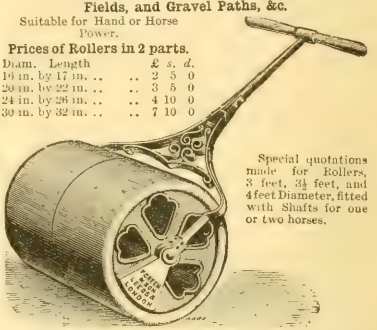
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☞ **Mr. J. R. STIRLING,** of the **ROYAL GARDENS, BUCKINGHAM PALACE,** writing under date Feb. 24, 1890, says:—"As regards the work your 12-inch Horse Machine does (which two years ago took the place of the one you supplied in '63), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your 'Hand Silens Messors' also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

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Messrs. Green & Son. W. H. MOLD.

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To Messrs. Green & Son, Leeds.

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I am, gentlemen, yours truly,

DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).

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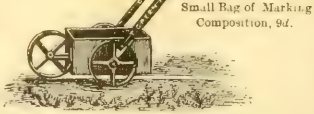
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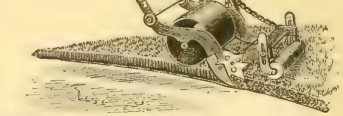
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BURGHLEY PRESIDENT ... 2s. per 100 do.
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THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Wednesday Next.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, May 14, at half-past 12 o'Clock precisely (instead of Thursday, May 15, as previously announced), a choice COLLECTION of ORCHIDS in Flower and Bud, comprising Phalænopsis imperatrix, P. speciosa, Thrixspermum Berkeley, Dendrobium polyphlebium, fine varieties of Cattleya Mendelii, rare Cypripediums; also a small Consignment of ORCHIDS from Madagascar, Burmah, and Colombia. A Case of ARAUCARIA EXCELSA received direct.

On view morning of Sale, and Catalogues had.

Thursday Next.

VALUABLE IMPORTED and ESTABLISHED ORCHIDS.
Great Trade Sale.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 15, at half-past 12 o'Clock precisely, a very fine lot of ORCHIDS, especially suitable for the Trade and Amateurs, including some fine specimens, such as PHAIUS HUMBOLTII, AERIDES SANDERIANA, Oncidium Curtum, O. bifolium Majus, O. pretextum. Also some fine Odontoglossums, including Odontoglossum Harryana, O. NOEVIUM MAJUS, O. Sanderianum, &c. A very choice assortment of Dendrobiums, including D. SEEDIANUM, D. Farmeri, D. Bryneriauum, a few plants of D. nobile from the recent North Indian importation, out of which has flowered some rare forms; also a pure white form have flowered from this importation; some various kinds of Cattleyas, such as C. Gaskelliana, C. citrina, C. Harrisoniæ, C. amethystoglossa, C. Mendelii, &c. Also a few plants of the beautiful LÆLIA LAWRENCEANA, which is extremely rare, and it is doubtful if other plants exist than those which are in the possession of Mr. Sander; it is a most charming Orchid, and was named after the late Mrs. Lawrence, a famous amateur. A few choice Cœlogynes will also be sold, amongst which are the beautiful C. Dayana (true), C. ocellata maxima, C. cristata; Cypripediums, such species as C. SANDERIANA, C. Hookeræ, C. Lawrenceanum, &c. Also a few plants of the very choice LÆLIA ANCEPS WILLIAMSIANA, a variety in the way of ANCEPS STELLA and A. SANDERIANA. Many Plants in Flower and Bud will also be Sold, amongst which are some very good plants and varieties.

On view morning of Sale, and Catalogues had.

Wednesday Next.

Well-grown PALMS, and other DECORATIVE PLANTS, ROSES, in pots; a choice assortment of FERNS and GREENHOUSE PLANTS, named RHODODENDRONS with BUDS, VINES, an assortment of various LILIES and Hardy BULBS, LATTICE WOODWORK, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above, by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 14, at half past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS will include in their SALE at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 16, a large importation from Burmah, in specially fine selected plants and masses, comprising DENDROBIUM FORMOSUM GIGANTEUM, D. DALHOUSIANUM, D. PIMBRIATTUM OCULATUM, D. AGGREGATUM MAJUS, AERIDES LOBBII, fine masses of SACCOLABIUM CURVIFOLIUM, and other SACCOLABIUMS, CŒLOGYNE LENTIGINOSA, CŒLOGYNE PARISHII, &c.; also a large number of PLANTS in Flower and Bud.

On view Morning of Sale, and Catalogues had.

Friday Next.

IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 16, at half-past 12 o'Clock, by order of Messrs. Seeger & Tropp, a fine importation of the showiest MEXICAN ORCHIDS in superb condition, including Lælia autumnalis and variety atro rubens, Epidendrum vitellinum majus, grand masses, with extra strong bulbs; the rare and beautiful Cypripedium Irapeanum, of which only a few plants have arrived alive; the lovely white Chysis bractescens, Cattleya citrina in extra good masses, and Odontoglossum Rossi majus; also a small lot of ORCHIDS from Costa Rica, in which are Peristeria elata, Oncidium ensiferum, the true Odontoglossum Cervantesii majus, and a few plants of a new Masdevallia, for description of which see Catalogue. The Sale will also include a small importation of BRAZILIAN ORCHIDS.

On view Morning of Sale, and Catalogues had.

Beddington House, Croydon.

The well-known COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, FERNS, PALMS, and ORCHIDS, many of which have been so successfully shown, having taken numerous First-class Prizes. By order of Canon Bridges.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Beddington House, Croydon, ten minutes' walk from Waddon Station, L. B. and S. C. Railway, on THURSDAY, May 22, at 1 o'Clock precisely, without reserve, the whole of the well-known Collection of Specimen Exhibition STOVE and GREENHOUSE PLANTS, including noble examples of Phormium tenax variegata, Microlepia levita cristata, Phyllotæniuin Lindeni, Carludovica Drudei, and splendidly coloured Crotons, many of them exceptionally fine plants; large Anthuriums, magnificent Palms, including a grand exhibition plant of Kentia Belmoreana, 8 feet by 8 feet, and others; a choice Collection of Established ORCHIDS; Specimen FERNS, amongst them Davallia figuensis plumosum, 5 feet through; D. Mooreana, 6 feet through; D. Figiensis, 5 feet through, and many others; the whole fully described in Catalogue.

May be viewed two days prior to Sale. Catalogues may be had of Mr. PENFOLD, the Gardener, on the Premises; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday, May 23.

The whole of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS, by order of F. Briesemann, Esq., of Paragon House, Blackheath, who is leaving England to reside abroad, absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, May 23, at half-past 12 o'clock precisely, without reserve, a choice COLLECTION of WELL-GROWN ESTABLISHED ORCHIDS, including several very fine and rare species, of which full particulars will be given in next week's advertisement.

On view morning of Sale, and Catalogues had of the Auctioneers.

Manchester.

SALE of a very CHOICE COLLECTION of 400 ESTABLISHED ORCHIDS, in splendid condition, comprising rare varieties of Cattleya, Lælia, Vanda, Cypripedium, Dendrobe, Oncidium, Odontoglot, Aërides, Angræcum, Cymbidium, Coelogyne, and others; also about 200 very fine STOVE and GREENHOUSE PLANTS, including two splendid specimen Lapigerias alba and rosea, grand varieties, each covering about 15 feet by 12 feet of roof, and carried 3000 blooms last year; together with a beautiful assortment of BRONZE-LEAF GERANIUMS, ECHEVERIAS and other BEDDING-OUT PLANTS, &c.

MESSRS. ARTINGSTALL AND HIND beg to announce that they are favoured with instructions from S. S. Walley, Esq., who is leaving the district, to SELL by AUCTION, on WEDNESDAY, May 14, 1890, in the Gardens of Smallwood, Wilbraham Road, Fallowfield, the whole of the Valuable and Rare COLLECTION of DESIRABLE PLANTS.

May be viewed on the afternoon of Saturday, and from 10 to 4 o'Clock on the Monday and Tuesday preceding sale. Catalogues may now be obtained, together with further particulars, on application at the Auctioneers' Offices, 45, Princess Street, Manchester.

Mount View, Sheffield.

SALE of the FOURTH and LAST PORTION of the Valuable COLLECTION of ESTABLISHED ORCHIDS formed by the late David Ward, Esq., J.P. This sale includes about 600 Plants, in the best possible condition, comprising fine lot of ODONTOGLOSSUM ALEXANDRÆ, O. Vexillarium, O. Harryanum, O. Citrosmum, CATTLEYA MENDELLI, C. Gaskelliana, C. Mossiæ, C. Skinneri, C. Dowiana, LÆLIA PURPURATA, ANTHURIUM SCHERZERIANUM, MASDEVALLIA and CYPRIPEDIUM in variety, &c.; also GREENHOUSE PLANTS, CAMELLIAS, &c.

MESSRS. WILLIAM BUSH AND SON respectfully give notice that they are instructed by the Executors to SELL by AUCTION, at the residence, as above, on WEDNESDAY and THURSDAY, May 14 and 15, at 11 A.M. precisely each day.

Catalogues, with full particulars and orders to view, may be had of Mr. J. KEELING, the Head Gardener, on the premises (who is open to another engagement); or, of the Auctioneers, at their Offices, East Parade Sheffield.

Priory Nursery, Acton Lane, Acton, W.

To Nurserymen, Gentlemen, and Others.

The First ANNUAL SALE of 12,000 Surplus Stock of PLANTS.

MESSRS. W. EYDMANN AND SON have received instructions from Mr. J. C. Jennings, the Proprietor, to SELL by PUBLIC AUCTION, on the above Premises, on THURSDAY, May 22, 1890, at 12 for 1 o'Clock, the Surplus Stock of STOVE and GREENHOUSE PLANTS, consisting of Pelargoniums, Fuchsias, Marguerites, scarlet, white, double-flowered and rose-scented Geraniums, double white Primula, various Ferns, Azaleas, large Camellias, Tree Carnations, pot Roses, Eucharis, Agapanthus, Amyrillies, Lilums, Ficus elastica, Ficus repens, large Stephanotis, and various other Plants, &c.; useful OAT CRUSHER, Seakale POTS, new GREENHOUSE BARS.

May be viewed day previous, and morning of Sale. Catalogues may be obtained on the Premises, and at the Auctioneers' Office, High Street, Acton, W.

WANTED TO PURCHASE or LEASE an Acre of GROUND in an eligible position, for the establishment of a Nursery and Florist Business, with Cottage preferred, in S.W. district.

W. SCOTT, 31, Lombard Street.

To Greengrocers, Fishmongers, Florists, Market Gardeners, Seedsmen, and others

TO BE DISPOSED OF, by Private Treaty, one of the best GREENGROCER'S, FISHMONGER'S, and FLORIST'S BUSINESSES, in one of the principal thoroughfares of the city of Manchester. Returns over £10,000 per annum. To anyone of push and energy, a rare opportunity presents itself. Present owner giving up in consequence of going into the wholesale exclusively.

For further particulars apply to C. W. PROVIS AND CO., 4, Chapel Walks, Manchester.

To Gentlemen fond of Horticulture.

Particularly Orchids, Vines, &c. 9 miles from the city, occupying a high and healthy position in a favourite residential locality, and a few minutes walk of station.

UNEXPIRED LEASE TO BE DISPOSED OF, of a detached family RESIDENCE with four Greenhouses, thoroughly heated and recently erected, and good garden and orchard.

For full particulars, apply to Mr. TRUSSLER, Windmill Hill, Enfield.

To Nurserymen and Florists, London, W.

TO BE SOLD, a first-class NURSERY within 7 miles of Covent Garden, comprising about 1 acre of Land, with two Cottages and eight large Glasshouses thereon, all well stocked and heated with Hot water. Lease fifteen years. Terms moderate.

Apply to W. E., 130, Percy Road, Shepherd's Bush, W.

FREEHOLD NURSERY, Tottenham (£310), five miles from Covent Garden. Three greenhouses, 48 feet by 22 feet, heated with one large Saddle Boiler, and filled with Vines and Roses. Propagating House, 17 feet by 9 feet. Good local trade.

Address, LINDSEY, 15, Leadenhall Street, E.C.

Crown Lands, Eltham Nursery, Kent.

TO BE LET, from Michaelmas next, about 35 acres of valuable LAND, in the town of Eltham, as a Nursery or Market Garden.

For particulars, apply to Messrs. CLUTTON, 9, Whitehall Place, London, S.W.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited,

Have just received large importations of Orchids from Mexico, Brazil, India, and other countries.

The Co. have also an immense stock of Established Orchids, all of which they offer at extremely reasonable prices.

Catalogues, with full particulars, post-free, on application to the Co., The Vineyard and Nurseries, Garston, near Liverpool.

10,000 LOBELIA Emperor William, warranted true, from Cuttings, really perfect plants, 2s. 6d. per 100, 20s. per 1000. 5000 CALCEOLARIAS Golden Gem, best stuff in 60's, 14s. per 100. 1000 CARNATIONS Gloire de Nancy, extra fine plants, will bloom shortly, 12s. per dozen in 48's. 300 ECHEVERIA, best stuff, 20s. per 100. 600 Vesuvius GERANIUMS, fine bushy plants in 48's. 600 Henry Jacoby, John Gibbons, Madam Cruice (Ivy), best stuff in 48's, all 24s. per 100. 3000 bedding H. Jacoby, J. Gibbons, bronze, bicolors and tricolors, in 60's, 16s. per 100.

W. POLLARD, Willowside, Tooting.

Special Cheap Offer.

BOUVARDIA P. CLEVELAND, the new unapproachable scarlet, well rooted Cuttings, 4s. per doz., 20s. per 100. Last year's plants of same variety, in 48's, cut back and started, 5s. per doz., free on rail. Double PETUNIAS, choicest named, 3s. per doz, 20s. per 100. TREE CARNATIONS, best named sorts, 4s. 6d. per dozen. Free by parcel-post for cash.

CRANE AND CLARKE, The Nurseries, March, Cambs.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."

First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser.

G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

To the Trade.

FERNS!—FERNS!!—FERNS!!!—In twenty most saleable kinds—Adiantums, Polypodiums, Cyrtomiums, Pteris, &c. Adiantum cuneatum, large stuff, ready to pot at once in 5 inch pots, 16s. and 20s. per 100; Pteris cretica cristata, and a few other kinds, from stores, 6s. per 100, 50s. per 1000.—J. SMITH, London Fern Nurseries, Loughborough Road, Brixton, S.W.

50,000 LOBELIA, Emperor William, warranted true from cuttings JOHN SOLOMON offers the above in thorough good stuff at 2s. 6d. per 100, 20s. per 1000, for cash with order, package included.

Queen's Road Nursery, Walthamstow, E.

20,000 LAXTON'S NOBLE, strong STRAWBERRY PLANTS, warranted true, 20s. per 1,000, for cash.—W. BELLINGHAM, Betsham, Southfleet, near Gravesend, Kent.

CLIBRAN'S 10,000 FUCHSIAS. Best varieties in existence — inferior sorts carefully weeded out, 12 vars., 3s. 6d.; 25 vars., 6s.; 50 vars., 12s. 6d.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

SPECIAL OFFER of HARDY HERBACEOUS PLANTS.—100 good and distinct varieties for 15s.; 100 sorts, 3 plants of a sort, for 30s. Our selections have afforded satisfaction in all parts of the kingdom this past 30 years. PERENNIALS, in sorts, suitable for border edging and bedding, 10s. per 100.

SAMUEL SMITH, Nurseryman, Matlock Bank, Derbyshire.

New Fern.

ADIANTUM CAPILLUS-VENERIS var. GRANDE, T. M.—The late Mr. T. MOORE, in his description of the above, says:—"It is the finest and most noble of all the varieties of this species of Maidenhair."

Strong plants, fit for 48's, now sent out at 12s. per dozen. Remittance from unknown correspondents. Packing free, for cash with order.—T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

NEW REGAL PELARGONIUMS, PRINCE HENRY and PRINCESS BEATRICE.

FREDK. PERKINS has great pleasure in offering the above New Pelargoniums, being very distinct from any yet sent out, quite new in colour, robust habits, and perpetual bloomers. Can be seen at my Nursery, or Flowers sent by post on application. Strong flowering plants now ready, 7s. 6d. each.

FREDK. PERKINS, Nurseryman, Leamington.

Sufficient Telegraph Address.—FRED. PERKINS, Leamington.

Many Acres of Lilies of the Valley!

T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

GRAND FLORAL FÊTE

AND PROMENADE

IN AID OF

The Gardeners' Orphan Fund,

ON

WEDNESDAY, MAY 21st, 1890, *from* 8 *to* 12 *p.m.*,

IN THE

WHOLESALE FLOWER MARKET, COVENT GARDEN,

SPECIALLY GRANTED FOR THE OCCASION BY

HIS GRACE THE DUKE OF BEDFORD, K.G.

Under the immediate Patronage of –

H.R.H. PRINCESS MARY ADELAIDE, DUCHESS OF TECK.

HER GRACE THE DUCHESS OF BEDFORD	HER GRACE THE DUCHESS OF ABERCORN
HER GRACE THE DUCHESS OF PORTLAND	THE MARCHIONESS OF SALISBURY
THE MARCHIONESS OF TAVISTOCK	THE BARONESS BURDETT-COUTTS
LADY GEORGE HAMILTON	LADY GOLDSMID
LADY DOROTHY NEVILL	THE LADY MAYORESS

THE LADY MAYORESS

HAS KINDLY CONSENTED TO OPEN THE FÊTE.

BAND OF HER MAJESTY'S ROYAL HORSE GUARDS.

(By permission of Col. the Hon. Oliver Montagu.)

UNDER THE DIRECTION OF . . . . MR. CHAS. GODFREY, R.A.M.

ADMISSION :

By TICKET, price Five Shillings (limited to 2,000). To be obtained of Mr. J. ASSBEE, Market Office, Covent Garden, W.C.; and of the Hon. Secretary, A. F. BARRON, Royal Horticultural Society's Gardens, Chiswick.

CARRIAGE ENTRANCE IN TAVISTOCK STREET.

BATH SPRING SHOW.
MAY 21.
Amongst the Open Classes are :–

	1st,	2nd,	3rd,
9 Greenhouse Azaleas	£6 10	£4 10	£3
10 Stove or Greenhouse and 6 Ornamental Plants	£10	£5	£3
9 Stove or Greenhouse Plants	£6	£4	£2
Bank of Pot Roses, arranged for effect on space not less than 12 by 6 feet	£4	£2	£1
Group of Orchids, arranged for effect on space, 12 by 6 feet (Ferns and Foliage Plants allowed)	£5	£3	£2
6 Orchids	£3	£2	£1
Group of Plants, arranged for effect on space not less than 150 square feet	£3	£5	£3
do., do., do., 75 square feet	£4	£2	£1

Entries Close, May 16.
B. R. F. PEARSON and W. JEFFERY, Secretaries.
Office—2, Northumberland Buildings, Bath.

KEW GARDENS, NELSON.
GREAT FLORAL COMPETITION (open to all England), MONDAY and TUESDAY, May 26 and 27, 1890. Nearly FORTY POUNDS in PRIZES for the best set of Six distinct Stove or Greenhouse Plants (not less than four in bloom). First prize, £20; second prize, £10; third prize, £5; fourth prize, £2 10s. Entrance fee, 6s. All Exhibits to be in the Marquee at 11 A.M., Monday. Prizes guaranteed by proprietor, THOMAS HARGREAVES, Esq., to whom all entries must be sent on or before Tuesday, May 20. Competent Judges engaged.

BRIGHTON HORTICULTURAL ASSOCIATION.
GRAND ROSE SHOW (with Plants, Ferns, &c.) JULY 9 and 10.
GRAND AUTUMN EXHIBITION, SEPTEMBER 10 and 11.
For Schedules, apply to—
EDWARD CARPENTER, Secretary,
96, St. James Street, Brighton.

RIPLEY, near Derby, ROSE SHOW, held SATURDAY, August 2, 1890.
36 Roses, cut blooms, distinct, open to all England. 1st prize, £5; 2nd, £3; 3rd, £2; 4th, £1.
24 Roses, cut blooms, distinct, open to all England (amateurs). 1st prize, £3; 2nd, £2; 3rd, £1; 4th, 10s.
For further particulars and Schedules, apply to
S. BAILEY, Secretary.

CHARD FLOWER SHOW.
ANNUAL EXHIBITION, AUGUST 12. More than ONE HUNDRED and FIFTY POUNDS offered in PRIZES. Schedules free on application to
GEO. DAW, Assistant Secretary, High Street, Chard.

BOURNEMOUTH and DISTRICT CHRYSANTHEMUM and HORTICULTURAL SOCIETY.
FOURTH ANNUAL EXHIBITION, NOVEMBER 12 and 13, 1890. Schedule of Prizes may be obtained of
JAMES SPONG, Assistant Secretary.
The Gardens, Lindisfarne, Bournemouth.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

DONATIONS and SUBSCRIPTIONS

Paid or promised on occasion of the 51st Anniversary Festival, June 12, 1890, on which occasion

Mr. HARRY J. VEITCH, the Treasurer, will preside.

The Right Hon. Lady BEAUMONT, annual ...	... £1 1 0
Messrs. HALL AND SON, Sheffield	... 10 10 0
Mr. GEORGE MONRO, Covent Garden ...	... 10 10 0
Miss BILLETER, Wunfold	... 1 1 0
Mr. DAY, Wunfold	... 0 10 6
Mr. TOBY, St. Mark's Grove (A.)	... 1 1 0
Mr. A. SMITH, Warren Hill Gardens (A.) ...	... 1 1 0
Messrs. SUTTING AND SONS, Southwark Street ...	5 5 0
R. FOX, Esq., Falmouth	... 5 0 0
Mr. JAS. BECK, Orchel Gardens (A.)	... 1 1 0
Mr. J. WILLS, Hollowmead Gardens	... 4 3 0
Mr. G. BLOXHAM, Brack Hill Gardens ...	... 0 15 0
Mr. DOMINY, Gwydyr Gardens (A.)	... 1 1 0
Mr. C. F. BAUSE, Nursery, South Norwood (A.)	... 1 1 0
Mr. JAS. HOPKINS, High Cross Gardens ...	... 10 10 0
Mr. R. JORDAN, Llanuway Gardens	... 2 10 6
Mr. E. SHEPSTONE, Charlton House Gardens ...	0 10 0
Mr. E. SANDERS, Halton Gardens (A.) ...	... 1 1 0

DAILY PARCELS EXPRESS SERVICE to the CONTINENT, *viâ* Queenborough, Flushing, Kaldenkirchen.
This Parcels Service, in direct connection with the German and Austro-Hungarian Posts, is specially adapted for the rapid and regular despatch of Plants, Bulbs, &c. No Certificate required for Germany. Tariffs free on application. Goods also accepted for Conveyance by *Petite and Grande Vitesse*.
BEST, RYLEY AND CO., 88, Bishopsgate Street, London, E.C.
Receiving Office at Holborn Viaduct Station.

CLIBRAN'S BEAUTIFUL FLORISTS' FLOWERS, Phloxes, Pentstemons, Antirrhinums, Pinks, Pansies, in distinct, beautiful sorts, 3s. 6d. per dozen. Carnations and Picotees, perfect forms and colours, 12 vars. 6s. Pyrethrums, 12 sorts, 5s. Potentillas, 12 vars., 6s. Seedling Alpine Auriculas, "perfect gems," strong blooming plants, 3s. per dozen.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

BEGONIAS, extra choice, for bedding, Single, 4s., 5s., and 6s. per dozen; Double, 9s. and 12s., very effective. Cheaper by the 100. For Pots from 6s. See the best CATALOGUE published, free.
CALCEOLARIAS, Golden Gem, 5s. to 7s. per 100.
LOBELIAS, 2s. 6d. to 3s. 6d. per 100.
Both extra strong.
B. R. DAVIS, Begonia Grower, Yeovil Nurseries, Yeovil.

Sterling Value.

HARTLAND'S "APRIL QUEEN" BROCCOLI, sealed Packets, 1s, 6d., for purity, weight, and quality not to be equalled. *** Year Book of "Rare Seeds" for 1890. A few (partly reserved) Copies are now disposable, post-free. Everyone seems to want this in conjunction with my "Illustrated Book of Daffodils." I shall be lifting the Daffodil crop the end of May, particularly "Ard-Righ," to fill Colonial Orders, and shall be happy to quote market growers. ☞ His New Double Quilled Perennial SUNFLOWER "Soleil d'Or;" plants, 1s. 3d., post-free.—WM. BAYLOR HARTLAND, Old Established Seed Warehouse, 24, Patrick Street, Cork.

CLIBRAN'S BRILLIANT BEDDING DISPLAY, produced by Clibran's Special Tuberous Begonias, wonderful colours, unequalled habit. Single—seed, 1s. per packet; tubers, 4s., 6s., 9s., and 12s. per dozen. Doubles, magnificent forms and hues—seed, 2s. 6d. per packet; tubers, 9s., 15s., 20s., and 30s per dozen. Centaurea candidissima, charming silvery foliage, 3s. per dozen. Lobelias (blue and white). Alternantheras, Iresines, and other bedding plants in great variety, at 2s. 6d. per dozen. Also a large number of beautiful Carpet Bedding Plants. See Catalogue, free.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

EXTRA LARGE PALMS for Winter Gardens, &c.
25 SEAFORTHIA ELEGANS,
10 ARECA LUTEA and A. BAUERII,
10 KENTIA BELMOREANA,
10 " FOSTERIANA,
} From 12 to 20 feet high, with many leaves.
30 COCOS FLEXUOSA and PLUMOSA, &c.
Also a very fine selection of the above varieties from 6 to 10 feet high, in the most perfect condition for decorative purposes. W. ICETON, Putney Park Lane, S.W.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under from Store-pots, all well-roo'ed, and fit for present potting. The present is a good time for making up losses sustained during the winter.
VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100, 50s. per 1000; 12 choice named varieties, 8s. per 100.
LOBELIA Bluestone, pumila magnifica, true, from Cuttings, 3s. per 100, 21s. per 1000; Brighton Blue, fine, 3s. per 100, 21s. per 1000.
CALCEOLARIA Golden Gem, 6s. per 100, 50s. per 1000; Camden Hero, fine dark, 10s. per 100.
HELIOTROPE Jaun d'Amour, Miss Nightingale, dark, 6s. per 100, 50s. per 1000.
AGERATUM Imperial Dwarf, blue, 5s. per 100, 40s. per 1000.
COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100, 75s. per 1000.
IRESINE LINDENI, dark crimson, good bedder, 6s. per 100, 50s. per 1000.
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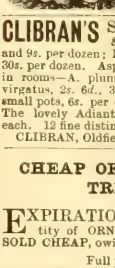
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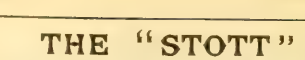
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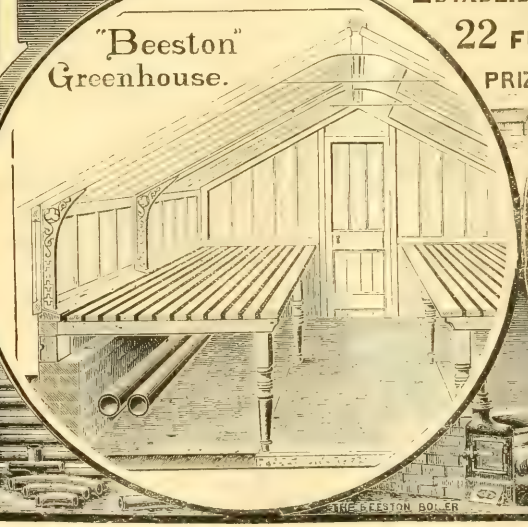
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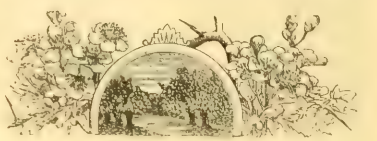
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THE

Gardeners' Chronicle.

SATURDAY, MAY 10, 1890.

THE INTERNATIONAL EXHIBITION, EDINBURGH, 1890.

THE great success of the International Exhibition held in Edinburgh in 1886, led many to think that another of much larger proportions might be undertaken with every assurance of success in the present year. The project met with abundant encouragement, not only at home, but from all parts of the world there came assurances of support. The general result is, that the Exhibition which was opened on the 1st inst. by their Royal Highnesses the Duke and Duchess of Edinburgh, is the largest and most varied and complete exposition of up-to-date achievements in the arts and sciences ever brought together in Scotland.

The electrical appliances, which form a central source of interest, are admitted to be the fullest and most perfect show of the kind that has yet been seen in Britain. These, along with other machinery, occupy a noble hall, which covers an area of about 3 acres, being 800 feet long, by 150 feet wide. The main building, in which are located the multifarious British and foreign exhibits of industry and art, the picture galleries, &c., stands on an area of between 6 and 7 acres. On the opening day the whole exhibition was in as complete and orderly a condition as could be expected in such a large undertaking, involving such an infinitude of detail and mixed personal interest—a circumstance that reflected most favourably on the energy and tact of the executive and staff, under the able direction of Mr. S. Lee Bapty, the general manager.

The Grounds

Are about 70 acres in extent, and beautifully situated at Merchiston, about 2½ miles south-westward from the centre of the city. At all points charming views of the Braids and Craiglockhart hills, lying a little to the south and west, are obtained, and the finely wooded Corstorphine hill is equally pleasing and conspicuous as a boundary to the view on the north. With such an admirable site and ample extent of surface, the exercise of taste and skill could hardly fail to produce beautiful gardening features.

These were all fully developed and completed on the opening day. The gardening committee, of which Mr. John Methven, of the firm of Messrs. Thos. Methven & Sons, is convener, are all gentlemen connected with horticulture, and they have been fortunate in securing the services as landscape gardener of Mr. James Brown, whose training under his father, Mr. Brown, gardener at Gosford, East Lothian, has eminently qualified him to carry out such work with taste and skill.

On November 1 last, operations were commenced in what was then chiefly arable farm land. Now the whole space unoccupied by the exhibition buildings, and various other erections scattered about the grounds for the amusement and recreation of visitors, is a charming garden with much variety of feature both in design and furnishing. The portion of the grounds lying to the south of the exhibition buildings, the latter extends from east to west, cutting the grounds in nearly two equal parts, is laid out in an extensive promenade flanked on either side with undulated bold masses of shrubs and trees, lawns and parterres. The shrubs and trees chiefly employed are Rhododendrons, Hollies, Aucubas, Berberis, Cupressus, Austrian Pine—the latter splendid specimens, as indeed are all other of the larger subjects. Very few deciduous trees have been made use of, they being less useful in producing immediate effects than evergreens. The land lying to the north of the buildings has been laid out as a recreation ground, for sports, &c., and here also will the show of the Edinburgh Agricultural Society be held in the course of the summer. Among the amusements provided in another part of the grounds is a maze on the plan of that at Hampton Court.

Nurserymen's Exhibits.

By the royal entrance at the east end of main buildings, Messrs. Thos. Methven & Sons, Edinburgh, made a noble display of specimen and half specimen Hollies, standards and pyramids, rich in variety. The same firm also has a fine collection of choice Conifers, tastefully arranged in the parterre on one side of the grand promenade at the west end of the main building. In the collection were notable specimens of Sciadopitys verticillata, 7 feet high; Abies concolor violacea, 6 feet; Thuia elegantissima, 6 feet; Cupressus Lawsoniana lutea, 6 feet, &c.

On the opposite side of the grand promenade at this point, Messrs. Ireland & Thomson have a similar parterre filled with a more miscellaneous assortment of ornamental trees and shrubs. The arrangement is well adapted to the design, and the variety introduced is considerable. Large star-like beds, which form the centre of the design on either side of an intersecting walk which divides the parterre in two, are massed in sections with Golden Queen, Hodgin's, and Moonlight Hollies, relieved by golden and green Retinosporas, and have a very pleasing effect. Other of the larger beds were filled with miscellaneous and ornamental evergreens, relieved by standard Weeping Willows and Spiræa ariæfolia aurea, with its bright golden leaves just unfolding, is pretty freely used to impart brightness to the whole.

On the left of the bridge near the band-stand, Messrs. James Dickson & Sons, Edinburgh, have a very fine group of choice Conifers and miscellaneous evergreens, interspersed with choice deciduous ornamental trees and shrubs. The arrangement is light and elegant, and I may have to notice some of the deciduous components of the group later in the season.

Near by this, Messrs. Ireland & Thomson have an excellent corner group of specimen Hollies, interspersed with ornamental deciduous trees.

In the same neighbourhood, Messrs. Dickson & Co. have an extensive display of young and specimen ornamental stock, planted in various styles in several large beds. In one large bed, bold, well-furnished specimens of Hodgin's Holly occupy the centre, and form a fine foil and background to broad triangular masses of well-coloured Aucubas, Euonymus, Golden Box, Retinosporas, and other dwarf coloured Conifers, planted on the margins. Numerous standard, weeping, and erect ornamental deciduous trees are employed to give grace and variety to the outlines and circular beds of Violas in the foreground of the several groups, and lend a pleasing touch of colour to the whole.

On the northern side of the grand promenade, by the bridge which spans the Suburban Railway, is the groundwork of an exhibit of ornamental trees and shrubs by Messrs. R. B. Laird & Sons, which was unfinished when my note taking, so far, came to an end, and I may have occasion to advert to it again.

In closing my notes for the present, it may be of interest to readers who contemplate visiting Edinburgh during the season to know something of the facilities of access to the exhibition from the city. The Caledonian and the North British Railways each have stations within the Exhibition grounds, and visitors may book at either of the city or suburban stations at the fare of 1*s.*, including admission to exhibition. The tramway cars run from all the central and eastern parts of the city to the grand entrance every few minutes, and offer the same facilities as the railway companies for cheap conveyance and admission. *W. S.*

(To be continued.)

New or Noteworthy Plants.

Pteris ensiformis, *Burm.*, var. Victoriæ, *Hort. Bull.**

This is a beautiful new variegated Pteris, recently imported by Mr. William Bull from the Eastern Archipelago. P. ensiformis of Burmann, better known as P. crenata of Swartz, is spread from the Himalayas southward to Ceylon, and eastward to North Australia, Samoa, and Fiji. It belongs to the less compound type of the genus, with free veins, and is allied to P. cretica and serrulata, differing from the former in the barren and fertile fronds being more dissimilar, and two or three of the pairs of pinnæ, not the lowest pair only, being compound at the base.

Mr. Bull has had prepared for his catalogue a coloured figure of the plant, which no doubt will be highly appreciated by Fern cultivators, and form one of the principal attractions of the exhibition and conference at Chiswick in July. *J. G. Baker.*

Calanthe (§ Preptanthe) rubens, *Ridley, n. sp.*†

Among several remarkable novelties discovered by Mr. Curtis in the Langkawi Islands, lying off the west coast of the Malay Peninsula, is a small but charming Calanthe of the Vestita section, which appears to be quite undescribed, probably having been mistaken previously for Limatodes rosea. It flowers readily and well, the flowers being numerous, pretty, and lasting a long time. Plants have already been sent to England. *H. N. Ridley, Botanic Garden, Singapore.*

* Rootstock decumbent, subterraneous. Fronds dimorphic, many to a tuft, the fertile ones in the centre on longer, more erect stipes, both kinds pinnate, with a long linear end-segment, and three or four distant pairs of sessile pinnæ, all of which, or all but the uppermost pair are forked at the base. Fertile fronds with entire segments ½ inch broad, margined by the narrow sorus, the end one reaching a length of half a foot or more, the side ones shorter, all beautifully variegated throughout with close lanceolate white teeth extending from the midrib nearly to the edge, and furnishing a striking contrast to the normal dark green colour of the ground-work. Sterile fronds with broader, shorter segments, and less decidedly variegated, about ½ inch broad, and minutely incise-crenate.

† *Calanthe* (§ *Preptanthe*) *rubens*, Ridley, n. sp.—Pseudo-bulbs segmented conical, deeply grooved, 6 inches long, and 1½ inch through at the base; silvery coloured. Leaves not yet seen. Scape nearly 2 feet, high, rising close to the bulb, graceful, nodding, woolly-pubescent, where it is not covered with sheath-leaves bright green. Sheath-leaves, about five, the lower ones closely appressed to scape, upper ones bright green, with a more developed lamina. Raceme about fourteen-flowered, flowers distant, pink, smaller than in C. vestita. Bracts ovate acuminate, finely pubescent green, 1 inch long, ¼ inch across. Pedicels with the ovary 2 inches long, pubescent woolly; slender dorsal sepal minutely pubescent, lanceolate acuminate, acute mucronate, ¾ inch long, ¼ inch broad. Petals shorter, and more spatulate. The lateral sepals resemble the dorsal one, but have a longer mucro at the apex. Lip adnate to the column at the base; lamina horizontal; lobes four, erect. Lateral lobes oblong erect, appressed to the column face; rose-pink, blunt; isthmus fairly long. The two terminal median lobes are rounded at the apex, somewhat divergent, with a small tooth between. The spur is filiform and curved, ¼ inch long. The whole flower is rose-pink, just the colour of Limatodes rosea, except at the base of the lip, which is darker, and there are three raised lines. The column resembles that of vestita, the clinandrum fairly deep, the rostellum bilobed, the lobes short and rounded, deflexed; the anther helmet shaped, yellow, with a pink edge. The pollinia eight, in two packets, with a small oblong disc, al equal, and narrowly pyriform.

Plant Notes.

Acalyphas.

The members of this genus are inmates of the stove, some of them having very beautiful and rich-coloured foliage, and therefore useful for decorative purposes. The species are of easy culture and propagation, and the latter operation may be carried on successfully at any time of the year, provided the cuttings be placed on a mild bottom-heat, rooting taking place in about ten days. I think the leaves will produce roots, but not buds. Very luxuriant foliage may be obtained by propagating some plants from time to time, and growing them on without stopping the point of the stem until it gets to about 2 feet in height, when, by taking out the point, and striking it, a strong, vigorous shoot is made in a short space of time. Loam and leaf-mould, the former predominating, with the addition of some sand, is a suitable compost in which to grow them. A. eremorum is a but little known species, although superior in the matter of colour, some leaves being one-half dull vermilion-red, and the remaining half of the tint of a Copper Beech leaf, and it will occur that these colours appear in bars and blotches. On some of the leaves a secondary growth may be noticed, as if the leaf had some power of doubling itself. A. macrophylla, A. marginata, A. Wilkesiana (syn. A. tricolor), and A. obovata. These are amongst the best that are worthy of cultivation. The inconspicuous flowers appear as feathery spikes. *W. Harrow.*

Pergularia odoratissima.

This plant belongs to a genus of evergreen glabrous twiners, needing the same kind of cultural treatment as Petrea, Stephanotis, or the warm-house Passifloras. It has greenish-yellow, very fragrant flowers; the calyx is five-parted, and the tube oblong; staminal corona five-leaved. Leaves 4 inches long, membranous, and opposite, cordate-acuminate, and slightly downy.

The plant needs plenty of root room, and, indeed, it is better planted permanently, when large enough, in a 12-inch pot, and the roots allowed to ramble amongst loam and rubble. It is a plant that defies all attempts at keeping it in trim orderliness, and after the winter pruning, which consists of thinning out weak wood, and cutting back that which is left, nothing more may be done beyond training out leading shoots. It is much liked by greenfly, and requires occasional fumigation. It has mostly disappeared from our stoves, because, probably, it is

deficient in showiness, and is of no use as a cut bloom; but for filling up a sunny corner, and diffusing a most delicious fragrance it is worth growing.

PETREA VOLUBILIS.

The above is a climbing shrub from Brazil, at one time often met with in stoves and warm conservatories. It is an evergreen, with opposite, coriaceous, oblong, undulate leaves, 6 inches in length, and 1½ inches in breadth. The flowers, which appear in July form long pendent handsome racemes, have a five cleft violet-coloured corolla, and a blue calyx tube. The former is of short duration, but the latter, the most attractive, part of the blossom remains for a considerable period of time on the plant. The plant will grow in enriched loam or loam peat, and a little leaf mould and silver sand, the well-drained pot or tub in which it is planted being plunged in a hot bed or stood over the hot-water pipes. Propagation is by means of cuttings of the half-matured wood in a hot bed.

DORONICUM PLANTAGINEUM EXCELSUM.

This is one of the best early-flowering hardy plants, and deserves to be planted in every garden, its blooms being of a bright yellow, and the size of small Sunflowers, which they resemble when expanded. The plant grows about 15 inches high, has stout stems, and hirsute pale green leaves, and the flowers are erect on the ends of the shoots, making them valuable when cut. Increase is by division of the plant, and may be effected at almost any time, but best early in the spring when the growth is commencing. The crowns may be planted in good soil, with manure well buried. *J. Sheppard.*

SPRING FLOWERING IRIS.

Two of the prettiest of all the spring Iris lately in flower are Iris persica and I. Rosenbachiana, of which I beg to send you original sketches (figs. 91 and 92), made on March 10 in the Trinity College Botanical Gardens, Dublin, in the open air. Other kinds now past are Iris reticulata cyanea, I. "J. G. Nelson," the bright little yellow I. Bornmülleri, and we have had flowers of Iris stylosa alba, and the "Snakes-head," or "Widow Iris;" I. tuberosa, a fragile little flower that has a sombre appearance, suggestive of apple-green satin and black velvet. The typical Iris stylosa of Algeria has yielded odd blooms ever since Christmas, and quite lately a large tuft of it, covered by a frame light elevated on posts, gave us quite a dainty crop of its soft lilac buds and blossoms. The typical Iris reticulata is after all one of the sweetest and most useful of all the spring blooming kinds, and has become luxuriant since Mr. Bedford, of Straffan, taught us the right way to grow it in peat, sandstone grit, and cocoa-nut fibre refuse. The rich violet-blue flowers are deliciously scented, and our friends and visitors have been quite delighted with them this season.

One of my pet Irises is the old I. persica, which, apart from its beauty, is quite of historical interest, since it forms No. 1 of that splendid series of plates issued in the *Botanical Magazine*. It was formerly the fashion to grow its roots in water-glasses, as is now occasionally practised with Hyacinths, but in a deep sandy peat-bed the bulbs are far more robust, and more permanently healthy. The flowers of this species are of a delicate blue tint, verging to green, the hue of a thrush's egg, for example, and there is a velvety blotch on each of the "falls" around the end of the rich orange crest, and some dark dots and markings help to emphasise the satin-like delicacy of the petaloid styles or standards, as Iris-lovers call them.

One of the most robust of all the newer species seems to be I. Rosenbachiana, which bears a bold little flower, similar in shape to I. persica, but of a smoky lilac colour, having a rich dark blotch on the falls, lit up by a vivid orange ridge, or crest, on a nearly white ground. It is strong and beautiful, and promises to be quite an addition to a very beautiful group. Some of us are a little taken aback at the statement on p. 292 as to their not being suitable flowers for cutting. So far as I have tried them, all the species and varieties of Iris are quite delightfully adapted for cutting, provided that they be cut in the full grown bud stage, and not allowed to open on the



FIG. 91.—IRIS PERSICA: COLOUR PALE GREENISH-LILAC, ORANGE CREST, AND BLACK BLOTCH AND MARKINGS.

plant; Iris reticulata and all its forms, I. stylosa in variety, I. Rosenbachiana, I. persica, and all the great Flag Irids yield exquisite blooms as cut in the bud state and opened in water indoors. Certainly if allowed to expand on the plants, or to remain long open in the open air, nearly all Irids are fragile and fugacious enough, and one might paraphrase dear



FIG. 92.—IRIS ROSENBACHIANA: COLOUR LILAC PURPLE AND WHITE, CREST ORANGE.

old Robert Herrick who lamented that the Daffodils "wasted away too soon."

We are all very much indebted to Professor M. Foster for the enthusiasm he has himself displayed, and stirred up in others, with regard to these exquisite flowers. As a genus there are few, if any, so generally beautiful, or that can boast of some species or other being in flower in the open air every day in the whole year. The somewhat recent discovery of the lovely head of Iris from the Parthenon frieze seems to some of us quite a good augury, and its story is clearly and briefly told by Dr. Charles Waldstein in the March number of *Harper's Magazine*; and in the same number, Mr. Charles Dudley Warner devotes his critical and amusing pen to the consideration of the Chrysanthemum and its beauty and influence in our gardens to-day. *F. W. Burbidge.*

COOMBE WOOD.

THERE is no more delightful resort for the plant lover than the famous nurseries of Messrs. Veitch, near to the Norbiton station of the South Western Railway. Go when one may, there is sure to be something to attract attention and excite admiration, while the care and attention to the details of culture which are so remarkable in what Messrs. Veitch undertake are by no means lacking here. The nursery and its beautiful site have been so often described in these pages, that it is needless to enter into detail concerning them. The noble avenue of Araucarias and Wellingtonias, the Roses, the Rhododendrons, all have been described over and over again. It must suffice now to extract from our note book a few discursive memoranda concerning some of the plants that attracted our attention on a May morning. It was too early to expect much in the way of flowers, even among the flowering shrubs, and too early also to inspect the deciduous trees, but the brilliancy of the Japanese Maples on the sunny slopes supplied a flush of colour that no flowers could surpass. The number of these Maples is now legion, varying chiefly one from the other in the degree to which their leaves are cut, and in the tint of the foliage from light green to rose-coloured and purple. A "break" of Kalmia glauca in full flower made one wonder why these old favourites are not more often seen. Magnolia stellata is a newer acquaintance, but every one who sees its beautifully starry white flowers will admit its pre-eminent claims to figure among the most ornamental of flowering shrubs. The Azaleas of the mollis section are fast coming into flower, their delicate soft tints being very beautiful. Art critics fond of airing technical terms would speak of the "morbidezza" of these flowers as something to excite admiration! The Rhododendrons are showing for bloom, and will make a fine display later on. Meanwhile, in its way, nothing can be more showy than Cytisus præcox, with its long spikes of creamy-yellow flowers. Pyrus Maulei, too, is in full flower, and for garden purposes is quite distinct from P. japonica in foliage, flower, and fruit.

Azalea Vaseyii.—A species in the way of A. mollis, producing flowers with the leaves. The texture of the leaves is thin, the margins revolute, and the midrib provided with thinly scattered stiff hairs. The calyx is minute, scaly, and viscid. The corolla about an inch long, pale rose, irregularly curved, tubular, with a limb divided into five oblong obtuse lobes, the three upper of which are spotted near the base with brownish spots. Stamens eight, of unequal length. A very pretty species, which, if it will bear forcing, would make a very desirable subject for that purpose, or for hybridising.

Genista Andreana.—This is a newly described Broom, which has been figured in the *Revue Horticole*, and which is remarkable for the rich golden-brown of its velvety side petals or wings. At present we have only seen one or two flowers, but if we may judge from them, the beauty of the plant must be something remarkable.

Almost as brilliant as flowers, in some cases quite as much so, are the expanding buds and fresh young foliage of the Conifers. The golden Lawson's Cypress and the golden form of Thuia occidentalis, known as George Peabody, are resplendent in their coats of gold, and are probably the two most brilliant golden Conifers known. Among others with similar coloration mention may be made of—

Juniperus prostrata aurea.—A very effective form, with loosely arranged, ternary, needle-shaped, bronzy leaves. The tips of the young shoots are of a golden colour where exposed to the light.

J. cinalensis aurea, is of denser habit than the foregoing, and the leaves of a deeper green, not bronzy hue.

Retinospora filifera aurea (hort.).—A form of the very elegant plant called in gardens by the above name, and distinguished by its golden colour.

Chamæcyparis sphæroidea var., a beautiful form of the dwarf Cypress, in which the tips of the shoots are brilliant yellow.

Picea excelsa mutabilis.—A variety of the common Spruce, in which the young expanding shoots are of a creamy-yellow colour and very beautiful in the sunlight.

Abies orientalis aurea.—The young shoots of this variety are of a creamy-yellow colour, not so effective as many others, but no doubt opinions would differ as to its beauty.

Abies Webbiana.—This noble Silver Fir needs no notice now further than an allusion to its buds, which form trumpet-shaped masses at the ends of the shoots, the numerous overlapping pale brown bud-scales forming a delicious contrast with the delicate green of the young leaves. The lower scales are chestnut-brown, rather resinous, the upper ones thinner, fringed at the edges, and more or less hairy.

Abies bracteata.—A handsome and distinct Californian species, which we note now solely for the purpose of calling attention to the contrast formed by the large fawn-coloured bud and the dark green foliage. The buds are solitary at the ends of the shoots, nearly 1½ inches long, obovoid, oblong, pointed; the lower scales oblong obtuse, subcoriaceous, gradually increasing in size, but diminishing in texture near the top.

Among the newer Conifers two may be mentioned as specially interesting, but which are at present not large enough to enable one to form any opinion on their merits as decorative plants.

Tsuga eraitiana.—This is a newly discovered Hemlock Spruce, of which a figure and description will be found in the *Gardeners' Chronicle*, 1886, Dec. 18, p. 781. It is somewhat stiffer than the ordinary forms, the leaves are narrower than in the Japanese forms, some sharply pointed, others obtuse, but not notched at the apex, all finely serrulate near the tips, dull green above, paler beneath. The plants are as yet too small to enable us to form any opinion as to their decorative value.

Picea Omorika.—This is the Servian Spruce, figured in the *Gardeners' Chronicle*, 1884, Mar. 8, p. 309, and still very rare in collections. In general appearance it is not unlike the Japanese P. ajanensis, with which, indeed, it has been associated by Willkomm in a special group characterised by the nearly flat, not four-sided leaves. The shoots are fawn-coloured, with a few short, straggling, blackish hairs. The leaves about ¾ inch long, linear, mucronate, dull green above, white beneath, with four rows of stomata on either side of the prominent midrib. The buds are small, rounded, pointed, chiefly produced near the ends of the shoots, and covered with brown, membranous, dry, obovate, pointed scales, the uppermost of which form a cap, and are pushed off as the bud lengthens. It is a rapidly-growing species.

P. excelsa Remonti is a remarkable variety of the common Spruce, with a very dense, compact, pyramidal habit, recalling that of Cupressus Lawsoni erecta viridis.

A few disjointed memoranda must bring this notice to a close. Later in the season we may hope to pay other visits to this delightful treasure-house.

Fagus Sidandeci.—A Beech with very slender, wiry, spreading branches, and small, roundish, undulate, brownish leaves, each about ¼ inch long. A curiosity, resembling in general habit the curious Polygonum, known as Muhlenbeckia complexa.

Sambucus racemosa serratifolius.—This is a variety of the red-berried Elder, remarkable for its large and deeply laciniate leaves. It is handsome and free-growing, and may, therefore be recommended for general cultivation in shrubberies where sufficient space can be given to it.

Osmanthus myrtifolius may be recommended as an excellent evergreen, and one which, from its thick leathery leaves, is adapted for cultivation in towns and shady places. The leaves are like those of a Privet.

Olearia lacunosa.—We have not seen the flowers of this, but even in its present state it is amply worth notice, the shrub (which is a native of New Zealand), having a peculiar appearance, like an Aralia, with loosely arranged, linear leaves, about 7 inches long, half an inch wide, thick, leathery, deep green, and rugose on the upper surface, along the centre of which runs a thick yellow midrib; lower surface covered with dense fawn-coloured felted hairs.

Bambusa tessellata (hort.).—The Bamboo, so named, has broadly lanceolate leaves (6 by 2 inches), which at first are entirely green, but as winter comes on, they die at the margin, leaving the central disc green, surrounded by a broad whitish stripe, which is very effective when seen at a distance. The ordinary Bambusa metake of gardens has been much browned by the frost of the early part of March, but, like the Eucalyptus coccifera, is not materially injured.

Cytisus Adami.—It was with no ordinary pleasure that we saw a row of Laburnum Stocks worked with Cytisus purpureus and cognate forms, with a view to test the origin of the famous Cytisus Adami. Year after year, as astonished correspondents send us flowers of this variety, we have longed to institute trials at Chiswick or elsewhere, and have in vain pressed the desirability of so doing upon nurserymen and amateurs. Now it appears that, at the instigation of Dr. Romanes, Messrs. Veitch have undertaken the task. No more competent experimenters could be found, and we trust that their careful experiments and records will do much towards illustrating the subject. It must be remembered that graft-hybridisation, once deemed almost impossible, now seems much more easily explicable, since we have been taught by Walter Gardiner, Francis Darwin, and others, of the movement of protoplasm from cell to cell, and the consequent "continuity of protoplasm." Similarly the recent investigations of Strassburger and of Guignard of the fusion of the two nuclei in the process of fecundation, render such productions, as that we are speaking of, less anomalous than previously they appeared to be.

Orchid Notes and Gleanings.

Odontoglossum crispum var. Outrami, *Orchid Album*, t. 403.

A finely spotted variety of this popular Orchid.

Cattleya maxima Marchettiana.

A native of Ecuador. The bulbs of this fine variety are club-shaped, and distinct from those of any other Cattleya. Each bears only a single leaf. The flowers are 5 inches across, deep purple, blotched with crimson-lake. A noble flower, figured in the *Orchid Album*, t. 404. Mr. Williams points attention to the necessity of exercising judgment in the matter of shading which is often continued after the danger from too great exposure is passed.

Lælia Dormanniana.

Segments narrow, lanceolate, olive-green, with purple spots, lip three lobed, lateral lobes erect, convolute, pale lilac, central lobe flattish, roundish, rich violet. Mr. Williams doubts the alleged hybridity of this species, which is a native of Rio Janeiro. It has evergreen leaves, and flowers in late autumn or early winter. The same treatment as that appropriate for Lælia elegans is recommended for it. *Orchid Album*, t. 400.

Calanthe Mylesii×,

said to be the result of a cross between C. nivalis, a white form of C. vestita, and C. Veitchii×. The flowers of the new hybrid are of the purest white, with a tinge of yellow on the crest at the base of the lip. It is recommended that Calanthes should be grown in pots or in baskets suspended from the roof.

Dendrobium Wardianum var. Lowi.

Lindenia, t. 225. A robust form of this splendid Orchid, which is identical with D. Wardianum giganteum.

Lælia anceps, var. Hyeana.

Lindenia, t. 226. A fine white variety with very broad segments, the lateral lobes of the lip striped with purple at the base. The centre is flushed with yellow.

Phalænopsis Schilleriana.

A fine illustration of this handsome species is given in the *Lindenia*, t. 227.

Cypripedium barbato × Veitchianum.

Lindenia, t. 228. A handsome hybrid, with tesselated foliage, and flowers intermediate in character between those of the parents.

Miltonia vexillaria at Merton.

Eight hundred plants of one species of Orchid is a large number to be found in one garden, yet there are more than that number of Miltonia vexillaria in Wm. Handel Cannon, Esq.'s Garden at Avenue Lodge, Merton Park; and considering the beauty and wide variation in colour of this handsome "Banner Orchid," there is ample excuse for forming such a large collection of them. The plants, which have all been grown from very small imported pieces, have that beauty of health and vigour which would cause envy in many who do not grow this section of Miltonia to perfection; they are all of the large-flowered type, and are, for the greater part, yet in bud. Among those already expanded are two extraordinary forms, the one with lilac-veined flowers, the other with bright rosy-crimson flowers, edged with white, the petals being white, with a yellow line down the middle. A batch of M. Roezlii, and a few of M. Phalænopsis doing equally well, prove that Mr. Cannon has grasped the proper method of growing these plants. So far as we can glean the method pursued is very simple: the plants are on the side stages of a cool-house which is not allowed to get below 50° or so in winter; they are in comparatively small pots, and are kept moist all the year round, a dewing with the syringe not sufficiently heavy to run down the foliage, being given daily at all seasons, and in all weather. Beyond this the plants have plenty of light, but not bright sunlight, let in on them, and fumigation which has wrecked many a fine lot of these plants is never resorted to.

In several other neat span-roofed houses at Merton Park are quantities of Odontoglossum crispum, O. Pescatorei, and indeed a general collection of showy cool-house Orchids, and also of Lælias and Cattleyas. Lælia purpurata used to be grown and flowered here in marvellous perfection when the plants stood on inverted pots over a tank, but since the tank has been altered and staging fixed, they, although good, are not so fine as they used to be. Among the Dendrobes in flower, D. crassinode and D. primulinum were specially good. There were also many Cypripedium callosum, C. hirsutissimum, and others; a batch of Ada aurantiaca, Cattleya citrina, C. intermedia, Odontoglossum odoratum albidum, O. o. gloriosum, and the various other Odontoglossums, Masdevallias, Lycastes, &c., of the season.

Arpophyllum giganteum.

Arpophyllums are amongst the easiest of Orchids to cultivate, succeeding admirably in a light position in a greenhouse. The potting compost should be of a sustaining nature, and may consist of rough, lumpy, fibry peat, with bits of charcoal and broken crocks mixed through it, sticking in tufts of growing sphagnum moss all over the surface. As they enjoy copious supplies of water while growing, the drainage should be good; however, when growth is completed, less water will be required, but they should never be permitted to get so dry as many other epiphytal subjects. A. giganteum is in many respects

similar to the smaller and earlier flowering A. spicatum, but it has longer leaves and pseudobulbs; and the leaves and inflorescence are borne at the apex of slender pseudobulbs from a foot to 18 inches in length. The inflorescence consists of densely packed cylindrical spikes, about half the length of the leaves or pseudobulbs; the flowers are of a dark purple and rose colour, and they last several weeks in perfection. The plant is a useful and distinct decorative subject. *F. R.*

DIACRIUM BICORNUTUM.

Some growers tell us that this is a somewhat capricious and refractory plant, and we have occasionally seen it in a condition which seemed to bear out this statement. However, recently I have seen it in several gardens doing well. It is a plant which evidently likes a high moist temperature, a maximum amount of light, and not much material about the roots; thus indicating shallow baskets hung up near to the glass as being proper for it. A year or two ago a correspondent favoured us with a few newly imported bits, which at the time we had little hopes of establishing, and which for many months remained quiescent. Suspended in a basket of crocks on the roof of a low plant stove, young growths eventually were developed which have now produced growths nearly 1 foot long, and these have long ago been transferred to the usual fibry peat, crocks, and sphagnum compost used to fill baskets. These last growths are now producing their fragrant spikes of pure white flowers, or rather white sepals and petals, the lip being spotted with crimson, and the crest tinged with yellow. The flowers are of good substance, and useful for cutting. *F. Ross, Pendell Court.*

MUSHROOM CULTURE.

THERE has been lately a good deal of discussion in the pages of the gardening press on the interesting subject of Mushroom growing, and as the opinions therein expressed are somewhat diversified and conflicting, I am induced to offer a few remarks with reference to my own actual experience.

I altogether waive the scientific part of the subject. I will leave that to others, preferring to stick to the practical part, as one best calculated to be of tangible benefit to growers in general. I give the following account of my procedure, with the one simple object of perchance being of some little help to those who may possibly have sometimes failed in their attempts to produce paying crops of this much coveted esculent, believing, as I do, that a free circulation of opinion, and more especially of actual experience and results among English growers—not only on the subject of Mushrooms, but on all other matters connected with the market produce of garden and glasshouse—would at least assist in stemming the flood of foreign importations, and thus benefit the hard-working British growers.

I am a grower of Mushrooms for market on a moderate scale, and have no reason to complain of want of success hitherto in a pecuniary point of view. I have no properly constructed houses, but grow the Mushrooms on the floors of unheated sheds, in summer, and in the paths of my glasshouses all the year round, and the following includes my *modus operandi*:—

Preparation of Manure.—This I procure in large quantities at a time; or, say, I have four empty beds that I wish made up. I procure the manure for these all at one time, and just as it is thrown from the stables. This I throw into a heap in the open air, without removing a single straw, no matter how rough and strawy the mass may be. This heap I turn, on an average, three times a week, and it is exposed during the time to all weathers. If the heap be very rough and strawy, it will be sure to heat dry and white, especially if no rain falls during the process of turning and "making." In this case I add water freely during the act of turning, which assists in the "making." During high winds the process of heating is retarded, and when this occurs I tread the heap hard down, and shelter the weather side with boarding, which I have always at hand. The process of making, if the dung is "long," generally occupies about four weeks; if shorter, about three. When the dung, from the effects of turning and watering, becomes moderately short, brown-coloured, hot, and moist, but not wet, it is ready to be put into the beds.

Making-up the Beds.—These I fill up to a depth of 12 inches with the prepared dung. The mass is well shaken up as it is brought into the house, and as evenly laid down as possible, and is then at once trodden down firm; the depth of dung, when hard trodden down, will usually be about 9 inches. I consider this quite enough, and any more merely a waste of manure. I can remember once running rather short of dung, and forming a bed that, when trodden down, was not more than 6 inches thick, and it did quite as well as the thicker ones put down at the same time.

Spawning.—My rule is to insert the spawn the moment I find the heat is not on the rise, which I find out by the thermometer; but I do not hesitate to spawn in a good strong heat, believing that to be much better than to allow the beds to fall to anything like a low degree of temperature. I use the spawn in goodly pieces, and at the rate of about 1 bushel to 50 square feet. These pieces are tucked in, as it were, under the dung with the aid of pointed pieces of iron ¾ inch in diameter, and about a foot long. With such instruments the work of spawning can be got through very rapidly.

Soiling the Beds.—This work I perform the moment the beds are spawned, putting on a layer of about 2 inches in thickness when rammed down, which is done at once. I use fresh loam when I can get it, but when not procurable, I use ordinary garden mould, and after an experience extending over some years, I must confess that, so far as regards the quantity of Mushrooms produced, the one kind of soil seems to be quite as efficacious as the other. The only advantage maiden mould has over ordinary garden soil is, that it produces fewer weeds, which of course is a consideration. But rather than go to the expense of bringing fresh loam from great distances, I would prefer to use ordinary garden soil.

Watering.—This, I often think, is the most important point in Mushroom growing, especially under glass roofs, and where there is no foliage above to protect the beds from the rays of the sun. When I first began Mushroom growing in the paths of my houses, this question of watering puzzled me greatly. My beds were continually getting dry, and I kept as continually watering them. I felt that all this was wrong; so, until I could think out a better plan, I covered my beds with a thin coating of clean straw all over, which answered fairly well, the straw preventing such rapid evaporation as took place before. There was, however, this to be said against it: first, that one could not see when the Mushrooms made their first appearance on a newly-formed bed, which we are anxious to do; secondly, when the Mushrooms had to be gathered, there was always a great deal of trouble attached to the removal and replacement of the straw; and, thirdly, the straw proved to be an undoubted shelter for woodlice and slugs. After a little thought, I hit upon a plan which I at once adopted, and have had working for some years with very satisfactory results. I shall here attempt to describe it. The paths of the houses are, of course, excavated to the depth required for the reception of the dung, and lined on each side with brick walls, one brick thick. Fixed into these, at intervals of 6 feet, are crossbeams 3 inches by 3 inches, and on the top of these, in the middle of the bed, and nailed to the cross-pieces, runs a thick plank that will not spring. This is used as a gangway, or place to walk and wheel on. Lengths of wood of the same dimensions as the cross-pieces are fixed on the top of the walls running the whole length of the bed. On these are hinged shutters, made of wood, an inch in thickness, on each side of the gangway, and 6 feet long, or so that each shutter will catch on the cross-bars for support when down, and so wide as to fit closely to the gangway, and the arrangement is complete.

For examination of the bed, watering, weeding, and gathering crop, all that is required is to raise a shutter where you please—by the way, they are all fitted with wooden handles, firmly secured—and set it back. It then stands upright, having for support the greater part of the thickness of the wall-plate. When the examination is over, the shutters are gently laid back in their places, and all is darkness and comfort underneath.

This arrangement is a little expensive at first, but that is soon covered by the saving of labour, and the greater comfort in working the beds. With this arrangement the workpeople can walk on the gangway and shutters over the whole surface of the beds in prosecuting the work of training Vines or Tomatos, as the case may be; whereas, with only a single plank running up the middle, slips of the feet were constantly occurring, much to the detriment of the Mushrooms underneath.

After spawning and moulding, the beds are allowed, of course, to remain without water till nearly the end of the sixth week, when they receive a gentle sprinkling of tepid water daily till the moisture reaches the manure, after which the Mushrooms soon appear. When this takes place, the boarding on top of the beds is kept wetted by the syringe three or four times a day, according to the weather, which has a wonderful effect in keeping the beds below in a uniform state of moisture.

I may mention that when I began to grow Mushrooms first in my glasshouses, I had the bottoms of the beds concreted, but partial, and sometimes total, failure was the result. Judging the cause, I had the concrete removed, with good crops as a result.

In conclusion, I may state that my average yield of Mushrooms per square foot of bed, is about 1½ lb., which yields a satisfactory profit. *Market Gardener.*

WHAT IS BEAUTY IN COLOUR AND FORM?

ON April 22 there was a fine show of Primulas of all sorts at the Drill Hall; there was also a small collection of Amaryllis. One of these (I think its name was El Mahdi) was of a deep rich crimson throughout; it had not the orthodox broad petals that the florist adores in this flower, and, moreover, it had not the orthodox form of overlapping petals. While I was admiring the grace of this particular flower, I heard a gentleman tell the man in charge, "If you can get that colour into that form"—pointing to the Empress of India—"it will do."

Now, that crimson Amaryllis, to my mind, had great artistic beauty of form, and it had a particularly interesting slight curl in its petals, which the Empress of India has not, and cannot have, owing to its great breadth of petal and regular form. Here is a case of what may, perhaps, be called seeing a flower only through a florist's spectacles. He feels a craving for reducing all variations of form, in any group of flowers, to one dead level—a glaring wheel-like, broad-petalled uniformity. The botanist has, I think, the advantage of the florist; he revels in wild forms, and fails to be delighted by the tailoring of all the exquisite little natural oddities and variations into a uniform pattern. I think the rising generation of horticulturists would be able to see beauty in other forms than a regular circular outline if, besides a training as horticulturists, they were able to get a training from an artist's point of view.

I might, perhaps, be told that the commercial florist is a manufacturer, and he produces what people care to buy. But is this so? Has training in art in the manufacturer nothing to do with the tastes of the people? Perhaps it used to be thought so, but now, instead of the staring red, blue, and yellow fabrics which at one time met the eye, we see the most exquisite shades of colour arranged in a hundred ways, so that the shops are filled with an optical music, which gives repose and contentment to the brain. All this is the effect of training manufacturers in a new art—the art of appreciating

other colours than staring colours, and other forms than round and square.

It is the coquettish quaintness of form in Orchids, varied in a hundred ways, which produces a never-ending fascination. The same small number of elements—three sepals, two petals, a lip, and a column varied in an infinite number of ways, with as many various tints—can produce all the kaleidoscopic variations of Orchids. If they were all made round, they might still possess the charm of uniformity, which is perhaps not a trifling one, but they would lose the charm of variation.

That El Mahdi had a piquancy of form of its own. It would be a pity not to retain it, and breed others in that direction. Size, roundness and broadness of petals are not the only charms of flowers. *E. B.*

GAYLUSSACIA FRONDOSA.

The genus Gaylussacia, named in honour of Gay Lussac, a celebrated French chemist, 1778—1850, belongs to the natural order Vacciniaceæ. There are about forty known species, but little grown, half hardy evergreen or deciduous shrubs, of American origin. G. frondosa has purple-green flowers, disposed in a few axillary slender racemes. These appear in May and June, and are succeeded by dark purple berries with a white bloom, like our own Whortleberry, and, like them, are pleasant eating when cooked. Height, 3 to 6 feet. For our illustration (fig. 93) we are indebted to Dr. Dieck, of the Arboretum, Merseburg.

THE ECONOMIC USES OF LEAVES.

Of the three divisions of Nature's products, man is most chiefly indebted to the vegetable kingdom, whether for his food, medicine, or domestic comforts. Every part of plants and trees is more or less utilised by savage and civilised men, and a common category might be furnished by the various uses of the separate parts—the roots, stems, sap, bark, fruit and seeds, and leaves. If we take the last-named, the foliage, apparently the most insignificant part of the plant, how dependent are we on these for food, clothing, medicine, dyes, stains, and various comforts.

The miscellaneous application of leaves for different purposes as domestic appliances, and for manufacturing uses, of themselves, would furnish a long list; some few of these we may pass under notice, because their adaptability and usefulness are mainly confined to tropical countries. It is true that some leaves have been utilised by the paper-maker, as in those of the dwarf Palm, Maize leaves, and others, but this is only on a small scale.

The leaves of many Palms are largely employed for making hats. Those best known are Panama hats, so named from being shipped from that port. These are made from the finely-plaited fibre of the leaves of a South American Screw-pine (Carludovica palmata). These hats are much prized for wear in the Tropics, being light and flexible, and can be washed and bleached repeatedly. The tree has no stems, the leaves have long slender petioles, springing from the ground; they are some 2 feet long, fan-shaped, and four-parted, each segment being again ten-cleft, so that when folded in venation, each segment on its own rib, there are eighty layers in a young leaf. The tree occurs only on the slopes of the Andes. About 200,000 dozens of these hats are made in Ecuador and different States of South America. These hats are distinguished from all others by consisting only of a single piece, and by their lightness and flexibility; they may be rolled up and put in the pocket without injury. In the rainy season they are apt to get black, but by washing with soap and water, besmearing them with lime-juice, or any other acid, and exposing them to the sun, their whiteness is easily restored. The plaiting of the hats is very tedious and troublesome; the coarse ones may be finished in two or three days, but the fine ones take as many months to plait. It commences at the crown, and finishes at the brim. The hats are made on a block, which is placed upon the knees, and requires to be constantly pressed with the breast. The hats vary in price, according to fineness and quality, from 20*s.* to as many pounds.

The unexpanded fronds of Livistonia australis, prepared by being immersed in boiling water, are dried, and the fibre thus obtained is much valued for the manufacture of hats in Australia, which much resemble the celebrated Panama hats.

The rough leaves of the Chumico (Curatella americana) and of Davilla lucida are used for cleaning iron, and polishing and scouring wood. Curatella alata is used in the West Indies for polishing bows, sabres, &c.; and C. sambaiba in Brazil—indeed, they serve all the purposes of sand-paper to the Indians for polishing their blow-pipes and war clubs. The leaves of Celtis orientalis are used for polishing horns in the East Indies.



Fig. 93.—GAYLUSSACIA FRONDOSA: FLOWERS GREENISH-PURPLE: BERRIES DARK BLUE WITH A WHITE BLOOM.

The foliage of Guiacum officinale is very detersive, and is frequently used in the West Indies to scour and whiten floors, which it is said to do better than soap.

Leaves sown together are much used in India as substitutes for the plates and dishes of more civilised life. It is not always poverty that leads natives to use them in preference to metal or porcelain articles, as caste or custom has often some influence in the matter. The leaves principally used are those of the Egyptian Lotus (Nelumbium speciosum), Bauhinia species, Semecarpus anacardium, Butea frondosa; those of the Banyan (Ficus bengalensis), by Brahmins, and the Plantain-leaf (Musa paradisaiaca).

The leaves of Bauhinia Vahlii are used in the construction of the curious, rude leaf-bellows in Sikkim, with which the natives of the hills smelt iron. These leaves, when sown together, are used as plates, cups, rough tablecloths, rain-hats and caps. The leaves are heart-shaped, and above a foot in breadth, and the same in length. Sewn together with twigs, they also serve for baskets for holding pepper, turmeric, and ginger, and are likewise used for thatching.

Under the name of "Chattahs," a kind of umbrella-hat or sun-shade is made in the East of the leaves of the Licuala peltata and the Talipot Palm, or a Plantain leaf. These Chattah hats are much worn by the ploughmen, cowkeepers, and coolies of Bengal and Assam.

The large fan-shaped leaves of the Talipot Palm (Corypha flabelliformis) are like those of the Palmyra Palm, carried over the heads of people of rank as an umbrella, and are also used for making books, and for various domestic purposes. The leaves are also cut up into neat bracelets, worn by Santal girls in India. Those of Vanda Roxburghii, split, are also worn by them as anklets. Those of another species, Borassus æthiopicus, occur as much as 12 feet across; they serve also for the manufacture of baskets, mats, ropes, and sieves. The leaves of Nipa fruticans attain a height of 15 to 20 feet, presenting a very handsome appearance, resembling the fronds of huge Ferns. This graceful Eastern Palm is utilised in various ways, the principal being in the manufacture of thatching for house-roofs, in the East called "Ataps." This manufacture is quite an industry of itself, and affords employment to many natives, chiefly women, the men simply bringing cargoes of the fronds to the women, to be stitched with split rattans, and made up. Atap roofs are the best adapted for these climates, for while the winds are never strong enough to blow them away, they afford the coolest protection against the sun of any kind of roofing known.

The leaves of the Palmyra Palm (Borassus flabelliformis) were formerly used like paper, to write books on, and to this day they are applied to this purpose in Orissa, Southern India, and Ceylon, where an iron

style is employed to write upon them; in certain parts of Bengal young children use them to write the alphabet lessons on. They are largely employed for making pans, bags, winnows, hats, umbrellas, and for thatching, &c. The leaf takes a dye well, and is worked up in Madras into pretty coloured patterns in baskets and mats.

The slips of Talipot and other Palm leaves are coming into European commerce for the manufacture of ornamental braids, and in the construction of straw, or Leghorn hats. The fibre obtained from the base of the leaves of the Chusan Palm (Chamærops Fortunei) is used by the Chinese for making hats and coarse clothing. The sale of Palm leaves for decorative purposes in the towns of Elche and Alicante in Spain, produces a considerable income to the towns.

Kadjan mats, manufactured out of Nipa leaves, are indispensable for travelling purposes; packed up in the smallest compass when not required, each mat is capable of affording sufficient cover at night for two or three persons, either in boat or forest journeys. They also form, almost exclusively, the material for side-walls and divisions within houses. The young leaf unfolded and dried, under the name of Roko, forms the favourite covering for cigarettes in the Malayan Peninsula in preference to paper.

The large leaves of the Teak tree (Tectona grandis) are used for plates, for packing, and for thatching. The leaves of Cordia myxa are employed as plates in Pegu, and to cover Burmese cheroots. In Bangalore the leaves of Canna indica are used by the natives in lieu of plates, to serve their Ragi or Millet puddings and other dishes on.

The leaves of the Papaw tree (Carica papaya) are employed by the negroes in washing linen, as a substitute for soap. They have also the property of rendering meat wrapped in them tender, owing to the alkaloid papain which they contain, and which acts as a solvent.

For cordage and other textile purposes, numberless leaves are used, and they serve very generally for packing and wrapping up small parcels in India.

In Guiana, Tibisiri fibre is obtained from the inner surface of the spiral leaves of the Ita Palm (Mauritia flexuosa); it is used by the Indians for making hammocks, &c. The leaves are cut before they are open, and the midrib separated by drawing each division of the leaf through the finger and thumb. After drying, the fibre is ready for use without further preparation. About a quarter of a pound may be procured from each leaf, and if the central leaf is left uninjured, no evil effect is produced on the tree. Bags or matting could be cheaply and easily made from this fibre, as well as hats, similar to those known as Panama



Fig. 94. DIERVILLA MIDDENDORFIANA.—FLOWERS SULPHUR WHITE.

The foregoing is only a brief enumeration of some of the many uses to which leaves are industriously applied. *P. L. Simmonds.*

DIERVILLA MIDDENDORFIANA.

The above-named species is one of a handsome genus of hardy deciduous shrubs, better known in gardens under the older name of Weigela, of which rosea, amabilis (grandiflora), and Loysmanni aurea variegata, and some variegated forms of the first two species are generally grown. The first is white and rose; grandiflora has pink flowers, which are larger than those of the other species, and the last named is a new variety with green and yellow foliage, and named after the raiser.

The species figured (fig. 94) has sulphur-yellow blossoms, Gloxinia-like in form, and is in beauty not excelled by any other of the genus. Diervillas are plants of graceful habit, well adapted for groups by themselves, for solitary plants on the lawn, or the front parts of shrubberies. They do best in soil that has some peat in it, and repay good cultivation. We are indebted to Dr. G. Dieck, of the National Arboretum, Zoeschen, near Merseburg, Germany, for our illustration.

NURSERY NOTES.

MR. BULL'S ORCHID SHOW.

The unequalled show of Orchids in flower at Mr. Bull's establishment in the King's Road is open for inspection, and, as usual, draws daily great numbers of admirers of these beautiful plants. The same house as before is set apart for the plants, and we think that, if anything, more good taste is displayed in its arrangement; the banks of blossoms are smoother, the colours harmonised better, and there is what has to be considered in so limited a space, more elbow-room; and, need it be said, the courteous proprietor and his assistants are ever at hand to afford the visitor every information that may be needed. Mr. Bull tells us, and we believe him, that the display of bloom is better than heretofore at this early part of the season. There are indeed fewer Cattleya Trianæ, these flowering early, and not to be easily retarded, but the paucity in this respect is more than compensated by the fine-blossomed Miltonia (Odontoglossum) vexillaria, Odontoglossum crispum, O. Pescatorei, and Cattleya Mendelii, in considerable variety.

Of varieties of Miltonia, mention should be made of M. vexillaria picta, with deep mauve ground colour on the broad lip, and a margin of white round the upper segments of the bloom; another M. v., named rubra, has deep colouring, but no bordering of white. The older M. v. striata seemed to be getting numerous, and the old style of M. v. were, so to say, all over the place. Amongst these nothing very large, and consequently of great price, was noted, but all were nice marketable stuff.

The numerous Odontoglossum citrosmum, which add so much to the pervading fragrance of the house, are in much variety, ranging from pure white to white shaded with rose or light purple. Nearly all are hung up, and show good culture in their massive bunches of blossoms. Cymbidium Lowianum, with their long streamers of sulphur-green blossoms, with an intense crimson-coloured lip, were the conspicuous plants of the collection.

Dendrobiums, not numerous but very conspicuous, were Farmeri densiflorum, and a new form of it with primrose-yellow lip instead of an orange-coloured one, as in the type—a distinct pretty thing; D. Brymerianum, small plants, the colour very desirable where all or nearly all is white, purple, and scarlet; D. Dearei, D. Wardianum in a basket, an object of much beauty—no one should train these pendent Dendrobes to upright sticks; it is barbarity. In Cattleyas mention should be made of the following:—C. Mossiæ marginata, C. illustris, a Mendelii, with a very superb lip, and markings of the same colour on the sepals; many C. Mendelii, showing large flowers; and some variations from each other; C. M. imperialis, a large plant, is one of the finest, and almost equalled by C. M. princeps. C. Schroderi, many of these, some varying somewhat in tint, the frilling round the lip in some instances excessive—always a point to admire—and in several the orange interior of the throat more or less conspicuous, called for notes of exclamation. C. Lawrenceana has almost extinguished the older C. Skinneri, which looks of a miserably pale shade of purple beside it; of the former, the collection was rich in specimens of good size, and healthy. Angræcum modestum is pretty always, and in a basket more especially, numbers of this plant in bloom were observed. Another small flowered gem is Ornithocephalus grandiflora, the specific name an absurdity for a minute green and white flower, no larger than a Lily of the Valley. It is green and white coloured, and blooms in short clusters. Taken as a whole, the

most numerous class of Orchids in the show-house are Odontoglossums, and of these the variety is very great, the flowers and flower-spikes most unusually large and massive, the O. crispums more especially. These latter, owing to the numerous importations from the best districts, are fast becoming less stellate in form of bloom, and thicker in sepal and petal—both improvements of great value in a flower that is used so much when cut from the plant. One form of it, named delicata, has brown spots on a white ground. Of distinct species of Odontoglossums we may specify some that Mr. Bull exhibits at the present time:—O. notabile, from United States of Columbia; O. triumphans chrysolorum, much more golden than the type, and therefore showier—the barring is less marked; O. ornatum, a natural hybrid form, very showy in creamy-white and brown; O. Marshallianum, with very fine large spikes of yellow and brown bloom; O. Edwardi, a fine spike of flowers of a purple colour, small in size, but numerous; O. (Miltonia) Roezlii, the well-known O. papilio, a gorgeous brown moth, suspended apparently on nothing at all when seen from a little distance; O. Ehrenbergii, apparently of the Cervantesi section of Odontoglots, but the lip is smooth at the margin instead of fringed, and no spotting is remarked on the upper segments of the blossom; and of Cervantesi many were noticed grown in small baskets. O. cordatum, with brown sepals and petals, and a white heart-shaped lip, is a conspicuous and distinct species; and some flowering O. Harryanum, in their rich brown and primrose-yellow, were noted; also O. Halli leucoglossum, with white lip minutely fringed.

Lycaste Skinneri were not yet out of bloom, and rubella picta was in flower—it is a very nice thing; also L. S. alba; L. gigantea carried a few of its peculiar dull-coloured blooms. L. Schilleriana was another of modest colouring, and belongs to the same section as L. plana.

The plants of Lælia purpurata were healthy, large, and well bloomed; and mention may be made of L. p. Russelliana, with splendid markings; L. p. Victoria, a remarkable variety, with creamy-white sepals and petals, and very rich purple lip, was one of the best in the show. It is a plant which contrasts well with the more common form of L. purpurata. The display was brightened in places by groups of Masdevallia Lindeni, Harryana splendens, and H. coccinea, and the more curious looking conchifera, trochilus, chimæra, and Benedicti. Here and there were inserted small colonies of Cypripediums of the best forms, as Curtisi, caudatum, with very fine lip and long tails; Sallieri, and selligerum majus.

Of other species of note there were:—Gongora portentosa, sepals and petals white, spotted with brown, and a lip bending backward of pale yellow; several Oncidiums, including cornigerum, bicornutum, superbum, and fuscatum. Several Vanda suavis well bloomed; the rosy red Mesospinidium sanguineum, well furnished with its sprays of bloom; Scuticaria Dodsoni, Angræcum Leonis, Brassia Kayi gigantea. B. Keiliana, a curious flower, with one half of the bloom ascending perpendicularly and the other descending; the lip is creamy-white, and other parts dark brown in colour. Plants of Cymbidium eburneum were numerous and well flowered.

Without professing to give a list of all the species of Orchids in the show, the above will be found to contain nearly everything that is choice or rare in a very fine collection.

From the reserves, fresh plants in variety will take the place of those past their best, and in that way the interest in the show will constantly be renewed until the end of the season.

Effects of Grafting.—We have read of some strange attempts at the renewal of youth lately—attempts which seem more tinged with romance than founded on fact; but gardeners are familiar with the process and Mr. Blackmore tells us that when he desires to rejuvenate an old Pearstock he can generally succeed in so doing by engrafting upon it a scion or scions of Pitmaston Duchess. On the other hand, Duchesse Précoce, when grafted on a stock, almost as surely kills it.

Trees and Shrubs.

RHUS (SUMACH).

There are several varieties of this shrub in cultivation. R. Cotinus, R. glabra, and R. glabra laciniata, are the most desirable varieties to grow in ornamental grounds. The large terminal panicles of flowers of R. glabra are succeeded by bright red berries, and the handsomely cut feathery leaves of R. glabra lacinata have a telling effect. The plants flourish in any light rich soil and away from the shade of trees, and attain a height of from 5 to 9 feet, according to variety, soil, and situation. The shoots should be thinned out and spurred in every year, in order to secure a good supply of strong young shoots well furnished with leaves. *H. W. W.*

Cydonias,

of which there are several varieties, are all showy plants, and are first-rate for rockwork or raised places, as they trail and show off in such situations to advantage. The scarlet-flowering kinds are very brilliant, and have blooms as large as those of a wild Rose. They should be planted in poor sandy soil, as then they ripen their wood, and flower abundantly.

Weigela

is an attractive bush, Van Houttii being perhaps the best; the flowers large and rich in colour. For sunny shrubbery borders nothing can be finer than Weigelas, and they are good for forcing in pots, blooming with great freedom when put in gentle heat. *J. S.*

Forsythia viridissima.

This shrub, which puts forth its blossoms in early spring some time before the leaves, is a good companion plant to Ribes sanguineum, and as a wall plant it excels. Its manner of growth is not shapely, yet with the aid of a stout stake in middle of the bush, and some judicious pruning directly after the flowers are over, presentable bushes may be obtained. *E. M.*

Exochorda grandiflora.

This, the only one of the genus yet introduced to this country, is seldom seen in good condition, for the reason, perhaps, that it succeeds best when growing at the base of, and the shoots trained on, a wall facing south, the warmth thus secured ripening its growth and rendering it capable of producing its wreath-like sprays a foot or more long, of snow-white blossoms. Given a sunny spot in the open border it succeeds pretty well in southern districts, and here in Hampshire the flower-buds are at the point of opening. The addition of peat to loamy soil assists growth considerably. When trained on a wall the shoots which will flower should be allowed to hang loosely about, for if they are secured close to the wall not nearly so good an effect is produced, the flat flowers being in part hidden by the long leaves of a healthy plant. *E. M.* [The plant is sometimes named Spiræa grandiflora; another species, E. serratifolia is yet to be introduced from China. Ed.]

Pterocarya caucasica.

This beautiful tree is well adapted for large gardens. The plant is somewhat similar to the Ash, but the foliage is larger; and, like that species, it requires a moist soil, as at Syon. Here the foliage is very fine when full grown, and towards autumn it assumes a lovely yellow tint. The finest specimen is enclosed with water on two sides, and its foliage is much finer than that of trees in drier positions. The long pendulous spikes of bloom have a charming effect. Pterocarya is a bush rather than a tree, although a vigorous specimen may be 30 to 40 feet high; the growth is dense and compact, and grows quickly when once established. Propagation is by seeds, but I have not raised plants of it from seeds because the trees near the water produce a large number of suckers, the roots of which are completely under the water, thus showing that the tree is at home near to water. These suckers, if taken off in the winter and planted in a moist place, soon make trees for planting elsewhere. As to soil, a heavy loam suits it best, for if planted in light soil, the growth is less rapid, and the foliage poor. There are only three species of this tree, and for the above purpose this is the best I consider for planting in damp places. *Geo. Wythes, Syon House.* [The Pterocaryas are distinguished by their female flowers being in catkins, and the fruits furnished with two lateral wings, hence its name—"winged nut." Our correspondent mentions three species, but we believe there are, so far as is known, only two—the subject of the above note and P. japonica. Both are liable to have the young growth injured by spring frost, as is the common Walnut. Ed.]

Magnolias.

The free-flowering Magnolia conspicua has flowered beautifully and much earlier than usual this year at Syon, and the specimens are from 30 to 40 feet high, and cover a large space of wall that is sheltered from the north wind. This Magnolia and its varieties are beautiful objects in any garden, and do well along the Thames valley if protected on the north side. Last season there were only a few flowers on the plants, and these came much later. The blooms are fragrant (?) and very acceptable for any kind of decoration where white flowers are desired, such as in churches at the Easter season, which came at their blooming season this year. These Magnolias are well adapted for planting in sheltered corners. M. conspicua Soulangeana is a fine variety of M. conspicua, and its purple tinted double flowers succeed the first-named, and it is one that is now showing blooms liberally; M. stellata is a pretty dwarf plant that should be grown where the larger growing species would be too much exposed or out of place, but this one also should be protected on the north and east sides, as it is a slow-growing plant. Magnolias grow well in peaty soils, but peat is not absolutely necessary for them, as they do well in good turfy loam and leaf mould. They are rather difficult to establish, and some amount of care is required at planting and watering them during dry weather; the ground should be well drained, and means must be taken to prevent the young plants being wind-rocked. There are several desirable species which bloom later, as M. acuminata the Cucumber tree, M. nigra, M. purpurea, and M. tripetala, the umbrella tree; M. grandiflora requires a wall, doing well on a south aspect; the Exmouth variety of grandiflora is one of the best. M. glauca and M. obovata requires much the same position as M. stellata. *Geo. Wythes, Syon House.*

Plants and Their Culture.

Greenhouse Hardwooded Plants.—The early-flowering plants in this house, which are now starting into growth, should be encouraged; the shoots of Boronias, as the plants go out of bloom, should be shortened back to keep them a good shape, as the plants run up quickly. When the plants break, repotting should be done, and the plants kept closer for a time, watering them sparingly. Many other species of plants of a similar habit of growth should be similarly treated. All will require shade for a short time after potting, and air should in all cases be admitted with care, and no cold currents allowed.

Erica Cavendishiana and others showing bloom should be afforded abundance of water, and some amount of shading during the brighest part of the day, so as to preserve the colour of the blooms. Aphelexis, a very useful species when well grown, should by this time have been tied out, using as few sticks as possible for this purpose. Phœnocomas need somewhat similar treatment, and are splendid plants that are not often seen in good condition.

Tetrathecas, now in full beauty, will remain good for some time if shaded during bright sunshine—their beautiful purple-rose and violet flowers are very telling in this house. They need very few sticks, and are better if but few ties are used. These plants should never get placed where there are cold currents of air, or be watered excessively, or they

will soon die. When repotting them, rather small pots should be used, and good fibrous peat, coarse silver sand, and abundance of clean crocks. The treatment advised for Ericas suits Tetratheca throughout the winter months, but putting the plants at the warmest end of the house. Eutaxias are very pretty free blooming plants, which last some long time in bloom, and may be cultivated like the foregoing. The graceful growths are very effective if not tied in too much. Chorizemas will now be soon past their best, should have the decayed flowers removed, and the plants encouraged to make growth. Chorizemas are grand objects for the cool conservatory, and last in bloom for many weeks. I prefer to train them rather loosely to a few sticks, and regulate the shoots early in the year. If any require larger pots, the shifting should be done as soon as growth commences, employing a compost consisting of good peat and loam in equal proportions, with sharp silver-sand sufficient to keep the same porous, and broken charcoal, the potting being firmly done; all excess of root-space should be avoided, or the soil soon gets into a sour state; it is a good plan to top-dress the plants, should there be any doubt as to their requiring repotting. Another plant not difficult to grow, though seldom seen in gardens, is the graceful Aotus gracillimus and A. villosa, both blooming profusely in the spring months. The culture applied to Eutaxia suits them; and the plants should be staged, so as to allow their pendulous shoots to be seen to advantage. The various species of Metrosideros (Bottle-brushes) are pretty New Holland plants rarely seen, and should be grown when space can be afforded them. I do not advise their cultivation in very small houses, but for large cool conservatories they are very effective. The same kinds of soil, temperature, and general treatment as are given to other hard-wooded plants of New Holland will grow them well. Most of them grow rather spreading, therefore they should occasionally get shortened in to keep them in shape.

Correas are splendid decorative subjects, and should be more commonly grown; they are plants of compact habit. The plants require great care in the small details of potting, watering, and keeping free of insects, and they grow freely when put into Chorizema compost. They are very impatient of overwatering, and too much pot room; and enjoy syringing during bright weather at closing time.

Eriostemons flower early in the spring months, and require much the same treatment as the other New Holland plants named. When wanted for later blooming they may be retarded by placing them in a north house, or under shelter from heavy rains in the open. When they have made their growth they should get a sunny, open position, sheltered from the east, to get the new wood ripened. Epacris should be growing freely, keeping them rather close to encourage new growth, and watering them with care. *Geo. Wythes, Spon House, Brentford, W.*

THE ORCHID HOUSES.

THE COOL DIVISIONS.—Great care is needed to keep down aphis on Odontoglossums and Masdevallias, the syringe being the best implement to dislodge them, and no harm follows its use with rain-water—the position of the house being taken into consideration. If a lean-to house faces north or east, dewing the plants overhead in the morning, and well syringing all the stages, should be attended to; if it be a span-roofed house fully exposed to the sun, the plants will be the better for heavy syringings overhead night and morning, air being admitted at top and bottom by night and day. Robust plants of Odontoglossum crispum, which are sending up strong spikes, will be benefited by the application of weak liquid manure. I have a bucketful made by dissolving 1 oz. of guano in 1 gallon of water, and into this solution each plant is dipped once a week; I also use the same proportions for Disas of the grandiflora and racemosa sections. The latter, now in flower, is a pretty plant, well worth the attention of anyone with a cool Orchid-house. Epidendrum vitellinum majus is perhaps the best cool-house species; and its failure in the hands of some growers may be owing to their giving it too much warmth. Little or no fire-heat is likely to be required in this house until October, and if the temperature does not fall below 50° at night inside, none should be afforded it.

The Intermediate-House.—The prettiest plant in flower here, excepting the Vandas, is Lælia majalis. It is a plant that should be more generally grown, it being one of the easiest culture. Growers who have been unsuccessful in flowering it should encourage growth by moisture and warmth for the next two or three months, and when the growths are quite matured the plants should be taken out of the warm house and treated in every way like a Dendrobium at rest.

Sophronitis grandiflora, violacea, and others, are now pushing their growth, and plants requiring new pans or baskets should now be attended to. A compost consisting of one-half peat and one-half sphagnum moss will suit them, but they must not be over done with either, as the roots like to twine around the pan or basket. Some growers grow these plants in the cool-house, but I have never found them to do so well under cool treatment as they do in this house.

Keep a good watch for red-spider on Pleiones, and dislodge any that may be seen, by the free use of the syringe. Manure-water may be afforded Pleiones as advised previously. The two best varieties are undoubtedly P. maculata and P. lagenaria—the first is, perhaps, the best of the whole genus. The temperature of the intermediate-house may still remain as near as possible to that advised in the last Calendar. *A. G. Catt, Parkfield, Worcester.*

FRUITS UNDER GLASS.

VINERIES.—In the earliest houses, if the fruit is ripe, the air should be kept cool, otherwise black Grapes will at times change from blackness to a foxy hue. Evaporation being greater than hitherto, the borders will require larger supplies of water; and when the Grapes are gathered, liquid manure may be afforded them. If red-spider infests the foliage, and which would increase rapidly to the detriment of the Vines, the only safe method of ridding the foliage of spider at this stage is by sponging with water in which soft soap is dissolved. Treat pot-Vines intended for fruiting next season to liberal supplies of liquid-manure previous to the ripening process, and stop the canes at a height of 6 feet, and all laterals and sub-laterals at the first joint.

Succession Vineries.—Madresfield Court now stoning, and near the colouring point, must not be hurried, as time is necessary for the laying on of that perfect finish that is the delight of the Grape cultivator. This, the finest of black varieties, being fleshy, and with a thin skin, requires, as the berries change colour, exceptional treatment, that the vexatious cracking of the berries may be averted. Cracking of the skin being in this case caused by atmospheric conditions, and it is generally found that the Madresfield cracks more in midseason and later houses than in the earlier houses, which may be explained by the fact that fire-heat is seldom used in the former, the houses being shut up to keep the temperature at its desired height, and a dense humid atmosphere follows, instead of a buoyant and light one at this critical period.

The following few simple rules, adopted in time and fairly carried out, are a sure preventive of the malady, viz., just before the first berry is expected to change colour, make sure that the borders are sufficiently watered to carry the Vines over the colouring period, and see that the strongest sub-laterals are stopped, and begin gradually to reduce the atmospheric moisture of the house. Regulate carefully, but never quite close the ventilators, maintaining the necessary temperature—60° to 70° by night, 75° to 85° by day, according to the weather outside—night and day by sun-heat or the hot-water pipes, and thus secure a buoyant atmosphere, which is conducive not only to the wholeness of the berries, but to their perfect colouring. See that the bunches of this variety are neatly supported at the shoulder, when the weight of the bunches has straightened them out to their full length, and give a final thinning of all seedless or misplaced berries. Keep the temperature of houses of Muscat or Gros Colmar Vines quite 6° or 7° night and day higher than those containing Black Hamburgh, or Madresfield Court, and close them early, with abundance of heat and moisture for a few hours, and then reduce the warmth by giving a small amount of front air for the evening. Attend to the stopping, thinning, training, and watering.

May is the best month for planting Vines; and if a vinery has been forced early, and the Grapes cut in May, there will be time to establish fruitful young canes, without the loss of a season, by planting supernumerary ones for fruiting next year, alternately with the permanent ones. Borders 4 feet wide and 2 feet 6 inches deep are of ample proportions for a start. Beware of clayey loams, which turn almost to the consistency of clay when the grass roots decay; such soils require a large proportion of old mortar, broken charcoal, or charred earth, or half-inch crushed bones, and other animal substances which slowly decay. Do not add dung of any kind to the soil, but reserve this for mulching purposes. By all means secure perfect drainage, and when the soil has been trodden firmly, spread out the growing roots in shallow excavations. If a little fermentation takes place in the border, so much the better, or, failing that, a few barrow-loads of fermenting material may be built up against the turfen wall of the borders.

Strawberry-house.—Regulate the supplies according to the demand; a number of British Queen may now be introduced. The season hitherto appears to have favoured Strawberry forcing, and I have never known fruit to be finer or more abundant, or of better flavour. The varieties La Grosse Sucrée, Noble, President, and British Queen, coming into use in the order named, can be recommended. Fly the syringe vigorously daily, give the plants liquid manure, and transfer them to a dry warm shelf when near the ripening point. Plants done fruiting should be hardened off, preparatory to being partly shaken out and planted out. *W. Crowe, Mulgrave Gardens, Malvern.*

THE KITCHEN GARDEN.

TREATMENT OF CELERY.—If the ground for the early main crop of Celery is at liberty, the trenches may be thrown out and prepared for the reception of the plants when ready. For the early crop the trenches, if to be planted in single rows, should not be less than 6 feet apart; but for the main crop, if in double rows, allow more space between the trenches. A deep trench is not to be recommended on heavy soils, and if the subsoil be such and consequently retentive of water, it should be broken up and partly replaced with soil from the surface. Put a layer of thoroughly decayed manure into the trench, cover it with a few inches of soil, and before planting, tread the soil if light, to induce sturdy growth in the plants. French Beans, Spinach, Lettuce, &c., or any plants which do not grow high, and which can be cleared off before earthing-up time comes round, may be grown on the ridges.

Vegetable Marrows and ridge Cucumbers should be hardened off as the plants become large enough, and if handlights are obtainable, some of the plants may be put out; but unless there is some means of protection at hand the plants should not be put out until the end of the month. The best way to grow Marrows and Cucumbers is to dig out holes, 18 inches deep and 3 feet across at the bottom, and wheel in two barrowfuls of warm dung, treading it in, and covering it with soil, and planting on the hills so formed. Treated in this way, the plants are short jointed and more prolific than in any other.

Cauliflower plants, as they become large enough, should be put out on deeply-dug manured soil. Brussel sprouts and other vegetables sown outside in March will now require pricking out, and should be attended to before they get crowded. Give the seed beds, failing heavy rain, a soaking of water two hours before disturbing the plants. Prick them out at a few inches apart, and further apart if the permanent quarters are not likely to be cleared before the plants get crowded; see that each sort is properly labelled, and water and slightly shade for a few hours during the hottest part of the day, till the plants recover from their removal.

Turnips and other seedlings peeping through the soil should be carefully watched, and if the fly (Phyllotreta nemorum) attack them, dust them frequently when damp with soot, lime, and wood ashes.

Lettuce.—As they become fit, tie up the Cos variety when perfectly dry; plant out successions on firm rich ground in small breadths; and make frequent sowings. Turnips, Spinach, &c., will give better results on firm ground in hot dry weather, than on that that is loose; watering the drills before sowing.

Mustard and Cress, Radishes, &c., should now be sown on a partly shaded border, and moderately moist. Of the long kinds, Wood Frame is very good, *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, MAY 14 { Royal Botanic Society. Eastbourne.

MEETING.

TUESDAY, MAY 13 { Royal Horticultural Society: Floral, Fruit, and Scientific Committees, and Lecture.

SALES.

WEDNESDAY, MAY 14 { Orchids in Flower and Bud, at Stevens' Rooms. Ferns, Greenhouse Plants, Roses in Pots, and Lilies, at Protheroe & Morris' Rooms.

THURSDAY, MAY 15 { Imported and Established Orchids, from Mr. F. Sander, at Stevens' Rooms.

FRIDAY, MAY 16 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—54°.1.

Trees in their Spring Attire.

AT this season of the year we may realise more fully perhaps than at any other how deficient our ordinary text-books are in their descriptions of trees, and what feeble pictures, after all, they supply. The reason, of course, is that for the most part the botanist sees the trees in one or two stages of their growth only, or is even often compelled to confine himself to the dried specimens in the herbarium. Moreover, so rapid is the growth at this time of the year, so fugitive the appearances presented, that unless the trees can be inspected on a particular day, some characteristics are lost till the next season. The gardener or the forester who is always on the spot, and who is, or who ought to be, always on the look out, has great advantages in these respects. A few illustrations may suffice to explain our meaning.

In Richmond Park there are two Horse Chestnuts side by side, now each in the full glory of their new leafage, and each covered with flower-buds promising an early display of bloom. The two trees are at this moment, to use a colloquialism, as like as two pins. The colour and stage of growth of the foliage and flower are, in fact, alike in both. Far otherwise was it a fortnight or so ago, when the buds were beginning to expand; then, the two trees were conspicuous a long way off, the one with its ruddy-brown colour forming a contrast to the other with its clear green hue. The explanation of the difference was easily found in the circumstance, that the expanding bud-scales of the one tree were tipped with deep brown, or even flushed with pink, while those on the other tree were mostly green.

Again, the leaf-scales or stipules of some of the Beech trees are of a lovely shade of crimson, while in others they are dull brown. It is, moreover, worthy of notice, that in the extension shoots, which lengthen rapidly, and which bear leaves only, these stipules are often most brilliantly coloured; whilst on the same tree, on the short, slow-growing "spurs" bearing the flowers, and where the internodes, as a botanist would say, are in consequence contracted, the colour of the stipulary scales is dull brown. These differences make one wonder what purpose can be served by the brilliant coloration of organs whose functions would seem to be protective only, and which, once that office is fulfilled, fall off, and wither immediately. The colour in these stipules is presumably of the same nature as that which gives brilliancy to the leaves of the purple and copper Beeches. A similar colour is observable in the stipules of the Lime, but we have not yet met with any purple-leaved Lime tree.

The chemical analysis of the bud-scales, as determined by Professor CHURCH, is quite consonant with their temporary and merely protective character. They contain relatively much earthy mineral matter, but little or none of the organic compounds which are the accompaniments, and, indeed, the instruments of life and activity.

Another colour-phase is presented by the Hornbeam; when its male catkins are first produced slightly in advance of the leaves, when the whole tree is covered with a sheet of a pale olive or fawn-colour, quite unlike any other arboreal tint familiar to us, and one which rapidly changes as the leaves expand; notice also the peculiar olive tint of the Lombardy Poplar at this season.

Of the peculiarities presented by the developing buds of the Conifers we have spoken on previous occasions. It must suffice to say that they form objects of great beauty, interesting and suggestive subjects of investigation for the student, and often afford the forester means of distinguishing one species from another. Too implicit confidence, however, must not be placed on these characteristics, for, as we write, we have before us shoots of Pinus cembra taken from two plants growing side by side at Coombe Wood; in the one the bud-scales and shoots are pink, in the other green. Foresters and woodmen are familiar with many variations of this character which rarely come under the observation of the botanist, but which are often of practical importance, inasmuch as they are often associated with differences in the quality of the timber and the degree of hardihood of the tree.

The general course of leaf development varies somewhat according to season and individual peculiarity. This season, in the neighbourhood of London, the Sycamore, Horse Chestnut, Thorn, Hornbeam, Lime, and Birch have unfolded their leaves in the order named, whilst amongst the later trees may be mentioned Oak, Ash, Elm, Beech, Plane, and Sweet Chestnut.

The Microscopic Structure of Plants, and its Relation to Cultivation.

A VERY interesting discussion took place at the Paris Botanical Congress last August, and a report of which is now before us, on the employment of microscopical characters as an adjunct to classification. M. VESQUE, who introduced the subject, was, we believe, perfectly right in insisting that the comparative study of the microscopical characters presented by plants should receive a due proportion of attention as other characters do. It does not follow that they are better or worse than others. We do not know at present what their precise value may be, whether they are as subject to variation as others: but their importance cannot be denied, and to allege that they are difficult and troublesome to investigate, though it may be true, is no argument against their intrinsic value. In so far as they are hereditary, and, therefore, relatively constant, they are known already to be valuable aids in discriminating the larger groups of plants, and what M. VESQUE and some other naturalists are anxious to do, is to extend the use of these characteristics to each natural family of plants, so far as circumstances permit. Any arrangement founded on these characters alone, would, of course, be just as unsatisfactory as any other artificial or incomplete system would be. We do not suppose that M. VESQUE has any intention of founding a system entirely on these characteristics. For classificatory purposes the congenital characters, more or less fixed by long hereditary transmission, are naturally preferable to those characters which are called "adaptive," because they vary according to circumstances. These are the characteristics, the possession of which enables a plant to sustain itself under new or adverse conditions; these are the endowments in the absence of which the plant cannot survive in the battle of life. Whether then, from the point of view of classification, of relative constancy, or from that of adaptation to varying conditions, the anatomical characters appear to be of the highest importance, and this is so obvious that it seems strange that any contrary opinion can be maintained. Such an opinion can only be entertained under a misapprehension.

But in these pages we are more directly concerned in the relation these characteristics bear to the cultural art. It is certain that many structural details are directly associated with variations in the conditions of life. The structure of a plant that passes its life in water is widely different from that of its near relative that grows on dry land. So intimate is the relation between the structure of a plant and the circumstances under which a plant grows naturally, that it is very often possible to recognise in a previously unknown plant the kind of life it must have been subjected to. Of course from our ignorance and limited knowledge, there are many exceptions and much that seems anomalous. But these facts form no valid argument for not availing ourselves as far as we can of what we do know, still less does it constitute a reason for not pushing our researches further in this direction. M. MAX CORNU, in discussing M. VESQUE'S paper, seems to have objected to it as proposing a new system — a substitute for the natural system—but a perusal of M. VESQUE'S writings leads to no such conclusion. All that M. VESQUE wishes to do, so far as we can make out, is to enlist anatomy in the work of perfectionating the so-called natural system.

M. CORNU, too, also raises objections to the employment of anatomical characters as a guide to cultivators. M. VESQUE said that the anatomical structure [sometimes] clearly indicates the nature of the physical conditions to which the plant is adapted, and which must be realised as much as possible under cultivation. To this M. MAX CORNU objects, and says that we cannot in general realise what conditions would be necessary in the case of plants removed from their natural surroundings and placed under



CHRYSANTHEMUMS AT CHISWICK.

other circumstances, to which they must adapt themselves or perish. Many of them live and prosper under the new conditions—conditions which are quite different from the natural ones. What information, asks M. Cornu, could the study of structure give us, since different conditions give results superior to the normal ones? Coffee, says he, requires a rich (*forte*) soil in the tropics; it would perish here if grown in such a soil. The Nepenthes cannot, he says, be grown here except in an extremely porous substratum, while in Sumatra the soil in which the Nepenthes grows is a heavy impermeable loam.

In replying to M. Cornu's observations, M. Vesque admitted his inability to reply to the two special cases—that of the Coffee and that of the Nepenthes, but stated that he was chiefly concerned with the relations of the structure to light and moisture, and doubted whether M. Cornu would succeed in making a plant adapted to grow in the shade flourish in full sun, and *vice versâ*; nor a plant adapted to a dry climate thrive in a moist one. In support of his argument, M. Vesque called attention to the construction of plant-houses divided into separate compartments, allowing of variations of temperature and moisture. Anatomy often indicates what the treatment ought to be, or, inversely, in which compartment (*local*) we ought to place a plant.

Great difficulties stand in the way, no doubt; the application of a knowledge of anatomical structure to cultural purposes is in its merest infancy, but that it is destined in future to play an important part in practical horticulture, seems to us as absolutely certain as that a knowledge of the letters of the alphabet will, under given conditions, enable a gardener to read the *Gardeners' Chronicle!* It is not to be expected that practical gardeners can as a rule become expert microscopists, but they can profit by the skill of others, and it is the duty of those who have the power and the means at their disposal to hasten and foster the progress to the utmost of their ability.

Chrysanthemums at Chiswick. In our Supplementary Sheet illustration this week we present to our readers a view of the conservatory at Chiswick during the successful gathering which took place there last autumn. The structure is a very suitable place for such displays, and looked quite gay at the Chrysanthemum Conference. Floral photography in November is surrounded by many difficulties which have been well overcome by Mr. W. Mountain, of 211, Clapham Road, S.W., who took the view from which our supplement has been prepared.

The "Botanical Magazine."—The May number contains coloured illustrations of—

Eremurus aurantiacus, t. 7113, a tall-growing Asphodel from Afghanistan. According to Dr. Aitchison, it grows at an elevation of from 7000 to 8000 feet, and the young leaves are used as a vegetable. The linear leaves are a 1½ foot long, surrounding a flower-stalk which is twice as long, and bears at its summit a dense many-flowered spike of star-like yellow flowers.

Abies brachyphylla, t. 7114. One of the handsomest of the newly introduced Silver Firs; native of Japan, and figured in these columns, 1879.

Passiflora Miersii, t. 7115.—A very graceful Brazilian Passion-flower, figured in these columns in 1888, vol. ii., p. 352, fig. 46.

Berberis virescens, t. 7116.—A species nearly allied to B. aristata.

Primulina sinensis, t. 7117.—A curious Chinese plant, with the habit and foliage of a Primula, but the construction of whose flowers shows it to be a Gesnerad (see *Gardeners' Chronicle*, 1889, vol. ii., p. 357, fig. 52).

London Purple.—A safe and effectual remedy against the destructive ravages of insects on our fruit trees in the garden, and especially in the orchard, is of great advantage in these days of extending fruit culture. And as we have many enquiries concerning London Purple, an article hitherto found difficult to purchase, but one that is found most effectual as an insecticide in the United States of America, we publish with pleasure the following letter from Hemingway's "London Purple" Company, Limited, 60, Mark Lane, London, E.C.

"We are inundated with enquiries from all parts of England for our 'London Purple,' an insecticide for leaf-eating insects, which has during the past twelve years become of great repute in America and the colonies. This effectually dispels the doubts we have hitherto entertained as to whether insect pests in England were sufficiently numerous to render it essential that the fruit grower should combat them. We are still, however, unwilling to place our product unreservedly on the English market, because our long experience teaches us that many persons when they first use 'London Purple' look on it in the light of an insurance, expecting it to work like a charm without the expenditure of any care or labour; whereas the war against insect life demands the exercise of both of these; the attack must be commenced and repeated before any visible harm is done by the insects to the trees, with the object of killing the grub immediately it leaves the egg. Again, many think that if a little does good, much will do more good, and 'London Purple' is blamed if no benefit, or if positive harm results from not implicitly following the instructions which accompany each package or bottle.

"Bearing all this in mind, and deeming it most important that 'London Purple' should be first placed in the hands of intelligent people, before the ordinary labourer is entrusted with it, we have decided to supply a quantity of it gratuitously, during the present year, to any approved fruit grower who will apply to us for the same."

The Royal National Tulip Society.—The meeting of growers and exhibitors of the Tulip, which took place at Manchester on the 3rd inst., decided that the annual exhibition should be held at the Botanical Gardens, Old Trafford, on Wednesday, May 28, being the last day of the great Whitsun Show. So far, the general opinion points to an early bloom, but much will, of course, depend upon the weather experienced during the next fortnight. The Rev. F. D. Horner, whose bloom is generally early, though he resides so far north, and Mr. James Thurston, of Cardiff, in the distant west, both state they will be at their best by the 22nd inst., and consequently can scarcely expect to show at Manchester. Still, the prospects of a good exhibition are bright and promising.

Exhibition at Mont St. Amand.—At this exhibition, held recently, M. Aug. van Geert showed a fine collection of Palms, including Areca Baueri, the variegated form of Rhapis flabelliformis, Phœnix canariensis. M. van Inschoot showed a collection of Orchids, comprising 250 specimens, including Miltonia vexillaria, with six fine spikes of deeply coloured flowers from two pseudobulbs; M. Warscewiczii, Trichopilia crispa marginata, a fine variety of Cattleya Mendelii, with white segments and deeply coloured lip; Dendrobium Jamesianum, Oncidium phymatocheilum, with a spike bearing a hundred flowers; a superb Odontoglossum cirrosum, Brassia maculata, Phaius Wallichii, Bletia Gebina, Cœlogyne Massangeana, Lælia harpophylla. M. De Smet Duvivier showed a group of well cultivated miscellaneous plants, such as various Ericas, Posoquerias multiflora, Eriostemon neriifolium, Xanthoceras sorbifolia, and a fine plant of Boronia heterophylla. Among new plants Nidularium argenteum striatum, Epiphyllum Makoyanum, Vriesea Moensi, a plant with broad leaves of a shining green, with a central stripe of gold; Philodendron Mocini, Azalea Fr. Desbois with large double violet coloured flowers of good shape; Azalea Pearl of Ledeberg, with white flowers, striped with red. Among plants remarkable for their high cultivation were Strelitzia reginæ, Medinilla magnifica, Polygala Dalmaisiana, and a unique example of Washingtonia robusta. A Miltonia vexillaria, from M. Pauwel's, had the petals spotted with large pure white spots, which produced a singular effect. Among M. Vervaet's plants was a fine Cyathea dealbata. *Ch. D. B.*

Fruit Pests.—We are glad to see from the *Evesham Standard* that on Lord Sudeley's farm at Toddington, experiments have been made with Paris Green, London Purple, and other insecticides. It is disheartening to have to record so constantly what Americans and Frenchmen are doing, while we seem to lag behind. At Toddington, however, things are different; insecticides and spray-distributors are tried at once, and the sleepy hollow system is discountenanced. Captain Corbett reports favourably of Paris Green in the proportion of 1 oz. to 10 gallons of water, the mixture being constantly stirred. London Purple was not so satisfactory, but the experiments, as a whole, were "exceedingly satisfactory." An important question yet to be decided is as to the propriety of applying the mixture to the flowers when expanded, but the American practice, as we have pointed out, is never to do so when the trees are in flower. Moreover, where grass is grown in orchards care should be taken not to pasture the sheep in them for some time after the application. Apple foliage is more tender than that of Plums. A solution of alum in the proportion of 2 oz. to 1 gal. of water has proved destructive to the caterpillars, while the foliage was unhurt. If this be so, the use of alum would be preferable, as avoiding the risks of arsenical poisoning from Paris Green or London Purple. As a final result of the meeting at Evesham, it was decided to recommend the use of Paris Green paste in the proportion of 1 oz. to 8 or 10 gal. of water for Plums, and 1 oz. to 20 gal. of water for Apples. London fluid 1 part to 20 parts. Both these are recommended as effective in destroying the caterpillar, while they do no material damage to the foliage.

Horticultural Club.—The subject announced for discussion at the forthcoming meeting on May 13, is "Common sense and common nonsense of in the naming of plants." The discussion will be opened by Mr. Shirley Hibberd.

Hybrid between the Gooseberry and the Black Currant.—Mr. Culverwell sends us specimens of this cross, as he has done on previous occasions. The leaves are like those of the Gooseberry, while the flowers are more like those of the Currant. The ovules are well formed, but the pollen is deficient.

The Camellia at the Dell.—It appears that, contrary to what was stated in a previous issue, this fine shrub is protected by a frame of timber supporting a glass roof during the winter.

Decorative Ferns at Mr. James Naylor's.—The market growers of Ferns, limited as to varieties, have advantages over the gardener who grows a collection of many species, but even among the first-named, some are more successful in getting size and beauty of frond, in proportion to the pots used, than others. It would be difficult to find anything better in that way than may be observed in the long span-houses at St. Hilda's Nursery, Roxeth, Harrow, where the varieties principally grown are forms of Pteris serrulata, and especially that one known and certificated by the Royal Horticultural Society as Naylor's crested, a houseful of which will average 2 feet in diameter, and beautifully crested, the cresting in the progeny of the original stock increasing in amplitude with each raising. Pteris tremula foliosa is another fine introduction here, and for future novelties there are elegantly drooping and crested forms of the favourite market Fern,

Aspidium (Cyrtomium) falcatum, Todea arborea, Lastrea erythrosora, Pteris adiantoides, Lomaria discolor bipinnatifida, and other species not generally in cultivation, which are readily raised and developed in a short time.

Tunbridge Wells.—The horticultural Society of this town will hold, on July 9 next, its thirty-second yearly show; and if plenty of prize-money can induce exhibitors to come forward, it should be a success from the promoter's point of view. The sum of £180 will be awarded in prizes.

Tulip W. E. Gladstone. — A very large, bright Tulip, is sent us by Messrs. Barr & Sons, Covent Garden. The flower, which with almost erect petals, measures 4 inches in diameter, has strong resemblance to the single flower rosy-crimson flamed Tulip Proserpine, but is larger and more robust. Growing to the same height as Pottebakker, it would make a showy bed; and it forces well.

"New Model" Lawn Mower. Our attention has been called to this machine, which may be safely recommended for its lightness of draft. Amateurs will also be glad to know of a machine in which the mechanical parts are not complicated, the bearings when taken apart cannot possibly be put together wrongly, and the adjustment of the knives—an important matter—is perfectly simple. The mower is introduced by the Chadborn and Coldwell Manufacturing Co., whose Excelsior machines are already well known; indeed, the "New Model" may be described as a cheaper form of that machine.

Captain Strawberry. — This, which is a Strawberry of Mr. Laxton's raising, is highly spoken of by Mr. Blackmore. It has a vigorous constitution, is prolific, and the fruit is both large and of a good flavour, and comes into bearing a little earlier than the general outdoor crop, and has a tendency to produce a second crop of fruits in the late autumn.

The Market Gardeners' Strike.—Probably from the lack of funds and of organisation, this ill-advised proceeding shows signs of collapse. The low rate of pay (2½*d.* to 4*d.* an hour!), and the inevitable uncertainty of employment at certain seasons, render the condition of the labourers by no means enviable. The men, however, seem to have placed themselves in the wrong by the suddenness of their proceedings; but it is to be hoped that pacific counsels may prevail on both sides, and that, taught by experience, more satisfactory arrangements may in future be made. The *Thames Valley Times* contains the following account of the proceedings at the meeting of the employers held on the 6th inst.:—

"The masters in and around this neighbourhood held a meeting at Covent Garden, on Saturday, with the result announced in the communication appended below. As to the amount of loss and inconvenience inflicted upon them by the strike, this appears to vary very much with the nature of their crops, some of these requiring very little care at this season, while others, notably Asparagus, suffer much from lack of attention.

"28, Wellington Street, Strand, W.C.
"May 6th, 1890.

"Sir,—In reference to the recent strike of market garden hands, a meeting of market gardeners, representing the counties of Middlesex, Surrey, Kent, Essex and Bucks, was held in Covent Garden Market on Saturday morning last. While sympathising in a large measure with the desire of the men, the meeting was unanimous in declaring that the present circumstances of the trade would not warrant any increase upon the wages already paid. The meeting also, by resolution, protested against the manner in which the strike had been commenced, no notice having been given or any formal demand made to the masters, but suddenly, in the middle of the day, many men left their work, in response to the shouts of a mob apparently numbering only a very few market garden hands among it. Many employers reported that their men were perfectly content, and only went out because, as they said, 'they were afraid of getting their heads broke.' I am glad to say that now most of the men are reported to have returned to work.—I am, Sir, yours obediently,

"Richard J. Steel,
"Secretary, Market Gardens', Nurserymen, and Farmers' Association."

James Nasmyth.—The inventor of the steam hammer, whose death on the 7th inst., in his eighty-second year is announced, was not only a great engineer, but solaced his leisure in his later years with astronomical pursuits; while his autobiography, published in 1883, contains many references to the delight he took in his beautiful garden, Hammerfield, near Penshurst, an account of which will be found in our issue for September 1, 1883.

Rating of Orchards.—The inclusion of orchards within an exemption relative to rating is proposed in a Bill introduced by Mr. Horhouse, M.P. Under the Public Health Act, the occupier of any "land used as arable, meadow, or pasture ground only, or as woodlands, market gardens, or nursery grounds," is directed to be assessed to the general district rate in an urban district, or to a separate rate in a rural district, in the proportion of a fourth part only of the net annual value or rateable value of the land. It appears that some doubts have arisen whether orchards are included among the lands so privileged. To remove the doubt, and "to relieve orchards from all liability to be assessed for sanitary purposes at a higher rate than other cultivated lands," it is proposed to expressly insert the word "orchards" in the exempting clause.

A New Seed Drill.—We have received from Messrs. Boulton & Paul, Norwich, an implement for sowing garden seeds, which promises to be of much use in putting into the soil such seeds of vegetables as it is usual to sow in drills. As at present constructed, it is better adapted for light work, and those seeds that require to be put at depths varying from half an inch to 2 inches. For Peas and Kidney Beans, the drills the implement is capable of forming are too shallow. The arrangement for the emission of seeds can be regulated to a nicety to suit the different sizes of the same.

The Great African Forest. — The two principal topics touched upon by Mr. Stanley at the Albert Hall were the "pygmies" and the great forest. The former, though considered an aboriginal race, are, as things go, evidently considerably advanced in civilisation. As to the forest, its monotonous gloom seems to have made a greater impression than anything else, but when we remember what remarkable discoveries were made in similar regions by Welwitsch, whose name as an explorer stands not far below that of Stanley himself, it is obvious that to a naturalist these forests must be teeming with interest. Now that Stanley has shown that these forests are not impenetrable, we may soon expect our Veitches, Bulls, Sanders, and other importers to furnish us with "new plants" of unusual variety and interest. What Ferns, what Palms, what Orchids, what Aroids there must be in these truly primæval forests! Mr. Stanley's account is picturesque and graphic, but it leaves the impression that much remains to be said. Let us hope that some of the party managed to secure illustrations of the botany of the region.

Linnean Society.—At the meeting held on May 1, Mr. J. G. Baker, F.R.S., Vice-President, in the chair. The Rev. J. Tait Scott was admitted, and Messrs. J. H. Garrett and John Young were elected Fellows, Dr. E. von Regel, of St. Petersburg, and Mr. Sereno Watson, of Harvard University, Cambridge, Mass., being elected foreign members. Mr. Miller Christy exhibited, and made remarks, on specimens of the so-called Bardfield Oxlip, which he had found growing abundantly, not only in the neighbourhood of Bardfield, Essex, but over a considerable area to the north and west of it. Mr. Buffham exhibited, under the microscope, specimens of Myristrichia claviformis with plurilocular sporangia and conjugation of Rhabdomena arcticatum, found upon Zostera maritima. Mr. Sherring exhibited a series of excellent photographs which he had taken near Falmouth, and which showed the effects of climatic influence on the growth of several subtropical and rare plants cultivated in the open air. A paper was then read by Professor W. Fream, "On a Quantitative Examination of Water-meadow Herbage."

Arranging Plants for the Herbarium.—Mr. F. Bennett sends us the following account of his method of drying plants, which first appeared in the columns of the *Bazaar*:—

"An examination of a good many herbaria shows that botanists, as a rule, are somewhat careless in the laying-out of their plants as they dry. It often looks as if they had thrust them between the sheets 'anyhow,' and the result is very detrimental to the appearance and perhaps to the value of the specimens. It having been my object to obtain really good and artistic arrangements of leaves and flowers in dried plants, I have devised a plan which I venture to commend to the notice of botanists.

"Many plants, it is true, can be placed smoothly between the sheets without any such help, but there are many which are so refractory that while one is putting one leaf in position, that which was last arranged has gone astray again. In such cases, and they certainly are the majority, the simple apparatus now to be described will be found completely successful. It consists of a flat board, a few sheets of drying-paper, and a roller, round which is rolled a piece of lead-paper, or thin sheet-lead, rather longer than the board.

"To use this, place a few sheets of paper on the board, and unrolling the lead a little, bend the edge of it over the upper end of the board, so as to fix it there. Now roll up the lead till the roller is at the upper end of the drying-paper. Next place your plant between the sheets, bending the upper sheet back over the roller. You can now use all your fingers in arranging the various parts of the specimen, and by gradually lowering the roller the lead-paper will, as it unfolds, keep everything in position. The lead-paper is lastly bent over the lower end of the board, and the whole is ready to be pressed.

"The thin lead can be procured from a tea-dealer, who will probably present it gratis. It may require a little smoothing out when thus obtained, but a small amount of crinkling will be rather beneficial than the contrary. After twenty-four hours or so the plant thus arranged will retain its position, and the sheets of paper can be changed."

Foreign Correspondence.

BERLIN LETTER.

As you have already mentioned, the Berlin Horticultural Exhibition has been a great success. Although it was not intended to be an international one, exhibitors from other countries sent excellent contributions, and with much credit to themselves. Mr. Sander, of St. Albans, won the special prize offered by the Duke of Ratibor—a fine piece of gold plate—for his group of Dendrobium Brymerianum; Mr. A. Peeters, of Brussels, was awarded the £25 offered by the town of Berlin for Azalea indica; and Mr. D'Haene, of Ghent, received £50 for fine and extensive saloon decorations, &c. A ground plan of the arrangement of the exhibition was given in a former issue of the *Gardeners' Chronicle* (February 1, 1890). One hall to the left was unique, having been arranged

as a representation of the tent of King Ptolemæus Philadelphus, as prepared for the festivities of Dionysius on the Royal Castle at Alexandria about 270 B.C. The description of this tent is given by Athenæus in vol. v. of his *Deipnosophistæ*, which relates that the four corner pillars were like Palm trees. The floor was of rich carpet, and bestrewn with flowers, and the other parts of the building too, that it was like an enchanted garden. The left wall was painted to represent a view of the Bay of Alexandria. The floral decorations were entrusted to Mr. D'Haene, of Ghent, who had some finely-flowered Azalea indica (!). The background was decorated by the finest Palms, in good condition, as well as by other exotic plants. Large plants of Anthurium Veitchii, 5 feet high and more, were intermixed.

The centre portion of the Exhibition-hall was devoted to garden architecture. The first thing seen was a winter garden. A large (but curious) Flora sat in the midst; surrounding the statue is a large bed, with Selaginella Kraussiana as a ground plant, and quite hid the soil. Groups of Caladium, of Primula obconica (very fine plants), three dwarf Thuja obtusa brevifolia, of Japanese growth, and which had only grown to a height of 2 feet in 130 years, were relieved by fine-leaved Dracænas. The walls were decorated by large groups of Palms, Crotons, &c. A nice Cyanophyllum magnificum took the admiration of the public. Two walls were formed by large mirrors, which enhanced the effect.

In the large central hall on both right and left were villas with balconies and pagodas, which displayed window decorations, verandah festoons, &c. Then to the left was an entrance to a castle with a large wing, and to the left again a large court-yard all decorated with large groups of Palms and Cycads from Mr. Vincke, Du Jardin of Brussels. Then there were house-fronts with balconies, and a flight of steps leading up to a balcony, from which you had a magnificent view of this hall.

The number of Palms in this large hall were immense, and all in the best condition In the centre of the hall were three large beds, composed of groups of different plants. In the first, a large group of Cyclamen persicum from Mr. Schmerwitz, of Potsdam, of high merit for the season; then groups of the Lily of the Valley, groups of Bromeliads, of Anthurium Scherzerianum varieties in full flower, a little group of the curious Arum sanctum, the "black Calla," Araucaria excelsa varieties from Mr. Vincke, a group of Lomaria Gibba, fine Aralias, a large group of Dracænas in the best of condition as well as other collections. The next hall was entirely devoted to decorative groups of Palms, &c. Then came a hall containing forced flowering shrubs, and another decoration hall. The end formed a large winter-garden covered by a fine awning, and some interest attached to the right and left-hand corners of this hall, which were representations of the winter-garden of the late Emperor William I., and were furnished with the identical plants. The outer rows of the palace were filled with flowers, the right one with Roses of much magnificence; while the left one contained Orchids, Palms, Ferns, and Aroids, in short, the fine warm-house plants, and a large group of flowering Azalea indica from Mr. Peeters, specimens of 2 and 3 feet in diameter. The rows between the outer and middle one contained decorative groups of Palms of Mr. d'Haene, Rhododendron groups, and the arrangements of cut flowers. In the rows and halls which connected the middle row with the outer ones, were dried Orchids, &c., for the decoration of the mansions.

But large as the Exhibition Palace is, it did not suffice for all the plants, and many were placed in the different houses. One was filled by the Orchids of Mr. Vincke; another contained Cacti and Bromeliads; third Cinerarias; a fourth Begonias; a fifth Cacti.

Vegetables, fruits, and fruit wines, were placed in the large "Machine Hall." Here Gooseberries, Currants, Strawberries, Grapes, Beans, Cucumbers, &c., attracted admiration. The Italian vegetables, from Messrs. Dammann & Co., were wonderful. In the park were coniferous plants—indeed, the finest and largest collection ever seen in Berlin.

Over 117,000 persons paid for admission during the first week of the show, which has evidently pleased the public. In my next letter I shall give more details of certain prominent plants and groups. *Our Berlin Correspondent.*

STRIKE OF THE MARKET GARDENERS.

Almost all of the men usually employed in the market gardens of Chiswick, Kew, Richmond, and neighbouring districts have gone out on strike during the past week for better pay and shorter hours. The remarks which follow are condensed from the *Richmond and Twickenham Times*. What the labourers ask is an increase of wage of from 3*d.* or 4*d.*, as the case may be, to 4½*d.* an hour all round; 6*d.* an hour overtime, after ten hours' work; and a cessation of work at four o'clock on Saturday afternoon. Some attempts were made by the Surrey strikers on Monday and Tuesday to induce Middlesex men to join them, but without much effect. On Wednesday, however, an organised campaign was made into the county by the mass of those who had come out in Surrey, and lasted all day. A Mr. Tocatti, of Hammersmith, a prominent social democrat, came down to take charge of, and give some sort of rough organisation to, the movement, the market garden labourers having as yet no sort of union of their own. Business commenced at 10 o'clock with a meeting by the drinking fountain at the end of Kew Bridge, where Mr. Tocatti expounded their demands, and preached unity, firmness, and order. This gentleman is not a polished speaker, but, on the whole, he put the case for and to the strikers with a fair display of moderation and good sense. He then led them along the High road to the gardens and orchards of Mr. Tayler and Mr. Jefferys. Here a very lively scene took place. A force of police, consisting of two mounted constables, and more than a score on foot, composed of drafts from the Richmond, Brentford, and Chiswick districts, was following and mixing closely with the crowd. When the latter surged up to the hedges, and shouted long and vigorously to the few men who could be seen working inside to "come out," the police took measures to drive them back into the roadway. These, however, were only partially successful; and in response to the calls of the strikers, several hands inside did come out, whereat the crowd was much elated. Turning down to Mr. Jefferys' farm buildings, several of those in the crowd endeavoured to go inside, on the plea that they had money to draw for work done previous to leaving. The police would not allow them inside, but Mr. Tocatti was passed through their lines, and conversed with Mr. Jefferys, who was watching the crowd from the yard. Very curious it was to notice the irresolution of a big, white-jacketed labourer, who had been working, and who was earnestly besought by the crowd to "come out." He came to the gate, went back and talked with Mr. Jefferys, came forward again, and again went back to his employer. Then he came out, and said that he had personally been offered all he wanted in the way of wages if he would remain; why should he come out? Several strikers thereupon declared that they also had been getting good wages, and had only come out to help their brothers who were not. White jacket went inside again. "Shame on you." "Are you going to be a blackleg?" and other expressive remarks were shouted after him. But the tone of these quickly changed when it was seen that he had only returned to fetch his can and other traps, and as he came out, with another worker, he received quite an ovation. Some more men who had been working subsequently came over the railway bridge, and joined the ranks of the discontented. The crowd partially scattered shortly after noon, no doubt in search of refreshments, but re-assembled in force in an hour or two opposite Mr. Steele's gardens. Meanwhile the Richmond police had been sent away, and their places filled by more blue-coats, including three mounted men, from Acton and Ealing. The demonstration up and down the roads opposite Mr. Steele's grounds was a prolonged one. Mr. Tocatti again addressed the men here. They had won, he said, all along the line, and they were determined not to rest until they had got out all the market garden *employés* in the district. In a day or two they would have them all out. It was not true that they were half-drunk that day. From Mr. Steele's the greater part of the crowd marched down to South Acton, and along the footpaths below the station. Here the cavalry detachment of the police had to leave them for a while, taking their chance of picking them up again wherever they might come out. In a field of Mr. Jefferys', close to the station, four men were at work spreading lime. The strikers swarmed up the high fence, others taking up effective coigns of vantage on the station steps, and again the hoarse and almost fierce cry of "Come out!" ran from a hundred throats with varying additions of appeal dictated by individual taste and fancy. The four inside straightened their backs, and for two minutes stood motionless almost as statues, looking at the shouting crowd and taking council of one another. Then in slow bucolic fashion they shouldered their forks and marched in a slow moving line of white jackets from the field. The men outside cheered wildly, and hurried round to the gates, half a mile away, to meet them. After this they went down by the Back Common to Turnham Green, picking up the mounted men again *en route*, and so on to Gunnersbury Station. Here one or two men working in Mr. Day's fields by the line were more obstinate, and a vigorous wordy warfare ensued without much avail. It was now nearly six o'clock, and the crowd, marching back to the bridge, dispersed.

Throughout the day the police force, which was under the command of Inspector Rawlings, of Chiswick, operated with much tact and without any display of animosity. The behaviour of the strikers themselves was also, considering the class to which they belong, and the excitement under which they were labouring, conspicuously moderate. No threats were heard to be used at any time to non-striking workers, beyond such vague expressions as "If you don't come out to-day you'll have to to-morrow," and "We'll make it warm for you if you don't."

On Thursday morning the strikers were early afoot in various directions. A large party of them went down to Isleworth, and succeeded in inducing some of the men at gardens owned by Mr. Norris, and other gardeners in that direction to join them. At 10 o'clock they met in force at Ravenscourt Park, and were there joined by the men who had been working at Lovejoy's. An attempt to bring out a large gang of men who were working in Robbins' grounds was not successful. Then the strikers straggled—for they were not allowed to "proceish" through Barnes, Putney, and Fulham, and and a number of them finally found their way in small groups to Hyde Park, there to take part in the international demonstration.

What the Employers Say.

Mr. W. Barker, market gardener, of Sheen, writes, through Mr. Aldridge:—

"Mr. Barker has not risen his workwomen from 12*s.* to 15*s.* a week, but is paying them exactly the same as he has done for some years, viz., 2½*d.* an hour, or 12*s.* 6*d.* a week of ten hours a day; and then it must not be overlooked that these women do not get any piece work, whilst those working in other market gardens in the district sometimes earn from 15*s.* to 20*s.* a week during the Radish and Gooseberry seasons. . . . Mr. Barker denies that he informed the strikers that the other master gardeners in the district could well afford to pay the same rate of wages as himself if they chose. In a great measure his business is very different to others in this district, seeing that he only employs men in his gardens in the few summer months, and not in the winter, when work is scarce, because he does not grow winter produce, such as Celery, Seakale, Mushrooms, &c., and

for this reason he considers he ought to pay more wages than those who do employ their men all the year round. The masters will be quite willing to pay fair wages for a fair day's work, but in these days of keen competition—with the foreigner as well as in our own land—it is scarcely likely that all the demands of the men can be agreed to, unless they are able to remain out for a considerable time, for in some cases the men not only demand 2*s.* 6*d.* a week rise, but 6*d.* an hour overtime, and to leave work at 4 o'clock on Saturday and be paid for a full day. If they will modify some of these demands and bring them within reason, I will give them all the support I can."

In an interview with our representative yesterday morning, Mr. J. Poupart said that none of his men had come back, and that if they did he would not allow them to go to work again. The women had not gone out, and with their aid he could get along for the present very well. He did not believe that employers could possibly afford to pay a general wage of 4½*d.* an hour. Even if they formed a union themselves, and raised wages all round, London would not pay a better price for their produce.

The Strikers at Isleworth.

On Friday afternoon a body of strikers visited Isleworth, and a short address was delivered by Mr. James Tocatti, of Hammersmith, who headed the men. Afterwards the men proceeded to various market gardeners in the district, choosing a route up the Worton Road on to Whitton, and returning through Twickenham to Isleworth. The men at work in the fields were summoned by the strikers to cease work, and at several places many of the men complied. Two mounted policemen and two or three on foot went with the men, to see that no trespass was made and no violence attempted. The men, however, numbering some 200, were perfectly orderly, and gave no occasion for police interference. It is stated that some 600 men have come out as the result of the efforts of the leaders of the movement. The men claim to have persuaded their fellows employed at the following places to come out:—Mr. Besant, Barnes; Mr. G. Pink, Mortlake; Miss Besant, Mortlake; Mr. J. Pocock, jun., Mortlake; Mr. J. Pocock, sen., Mortlake; Mr. E. Pocock, East Sheen; Mr. J. T. Taylor, Kew; Mr. G. Jeffreys, Gunnersbury; Mr. T. Day, Gunnersbury; Mr. C. Steele, Gunnersbury; Mr. C. Steele, Ealing; Mr. C. Lee, Ealing; Mr. J. T. Taylor, Brentford Bridge; Mr. Daws, Gunnersbury; Mr. Robbins, Chiswick; Mr. Moore, Sion Hill; Mr. Poupart, Twickenham; and Mr. Warren, Isleworth. *Richmond and Twickenham Times, May 3.*

The Apiary.

PREPARATIONS FOR THE SEASON.

If not done before, preparations must at once be made for the coming season. The best plan is to think beforehand what you will do, and then do it. Brood rearing is now going on quickly, and strong hives are getting very full of bees. To get the best results, if you have good frames of comb, make use of them as you require them; but if not, the next best thing is undoubtedly full sheets of foundation. There are many good ones in the market, and it seems difficult to choose. We here represent an excellent one.

Lee's Patent Frame (fig. 95, for the use of which we are indebted to Messrs. Neighbor) is an excellent frame, with a full sheet of foundation hanging in it. The top bar is split all the way along, and so is the bottom bar, and the metal frame ends hold the foundation in its place. To realise the full benefit of this system, you ought to possess a frame-block.

The frame-block (fig. 96) is laid in the recess prepared to receive the four separate parts; then a sheet of brood foundation has to be carefully laid flat on the block, after which follows the other half top rail, which is driven home with a light hammer. The bottom rails are not quite closed, to allow the foundation to hang loosely for expansion. The bees fasten the foundation very firmly into these frames, and the combs will not break if the extractor is used with care. When filled with honey they are heavy, sometimes weighing 7 or even 8 lb. each, though 6 lb. might be called a very good average. If the bees are brought up to a good strength by the time Apple blossoms are out, some of these frames could be placed in a box on top of the hive, and if suitable weather followed, would be filled with amazing rapidity. Section boxes and sections must also be got ready at once. Some people get sections from one hive and extracted honey from another, but if the season is carefully studied and the bees are strong in numbers, it is quite possible, by judicious supering, to obtain both extracted honey and sections from one and the same hive. Motto, 'Be up and doing." *Bee.*

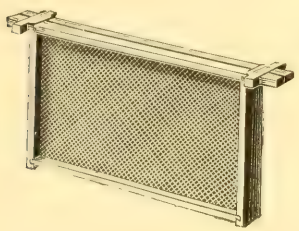


Fig. 95.—Lee's patent frame.

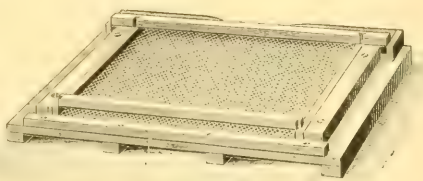


Fig. 96.—The frame block.

THE FIXING OF FREE NITROGEN BY PLANTS.

The fundamental importance of the question, that although the higher green-leaved or chlorophyllous plants may not directly utilise the nitrogen of the air, some of them, at any rate, may acquire nitrogen brought into combination under the influence of lower organisms, and the development of which is, apparently, in some cases, a coincident of the growth of the higher plant whose nutrition they are to serve, decided Sir J. B. Lawes, Bart., and Professor J. H. Gilbert, LL.D., to institute a series of experiments at Rothamsted on similar lines to those of Hellriegel and Wilgarth in Germany.

A preliminary notice of these interesting and important investigations has lately been published in the *Proceedings of the Royal Society*, vol. xlvii., of which the following is a summary:—

In a paper presented to the Royal Society in 1887-8, and printed in vol. clxxx. of the *Philosophical Transactions*, the authors discussed the history and the present position of the question of the sources of the nitrogen of vegetation. Reference was made to the conclusions arrived at about thirty years ago from the results of Boussingault, and from those obtained at Rothamsted, up to that time. Results were also given of some experiments recently made at Rothamsted in connection with the subject, and the evidence and conclusions of others published within the last few years were reviewed.

It was considered that the earlier results obtained by Boussingault and at Rothamsted under conditions in which the action both of electricity and of microbes was excluded, were conclusive against the supposition that the higher chlorophyllous plants can directly fix the free nitrogen of the atmosphere, either by their leaves or otherwise.

It was pointed out how large was the store of already existing combined nitrogen in many soils and subsoils, and evidence was adduced to show that even Leguminosæ derive a considerable amount of nitrogen from nitric acid within the soil; and, further, that it was, as a rule, those having the most powerful root-development that took up the most nitrogen from somewhere, which was considered to be of a subsoil source; and it was concluded that, at any rate, in the case of our gramineous, cruciferous, chenopodiaceous, and our solanaceous crops, atmospheric nitrogen was not the source. It was admitted, however, that existing evidence was insufficient to explain the source of the whole of the nitrogen of the Leguminosæ.

According to some of the more recent experimenters, the fixation of free nitrogen is not limited to our Leguminous crops; and the modes of explanation of the gains of nitrogen observed are extremely various.

Thus, it is assumed, that combined nitrogen has been absorbed from the air, either by the soil or by the plant, that there is fixation of free nitrogen within the soil by the agency of porous and alkaline bodies, as also by the plant itself, and within the soil by the agency of electricity; and, finally, that there is fixation under the influence of micro-organisms within the soil, with, or even without, its accompanying growth of higher plants. The balance of evidence seemed undoubtedly in favour of the latter supposition, and of all the various results discussed, those of Hellriegel and Wilgarth were considered to be by far the most definite and significant.

The experiments at Rothamsted were started in August, 1888, with Peas, blue Lupins, and yellow Lupins, and notwithstanding the lateness of the season, the results obtained in this initiative series were not only of value as affording experience on various points, of which advantage was taken in the conduct of the more extended series made in 1889 with Peas, Vetches, Lucerne, red Clover, blue Lupins, and yellow Lupins; but they afforded important evidence on the main point of inquiry itself. In 1889 there were four pots of each description of plant. Of the Peas, Clover, Vetches, and Lucerne, No. 1 was prepared with quartz-sand, without combined nitrogen beyond that in the seed sown; No. 2 with quartz-sand, and "seeded" with a small quantity of turbid watery extract from a rich garden soil; No. 3 was duplicate of No. 2; and No. 4 was with the garden soil itself. Of the blue and yellow Lupins No. 1 was with the prepared quartz-sand; No. 2, same with Lupin soil-extract added; No. 3 was duplicate of No. 2; and No. 4 was with the Lupin soil itself, to which 0.01 per cent. of the plant-ash was added.

The Peas were taken up on October 23 and 24,

Before the end of July, the plants in both pots, 2 and 3, with soil-extract, began to show enhanced growth compared with that in pot 1, without the soil-extract seeding; and eventually, whilst the plants in pot 1 were only 8½ and 8½ inches in height; those in pot 2 with soil extract were 14 and 50½ inches; and those in pot 3, also with soil-extract, were 52½ and 50½ inches high. In pot 4, with the garden soil, the plants showed even somewhat less extended growth than those in pots 2 and 3 with the soil-extract only. But the plants in pot 4 were more vigorous, and whilst they flowered and seeded, neither of those in either pot 2 and 3 did so. In pot 1, without soil-extract, the root development was found to be altogether much less than in either of the other pots, and coincident with this limited growth in pot 1 was the entire absence of nodule formation, and the increased growth in pots 2 and 3 with soil extract, is coincident with a very great development of nodules on the roots. In pot 4, with garden soil, itself supplying abundance of nitrogen, there was also a considerable development of nodules, but distinctly less than in pots 2 and 3, with soil-extract only.

The Vetches were taken up on October 26. The height of the plants were—in pot 1, without soil-extract, 11½ and 10½ inches; in pot 2, with soil extract, 52½ and 67 inches: in pot 3, also with soil-extract, 61½ and 51 inches, and in pot 4, with garden soil only, 53 and 36 inches.

But, as in the case of Peas, whilst the plants in pot 4, with the garden soil flowered and seeded, those in pots 2 and 3, with the soil extract only, did not, but continued to extend upwards at the expense of the lower parts of the plant.

Here again, as with the Peas, the very restricted growth in pot 1 without soil-extract seeding, was associated with very limited root development, and with the entire absence of nodule formation. On the other hand, the very greatly extended vegetative growth in pots 2 and 3, with soil-extract, was associated with an immense development of root and root-fibre, extending throughout the pots, and with the formation of numerous nodules; which, however, were generally smaller, more distributed over the whole root area, and less accumulated near the surface, than in the case of the Peas. Lastly, in the garden soil, with its liberal supply of combined nitrogen, there was much less development of roots, and less also of nodules, than in the pots with soil-extract only. *J. J. Willis, Harpenden.*

(To be continued.)

TRUFFLES—TRUE AND FALSE.

(Continued from p. 553.)

The naked-spored Truffles belonging to the Gasteromycetes are fewer in number than those belonging to the Ascomycetes. The order containing the naked-spored Truffles is named Hypogæi or "underground" fungi. The Tuberacei are usually more immersed in the soil than the Hypogæi. The best known member of the Hypogæi is the "Red Truffle of Bath," Melanogaster variegatus (fig. 97, B). The exterior, A, is yellowish or ferruginous in colour, and finely granular; the interior B is soft, intense blue-black marbled with yellow. The naked spores supported in groups of four, on small transparent clubs or basidia, are shown enlarged 200 diameters at C, so that they may be compared with the *asci* containing spores enlarged to the same scale in the illustrated species of Tuber. The spores and their supporting basidia are further enlarged to 500 diameters at D, whilst at E a single basidium with its four spore supporters and spores is enlarged to 1000 diameters. A spore is supposed to have fallen from its support at F, and this fallen spore, with its basal hilum, is shown at G. The purple-black spores are very minute, as a comparison with the spores of Tuber illustrated to the same scale will show.

This fungus usually grows gregariously some 2 or 3 inches below the surface, at other times partly exposed, only covered by leaves and twigs, under Beeches, Poplars, &c. The odour of this fungus is strong, aromatic, agreeable, and not unlike bitter almonds; when cooked the taste is sweet, and approved by many. In past times this fungus was commonly sold in the markets of Bath under the name of the "red Truffle," but of late years nothing has been seen of it in the shops or on the stalls.

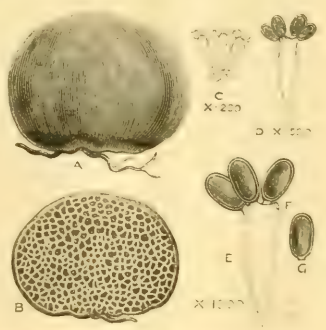


Fig. 97. RED TRUFFLE OF BATH (MELANOGASTER VARIEGATUS).

This species is eaten on the continent, and is quite harmless. It has been recorded from California.

A close ally of this plant, viz., M. ambiguus, has frequently been sent to the *Gardeners' Chronicle* office for a name. It is very similar in external appearance with the last, and has precisely the same habit of growth. It always attracts attention by its

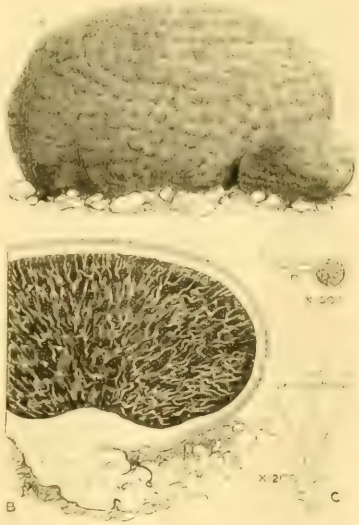


Fig. 98. HYPOTHEMA VULGARE.

potent and truly horrible odour, which has been compared with assafœtida. The odour, or stench, is so strong, that it is almost impossible to remain in the room where the fungi are present. Curiously enough, there is a variety of this species (or the last) which is intermediate in character.

The following notes on the habits of other of the Hypogæi, as observed in this country, have not hitherto been printed:—

Octaviania asterosperma.—Generally near the surface, often partially exposed.

O. Stephensii.—Near the surface, often wholly superficial, often covered with dead leaves, &c.

Hydnangium carotæcolor.—Generally superficial.

H. carneum.—Same as last.

Hysterangium nephriticum.—Commonly 8 or 9 inches deep in the ground, with copious mycelium.

H. Thwaitesii.—Same as last.

Rhizopogon rubescens.—Rather superficial, but often some inches deep in very light peaty or fibrous soil.

Hymenogaster.—There are about a dozen British species, and all are nearly superficial.

H. citrinus is an edible species, and largely consumed by some country folks in the Truffle districts of England. Like some of the species of Tuber, it smells strongly of cheese.

Correspondents are constantly sending a common fungus, named Scleroderma vulgare, to the office of the *Gardeners' Chronicle*, asking if it is a Truffle (fig. 98). This fungus belongs to the same family as the last, but to a different order, viz., the Trichogastres. Scleroderma vulgare is really a kind of Puff-ball, with a very thick and hard or corky rind or bark.

The external appearance of Scleroderma vulgare is shown at fig. 98, A. It is brown, and clothed with small squarrose scales. The interior, B, is deep purple-black in colour, slightly mottled with whitish lines or spots. The spores are borne on fours on club-shaped supports, as shown at C, enlarged 200 diameters. One spore on the right hand sporophore has been removed to show its minute support. A single spore in the act of germination is shown at D, enlarged 500 diameters. The odour is strong and offensive, the habit of growth superficial.

Scleroderma can scarcely be termed an edible fungus, yet it has been often eaten, sometimes for its own sake, and sometimes with the mistaken idea that it is a Truffle. It is frequently used for the adulteration of *poudre de fine gras* by non-conscientious makers, as well as by sellers of cooked turkeys and fowls supposed to be "Truffled." It is very common in all woods and woody places, from summer till late in the autumn, where it is gathered largely as a substitute for Truffles by persons belonging to the second and third class French and Italian *cafés* of London. When quite young, the Scleroderma is perhaps harmless, in this state it has been named "Vegetable Tripe," but when fully developed, unpleasant consequences may be expected if it is consumed in anything but extreme moderation. There are three other British species of Scleroderma, viz., S. bovista, S. verrucosum, and S. Geaster.

The true Puff-balls, close allies of the last, are seldom mistaken for Truffles. Of these the best known and safest for the table is the giant Puff-ball Lycoperdon giganteum, of large size and snowy colour inside and out.

Mr. C. E. Broome's herbarium containing all the British Truffles, and most of the continental species, is now in the Department of Botany, British Museum, South Kensington, and my microscopic preparations on glass of the fruit of the fungi, mentioned by me in this brief account of true and false Truffles, is in the same department. The illustrations, published herewith, have all been made from living specimens. *Worthington G. Smith, Dunstable.*

PLANT PORTRAITS.

Cassinia fulvida, *Gartenflora*, May 1.

Chiantbus Dampieri var. marginatus, *Garden*, March 29.

Cyrtanthus sanguineus. *Garden*, April 12.

Encephalartus Hildebrandi, *Gartenflora*, May 1.

Hypericum Moserianum ×, *Revue de l'Horticulture Belge*, May.—This is alleged to be a hybrid between H. calycinum and H. patulum. The flowers are large, clear yellow, with the tuft of anthers in the centre of a bright red colour.

Lilium nepalense var. ochroleucum, *Garden*, April 19.

Ursinia pulchra var. aurea, *Garden*, April 26.

HOME CORRESPONDENCE.

THE DAHLIA SEASON.—This week the leading dealers in Dahlias will be busily engaged in sending their young green Dahlia plants to all parts of the country. The traditional time for sending out is May 1, and during the month the number of plants sent out is something astonishing. It is true that new varieties do not now command the prices they once did, but there is no decrease in their production, and the leading Dahlia growers say the demand for plants is as great as ever. Young plants hardened off for travel, laid down on their sides, and packed in soft moss, will travel for a week without taking harm. When unpacked, the plants should be stood in a cold frame, be lightly sprinkled overhead with water, and kept close for two or three days; then they should be repotted and grown on ready for planting out in the open during the first or second week in June. Those who may require show Dahlias of any section can readily make their selection from the lists of nurserymen and dealers in florists' flowers. *R. D.*

THE PROPOSED SHOW IN THE TEMPLE GARDENS.—It is now the 5th of May. In just three weeks the announced Temple Gardens Show of the Royal Horticultural Society is due, but nothing has yet been heard of the schedule of the show. Only last week I inquired of one of the members of the Council, and, strange to say, he could give me no information. Can it be possible that a show is contemplated without a schedule? That is too wild a suggestion. On the other hand, with no schedule of the classes or exhibits yet issued, how is anyone to know what to prepare—or is the show abandoned? If so, that should be made public as early as possible. That may be a wise course, as, so far, the shows have resulted in losses rather than in gains to the Society, except that they may have led to the accession of new Fellows. If that be so, then it is all the more incumbent upon the Council that, having published their intention to hold a grand show in the Temple Gardens at the end of the month, they should keep faith with the Fellows. Whatever course it is proposed to take should be made known at once, as it does seem incredible that, with only three weeks interval of the holding of a great show, that no schedule should have been issued. The loss last year, when the weather was not too propitious, seems to have been about £23. Should the present year's weather be favourable, the result may be a good balance on the right side, whilst possible loss can hardly be considerable. *X.*

STRAWBERRY NOBLE, AND OTHERS.—I was interested in the notes in last week's *Gardeners' Chronicle* about Strawberry Noble. Those who have failed to grow it satisfactorily are advised by Mr. Barham to try again; I am sorry I cannot take his advice, having this season given it a fair trial, and my experience is very different from his. In the first place, I would state that it was employed for very early forcing, and, considering its value as a first early in the open, no doubt others would do as I did. For later fruiting, say the third week in April, it would do better, and force easier than at a much earlier date, but in that case the question arises whether at that date we have not got better-flavoured Strawberries equally fine as Noble, and we have much better-flavoured Strawberries that will come in at the same time. My experience of Noble for early forcing—I mean for fruiting at the end of February and early in March—is, that it was very poor, and a long way behind Vicomtesse Héricart de Thury; the fruit sets badly, and is ill-shaped, more than half of them being deformed, and they do not finish well at that time. Perhaps some of your readers will say it was owing to bad culture, but such was not the case. La Grosse Sucrée and Vicomtesse Héricart de Thury were good, and these received the same kind of treatment; moreover, Noble should have been best, it having potted up a week earlier than the others, the plants, single crowns, well matured, and gave every promise of a fine crop of berries. For outdoor culture, I do not say one word against it, but for early forcing I am not inclined to try it again. Flavour, if not good, is often overlooked in a large showy early forced Strawberry; still, flavour and earliness to fruit always count for a great deal. Marguerite is excellent for early work, and will not disappoint those who want an early forcer. La Grosse Sucrée can also be depended upon. We find this a useful variety, and of good flavour; but should be removed to a cooler house to finish, the flavour being then much improved. King of the Earlies does not come large enough, so we do not grow it. Our best early or second early Strawberry for fruiting in March and early in April is Auguste Nicaise; this is a good variety to succeed those I have named, and it is much liked in Covent Garden, always commanding good prices. If Noble had been a good forcer, we should have seen a greater quantity of it for sale from those who make a specialty of forcing these fruits, and there are a great number in this district. Auguste Nicaise, if well done, comes of a large size, is wedge-shaped, of a fine colour and flavour. This was shown by Mr. Smith, of Mentmore, on April 8 last, at the Royal Horticultural Society's meeting in fine condition, and was awarded a Certificate of Merit. Mr. Smith speaks highly of it as an early forcer. I have grown it at Syon for this purpose for two seasons in quantity, and consider it to be one of the best. It is not grown much out-of-doors, the older varieties of proved flavour which do better in our locality being mostly grown. Auguste Nicaise loses nearly all its foliage here when planted out, owing probably to fog; and the useful Sir J. Paxton does the same, and this winter it has done badly with us. Auguste Nicaise does well when once started, and throws up its flower-spikes well above the leaves, and sets well. The plants are plunged then in a bed of fresh tree leaves close to the glass, covering the frame at night, and removing them to shelves in forcing-houses when the fruits are set. When this variety becomes better known it will be appreciated, as it really is one of the best forcing Strawberries I have met with so far. *G. Wythes, Syon House.*

—— As Mr. Sheppard remarks, this Strawberry cannot be praised for its flavour. Now, although this defect may not be considered of great moment by the market gardener, it will certainly not be so in the home gardens, where flavour in a fruit is looked upon as of the most importance. That this want of flavour should exist in a variety which otherwise has every other good quality is unfortunate, and I have no doubt it has caused disappointment to many besides myself, who are looking out for large and faultless early forcing Strawberries. Perhaps everything taken into consideration, we have not a better early variety than Vicomtesse Héricart de Thury. If it did but grow to the size of Noble, or did Noble possess its flavour, there would be little to complain of. La Grosse Sucrée is large enough, but it also fails in point of flavour, and with us it has sometimes a deficiency of pollen when very early forced, setting imperfectly in consequence. Moreover, when ripened perfectly, it, like Keen's Seedling, is too soft to travel well. For successional crops no variety surpasses President; here it is all that can be wished for, our heavy soil suiting its robust constitution. It is, however, liable to be affected by mildew, but that is a malady which need not reach serious consequences if ordinary care be taken in its cultivation. *Thos. Coomber.*

SUCCESSFUL MUSHROOM GROWING. — The appearance of the beds in the Mushroom-house at The Cedars, Harrow Weald, go far to demonstrate that the illustrations of large clumps of Mushrooms with which dealers are wont to decorate their circulars are not unattainable. For a considerable time the beds cropped by Mr. J. Dinsmore, the gardener here, have been covered with such tufts, which were of the best quality. "New Milltrack" is the spawn used, and the beds have never been known to fail to produce excellent crops, commencing to do so in a month to five weeks after spawning. Such uniformly good results afford much satisfaction to employer and gardener alike. *J. O'B.*

THE DYKE BEAUTIFUL. — The flat, fenlike country between Louth and Grimsby is known as The Marsh, locally. First impressions of the country, owing in great measure to dykes taking the place of hedges by the sides of the roads and between the fields, are unfavourable, and everything seems monotonous. But when one has taken a walk across the dyke-divided fields, and been invigorated by the wild free air from the German ocean, all such impressions give way to keen pleasure. The charm is chiefly due to the wonderful vegetation in the dykes, the sides of which are covered with the flowers of Marsh Marigolds, which gleam like beaten gold in the sunlight. Looking down the dyke, the eye beholds a long vista of gold. Variation in tint is given by the bright lush foliage, and by the pretty white flowers of the Water Crowfoot, with its graceful laciniated leaves swimming on the surface. A soberer tint is also given by the brown flowering shoots of the Equisetums, the peltate, fertile leaves of which well repay curious examination. Furthermore, the upspringing Yellow Flags and Meadow Sweets promise a like beauty of vegetation in the summer. This is not a feebly attempted description of one dyke, everyone that is crossed or followed lavishes white and gold. Why cannot the dykes be made like unto these throughout the country? I used to know the Isle of Ely well, where the same sort of dykes are frequent, but never a Marigold by their sides. It is not a difficult matter to naturalise these flowers in suitable places, and their beauty and brightness would give ample returns for the trouble taken. I do not feel conscious of any exaggeration in saying that few things in Nature, in its quiet moods, have appeared to me more beautiful than these flower-girt dykes in the Lincolnshire marsh. *C. A. M. Carmichael.*

NARCISSUS "PRODIGY."—Allow me to protest against the figuring and naming of a flower suffering from a common malformation as a new variety. It is well known to growers and observers of Narcissi that this contraction at the mouth is as much a separable accident as the loss of the trumpet by snails and slugs would be. I have at present a whole bed of N. bicolor of which almost every flower has precisely this same contraction at the mouth, and I find that N. bicolor is especially subject to it in my garden. Surely we have Daffodils enough and to spare without deformed flowers being added to the lists. I send specimen flowers herewith of (1) N. bicolor, (2) N. grandis, (3) N. Horsfieldi, (4) N. Emperor, all of which have not only the contracted mouth of Prodigy, but also the peculiar backward curve of the segments, which is also incident to this malformation. Secondary flowers, *i.e.*, those which are thrown up by vigorous bulbs after the first flowering, commonly take this form. It is extremely unlikely that this character will prove really fixed in any Narcissus. *G. H. Engelheart, Appleshaw, Andover.*

[The flower is no more deformed than a double variety. Ed.]

A GOOD COVERING FOR A WALL.—In the span-roofed Rose-house at Gunnersbury is to be seen a capital plan of covering the wall, which retains the soil in the Rose bed. Small plants of Trachelospermum jasminoides were put out in the bed in which the Roses are growing, and these have grown freely over the top and down the front of the wall alongside the path in the house. This plant is well adapted for the purpose, being an evergreen; and when covered with blossom, as it always is early in the year, the house being forced early, the perfume must be delightful. As the plant is not injured by hard pruning, it can be kept within bounds for a great number of years; and the roots not being numerous or strong, as those of many other climbing plants, the border is not robbed to the detriment of the Roses. *E. M.*

SCARLET RUNNER BEANS.—As frequent sowings of this variety of Legume will be made during the next two months, it may be opportune to remark that very pleasant arbours may be made by sowing seeds of the strong growing Champion Runner, 12 inches apart, and a few of Painted Lady at intervals in the row. When the plants are 3 inches high, a little of the soil should be drawn up to them on either side. The sticks may then be put firmly into the ground in front of each plant, bringing them together overhead and tying them in that position with fine tar-string. This done, lay on a mulching of short dung, and water the plants copiously in dry weather. The junction of walks in the kitchen garden is an eligible place for such a retreat. *H. W. W.*

WINTERING LETTUCE.—In some places this is a matter of some importance, especially when Lettuce is wanted and must be had during March, which month I consider is about the worst in which to secure good Lettuces, as the winter stock in frames is then well-nigh exhausted, and during February and March the plants are apt to damp-off very much. I have found the best way is to sow seeds at different periods during August and September, and plant them as soon as fit into frames, keeping the lights off at all times when the weather admits of it being done safely. Soon after the New Year, when those Lettuces that were taken up and housed are getting

scarce, some manure and leaves are mixed thoroughly together and put round the frames, so as to afford them a gentle heat, which will bring the Lettuces along at a steady rate. As to varieties, All the Year Round and Neapolitan stand this kind of treatment better than any other. Another method I have adopted is to prick out a large bed of Lettuces on a south border, and place three light boxes over them when the weather gets cold enough to make such protection desirable. I have also taken up and tried to force such hardy varieties as Hicks' Cos and Bath Cos, but with no good results. The best way is to get an early supply of these Lettuces, and put a lot of them out in the autumn at the foot of a south wall. They do not interfere with the wall trees, and one can keep aphides in check by a little watching, and the plants will take care of themselves till the time for tying them up arrives. We are now cutting nice Lettuces from the south wall treated in the above manner. *W. A. Cook, Compton Bassett.*

EPACRIS.—The present is a good time to prune the late-flowered plants of Epacris, the earlier having been done some weeks since. Growth usually begins at this late period before the bloom is quite over, and it is therefore best not to wait, but shorten back each shoot individually, leaving the spurs about an inch in length; and in some cases, where the heads of the plants are thick, it may be necessary or advisable to thin out some of them, especially those that are weak, which will have the effect of letting the light into the head. The next thing is to afford the plants some slight degree of warmth, say 50° to 55°, and keep them close for a few weeks, and syringe them occasionally. As soon as growth has recommenced generally, they are ready for shifting into pots that have just room enough to allow of a little fresh soil being worked in round the ball. This should be the best fibry peat, broken up somewhat roughly, and mixed with a fair quantity of sharp sand. The drainage, an important point, should consist of finely broken crocks, an inch in depth, placed over a large crock, covering the hole, and on them a sprinkling of moss. The fresh soil must be rammed hard, as it is very important that the soil be made as firm as possible, or the water passes through too quickly, and the exceedingly fine hair-like roots will not be able to live. As soon as potting is complete, a good soaking should be given, and the plants again placed where they can be favoured with moisture and warmth as before, and as soon as growth is complete, and become a little hardened, the plants will be benefited by being stood in a sheltered, half-shaded place out-of-doors, where they may remain till the autumn, small plants being plunged in coal-ashes. The miniata or climbing varieties should not be cut back, but simply thinned, and loosely trained to neat stakes, and such plants form splendid specimens, that are very beautiful when in full bloom. *J. S.*

ASPARAGUS AS A PILLAR PLANT.—Mr. Hudson has growing in a cool-house at Gunnersbury, *A. tenuissimus* and *A. plumosus nanus* as pillar plants, and effective plants they are in that position. As a plant to cut the foliage from, the former is certainly the better, the finely cut leaves being good for intermingling with flowers, and especially white ones, in vases, epergnes, &c.; but for grace when growing, the latter is the finer, the leaves on plants of 4 or 5 feet in height standing out almost horizontally, and the point of each leaf droops sufficiently to take off all appearance of stiffness. *E. M.*

JAPANESE CONIFERS.—I have been studying these in their native forests with Dr. Masters' paper on the subject, and have been fortunate enough while travelling in Yesso and northern Japan to get a plentiful supply of cones. I send you photographs of Abies sachalinensis, A. Veitchii, and A. Mariesii, which are as good as species can be. There are five species already described, to which I shall add a sixth. *H. Mayr, Tokio, Japan.*

CRINUM PURPURASCENS.—Dean Herbert did not include Crinum purpurascens in his stoloniferous section because it was not what he considered a truly stoloniferous plant. According to his view, a stolon was a creeping underground sucker which formed a bulb after coming to the surface. Had he been called upon to define the habit of C. purpurascens, he would have said "bulbulis valde prolifera." Crinum erubescens is a good example of the stolon bearing Crinums. *R. T. C.*

SOCIETIES.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

THE Executive Committee of the above Association held a meeting in the Horticultural Club room, Hotel Windsor, on May 1, T. Francis Rivers, Esq., in the chair. A number of members having been elected, the Hon. Secretary announced that Mr. Shirley Hibberd had consented to read a paper on the "Origin of the Cultivated Strawberry" at the June meeting. The proposed report on the "Present Condition and Prospects of Fruit Culture" was discussed at some length, and letters were read approving of the scheme. The Duke of Bedford sent a cheque for £25, and Earl Fortescue wrote as follows:—"I heartily wish you success in your work. I have long been of opinion that fruit culture may be largely extended in Great Britain and Ireland with advantage to the owners and occupiers of land, and to the general public. Your Association has been rendering a real public service both by directing public attention to fruit culture for profit in this country, and by helping to dispel the erroneous idea too freely circulated respecting the enormous returns obtainable from a small capital employed in fruit cultivation. Your report truly observes that much harm has been done by ill-informed advisers, for fruit growing cannot be made to pay a fair profit without practical knowledge of the work, starting with a carefully considered scheme, and sound judgment in carrying it out. A sub-committee was appointed to prepare a scheme to deal with the matter.

Mr. L. Castle submitted a note upon Paris Green as an insecticide for special application to fruit trees, and described some experiments. The strongest mixture of this poisonous substance appeared to have no direct effect upon caterpillars, and it is only when it is lodged on the surface of the leaf and consumed by them that it becomes destructive. It had little or no effect upon the leaves as tried, and, except when the mixture is not properly stirred, there seems little danger in this respect. Experiments were also tried upon plants in pots, to ascertain if any ill effect was produced by the Paris Green passing through the soil to the roots; but the plants were quite uninjured, and, being insoluble, it is not taken up by the roots. It was mentioned that Miss Ormerod had kindly sent much information upon the matter, including her recent "Report upon Injurious Insects." A large fruit-grower also wrote as follows:—"We have a plentiful crop of caterpillars; we are, however, vigorously attacking them with Paris Green, London Purple, and Quassia. We can hardly determine yet which will answer best, but the Quassia appears to be quickest in its action, as it kills by contact; but with the other two you have to wait until they have consumed the poison."

THE SCOTTISH HORTICULTURAL ASSOCIATION.

THE ordinary monthly meeting of this Association was held on the 6th inst. in the hall of the Young Men's Christian Association, Edinburgh, Mr. Morrison, Vice-President, in the chair. A paper was read by Mr. W. Sutherland, entitled "A Popular History of the Potato," which elicited an interesting discussion.

Some interesting exhibits were on the table. Mr. Henderson, Clermiston, exhibited a stand of twelve blooms of Niphetos Rose, cut from a plant three years old, carrying seventy other similar blooms, and which has been flowering freely throughout the winter. The flowers exhibited were remarkable for the great size and substance of their petals, several of the buds measuring 4 inches in length. A Cultural Certificate was awarded in recognition of their excellence. The same exhibitor also showed a fine spike of Digitalis purpurea in flower, with excellent foliage attached, showing that it was amenable to forcing, and suggesting its usefulness in that way, along with the white variety, for the decoration of the conservatory in spring.

Mr. Calder, of Calderbank, Trinity, showed a very distinct Rhododendron, named Mrs. Calder. It is the result of a cross between R. Edgworthii and R. formosum, again intercrossed. The flowers are large, white, prettily fringed on the margin, and deliciously fragrant. It was awarded a First-class Certificate. From Mr. Calder also came a fine pair of plants of Heuchera sanguinea from the greenhouse, well-bloomed, fresh, and attractive.

Mr. Lindsay, Bonnington Bank House, showed a good example of Vallota purpurea major, which was much admired.

Mr. Grant, St. Leonards, Dunfermline, exhibited a specimen Masdevallia Houtteana, so well bloomed, that it was awarded a Cultural Certificate.

Mr. Morris, Trinity Lodge, brought a series of varieties of Rhododendron hybrids between Sikkim and Bhootan species, all cut from the open. They are the result of experiments made by the late Mr. Anderson Henry, are very distinct, and in most cases beautiful, but obviously better adapted to the greenhouse or winter garden than the open in our climate. Mr. McMillan, Trinity, also showed some beautiful greenhouse Rhododendrons in truss.

Messrs. Laing & Mather, Kelso, exhibited plants in bloom of Messrs. Linden's new Souvenir de la Malmaison Carnation, Madame Arthur Warocque. The plant is compact, dwarf, freely branching in habit. The flowers are deep rich red, and freely produced. It was awarded a First-class Certificate.

Obituary.

JAMES CHEETHAM. Two men of some mark among the Northern florists have recently died. One is James Cheetham, who died at Rochdale, a few days since, at an advanced age. For many years Cheetham was a florist of note, though scarcely in the foremost rank, growing Auriculas, Polyanthus, Tulips, and other things. He was somewhat prominently known in connection with old Robin Lancashire's magnificent grey-edged Auricula Hero. It was first shown by Robin at Rochdale, in 1846, and in the class competition was placed second to Grimes' Privateer, a variety much inferior to it. In great grief at his disappointment, Robin sold his stock of Hero—some eight or ten plants—for a small sum, but afterwards wished to buy it back, but could not do so. The purchaser sold it to Cheetham, who sent it out as Cheetham's Lancashire Hero; and now, nearly a half century afterwards, it remains still one of the best grey-edges in cultivation. In common with some other light-mealed grey-edges, it will sometimes come green-edged; a young plant will sometimes throw a green truss, or an old plant, if the truss becomes bare in December or January. Two or three plants of Lancashire Hero in its green form were shown at the Royal Aquarium on the 29th ult.

MR. ALDERMAN DANIEL WOOLLEY, of Stockport, was for many years in business there as a druggist and seedsman. Tulips were his great hobby, and he was generally to the fore on the occasion of the annual exhibition of the Royal National Tulip Society, and at the shows held in and round Stockport. Mr. Woolley took an active part in local affairs, and had been a member of the Corporation of Stockport for a considerable period. *R. D.*

JAMES FLOOD.—Many of our readers will learn with regret of the death on May 4 of Mr. Jas. Flood in his fifty-second year. The deceased was a frequent attendant at all the large Metropolitan and Provincial horticultural exhibitions, and had a wide circle of friends. His birthplace stood on land which is now Regent's Park; and his father and he assisted the late Mr. Marnock in the laying out of the Royal Botanic Garden of London, and for some time afterwards. He was buried at Finchley Cemetery on Wednesday, May 7.

JOSEPH ROBINSON.—The recent death at Slough of Mr. Joseph Robinson removed from our midst another of that band of florists who, as cultivators and exhibitors, made floriculture so famous forty and fifty years ago. To many of the present generation of florists his name will scarcely be known; but the records of the exhibitions of the Royal Botanic and Royal Horticultural Societies, as given in the *Gardeners' Chronicle* between 1840 and 1858, show that both as a cultivator and exhibitor of Pelargoniums, Chrysanthemums, Verbenas, &c., he

achieved great successes. He was a contemporary of William Barnes, James Cutbush, William Holmes, James Ivery, F. R. Kinghorn, C. Ledgard, C. P. Lockyer, A. Parsons, John Salter, George Smith, R. Stains, C. Turner, and others, who in their day covered the metropolitan district with a network of floricultural societies, and a great impetus to popularising the leading florists flowers.

Born at Chelmsford, in February, 1811, his early associations with gardening are not known; but it was while gardener to James Simpson, Esq., Thames Bank, Pimlico, that he made his mark on contemporary floriculture, taking many medals, 1st prizes, &c., at the above-named exhibitions, and at others held within the area of the metropolis. He raised a good many new florists' flowers, but is best remembered as having produced Robinson's Scarlet Defiance Verbena, a vigorous growing bright-coloured bedding variety, that was largely grown, and possibly may be found in some collections to this day. The stock of this Verbena was purchased by the late Mr. Charles Turner for the sum of £20, and distributed by him.

The *Florist* and *Garden Miscellany* contain some articles from his pen. On leaving Pimlico, about 1858, he went to live at Slough, and engaged himself in laying-out work under Mr. Charles Turner. Some years ago he retired from active life. About eighteen months before his death, his health began to fail him, and it gradually declined until he died in calmness and peace. He outlived most of his fellow-workers in the same field, but there are some who yet cherish his memory, and who will hear of his death with regret. *R. D.*

VARIORUM.

Essentials to Success in Horticulture.—Professor L. H. Bailey, late Horticulturist of the Michigan Agriculture Experimental Station, has given *Ten essentials* to success in Horticulture, which appear to be as applicable to the Old World as to the New, of which the following is a summary:—

1. The first condition is the man—a thinking man, one who knows his market as well as his orchard; who can reason justly from cause to effect. Good brains are as important as good land.

2. The second consideration is the land; not necessarily that which will grow the most, but rather that which will grow the best, the highest coloured, and best quality of fruit.

3. Culture.—Crops need culture. Good cultivation consists not so much in digging and ploughing deeply, as in stirring often. This keeps the soil soft, moist, and pliable.

4. Manure, and lots of it.—The best is stable-manure, applied to the land as fast as made. Put it on the ground in the autumn. Do not compost stable manure, but keep it level and moist in broad low clamps. It will be all the better if kept shaded. Compost is good, not for the stable manure, but for miscellaneous refuse, leaves, garden rubbish, lawn-mowings, &c. A compost pile should be forked over two or three times a year.

5. Location.—High grounds are best for fruit, not because they are wind-swept, as some people erroneously suppose, but because they drain the cold air down and away; hence "protected" elevations are the best. A windbreak should not be so thick as to absorb the moisture in the atmosphere. It should be planted far enough away, so as not to interfere with, or retard the growth of, the young trees. The use of Beech and Maple trees are advised for windbreaks.

6. Varieties.—For this it is necessary to study the market.

7. Marketing.—Study tasty, effective, and honest packing.

8. Pedigree is as important for fruit as for horses or cattle, as it determines the colour, size, and quality, of our products.

9. Succession of crops, applying especially to vegetable growing. Many of those come off early, so that another crop can occupy the ground, viz., Radishes, Turnips, Celery. Thus, hotbeds may serve successive uses, and a good portion of our capital be turned several times a year.

10. Market facilities.—The gardener must adapt himself to the markets, as they will not adapt themselves to him. If far from market, that must be grown which can be cheaply transported, and which carries a good deal of value in small bulk.

The Weeping-Tree Mystery.—Prof. Herbert Osborn has called our attention to an article in the Dallas (Texas) *Morning News* of October 9, in which a very well written and humorous account is given of the solution by the reporter of that paper of the mystery of the so-called "weeping-trees," reports of which from Grayson County, and other parts of Texas, are said to have "set the State agog with various explanations of the phenomenon, ranging from the superstitious credence of the supernaturally inclined to the positive denial and derisive laugh of the constitutionally sceptical." The brave reporter, however, upon the discovery of one of these remarkable trees in Dallas, laying aside all superstition, climbed courageously up the trunk, and discovered that the tears were shed by a multitude of small insects "of dark green colour, with gold under the wings, which adhered to the bark, and scampered about when disturbed, and flew away when pressed too closely." Prof. G. W. Curtis, of the Texas Agricultural and Mechanical College, secured specimens, and sent them to Prof. Osborn, who recognised them as the common little leaf-hopper, Proconia (Oncometopia) undata, which we have referred to in previous writings, and on pp. 53 and 54 of vol. i. of *Insect Life*, as occurring upon the Orange in Florida, and upon Cotton plants in other Southern States, and which we have there stated is remarkable for the distance to which it ejects drops of honey-dew. We frequently met with this species in the Cotton fields in the summer of 1879, and noted the extraordinary abundance of the secretion. Prof. Curtis, in his letter to Prof. Osborn, stated that in Dallas they made the tree present a decided appearance of weeping quite profusely, the drops being small, but coming quite thick and fast. Each insect would eject a drop at intervals of two seconds during a period of several minutes, and would then stop for a little while. *Insect Life.*

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending May 3, is furnished from the Meteorological Office:—

"The *weather* has been very fine and bright over the greater part of the kingdom; in Ireland and the extreme north and west of Scotland, however, the conditions have been rather showery and unsettled. Thunder and lightning occurred in different parts of the country on Saturday.

"The *temperature* was low during the early days of the period, and subsequently the daily maxima became high, although the minimum continued rather low. The average for the week has varied from 1° above the mean for the time of year in Scotland to 2° and 3° below it in 'England, N.E.,' and 'England, E.' The highest of the maxima were generally recorded on Saturday, when the thermometer rose to between 63° and 67° in Scotland, 65° and 67° in Ireland, and to between 66° and 71° over England. The lowest of the minima, which were registed on irregular dates, ranged from 28° in 'Scotland, E.,' and 'England, S.W.,' and 29 in 'Scotland, W.,' and 'Ireland, N.,' to 35° in England, N.W.,' and 40° in the 'Channel Islands.'

"The *rainfall* has been more than the mean in Ireland, and especially over the northern parts of the country, but less over Great Britain; in the principal Wheat-producing districts the fall was trifling.

"*Bright sunshine*, though very prevalent, has been less so than it was last week in Ireland; over England and Scotland, however, a very decided increase is shown. The percentage of the possible duration varied from 35 in 'Ireland, N.,' to 60 in 'England, S.,' 64 in 'England, E.,' and to 74 in the 'Channel Islands.'"

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Accumulated. Above (+) or below (—) the Mean for the week ending May 3.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	1 +	43	8	+ 73	— 52	3 —	87	18.1	41	26
2	1 —	50	9	+ 52	— 46	4 —	71	9.5	43	29
3	2 —	42	9	+ 18	— 84	4 —	61	5.9	58	27
4	3 —	58	12	— 2	— 29	4 —	67	6.8	64	33
5	1 —	67	13	— 7	— 17	4 —	61	6.3	57	29
6	1 —	58	2	+ 4	— 64	4 —	63	8.3	60	30
7	1 +	51	5	+ 37	— 65	3	74	16.0	44	29
8	0 av.	55	0	+ 26	— 79	2	70	9.9	44	27
9	1 —	53	1	+ 7	+ 14	1	72	12.2	52	33
10	1	46	0	— 2	— 48	1 +	80	10.6	35	29
11	1 —	50	0	— 10	— 10	6 +	79	15.3	38	34
12	0 av.	64	0	+ 87	— 22	1 —	75	10.5	74	38

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing Dis., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, May 8.

Business steady throughout the week. Hothouse fruit in fair supply.

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ...	1 6- 7 0	Melons, each ...	2 0- 5 0
— Nova Scotia, brl.	12 0-25 0	Pine-apples, St. Michael, each ...	2 0- 8 0
— Tasmanian, case	15 0-20 0		
Grapes, new, lb.	5 0- 7 0	Strawberries, lb. ...	2 0- 8 0
Lemons, per case ...	12 0-20 0		

Vegetables.—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100 ...	...12 0- ...	Mustard and Cress, punnet ...	0 4- ...
Beans, French, lb. ...	2 0- ...	Onions, per bunch ...	0 5- ...
Beet, red, per dozen	1 0- 2 0	Parsley, per bunch...	0 6- ...
Carrots, per bunch...	0 6- ...	Rhubarb, per bundle	0 6- ...
Cauliflowers, each ...	0 3- ...	Seakale, punnet ...	2 0- ...
Celery, per bundle ...	1 6- 2 0	Shallots, per lb. ...	0 6- ...
Cucumbers, each ...	1 0- 1 6	Spinach, per bushel...	6 0- ...
Endive, per dozen ...	2 0- ...	Sprue, per bundle ...	1 6- ...
Herbs, per bunch ...	0 4- ...	Brussel Sprouts, per lb.	0 3- ...
Leeks, per bunch ...	0 3- ...	Tomatos, per lb. ...	1 0- ...
Lettuces, per dozen...	1 6- ...	Turnips, per bunch, new	0 4- ...
Mushrooms, punnet	1 6- ...		

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-18 0	Foliage plants, various, each ...	2 0-10 0
Arum Lilies, per doz.	8 0-12 0	Genista, per doz. ...	8 0-12 0
Aspidistria, doz. ...	18 0 42 0	Heliotrope, per doz.	6 0- 9 0
— speci. plants, each	7 6-10 6	Hydrangeas, doz. ...	12 0-18 0
Azaleas, various, each	2 0- 3 0	Lilliums, various, per dozen ...	...18 0-36 0
Cineraria, per doz....	6 0-10 0	Lily of the Valley, p. doz. pots ...	...12 0-18 0
Cyclamen, dozen ...	6 0-18 0	Lobelia, per dozen ...	5 0- 6 0
Cyperus, per dozen .	4 0-12 0	Marguerites, doz. ...	6 0-12 0
Dielytra, per doz. ...	9 0-12 0	Mignonette, per doz.	5 0- 9 0
Dracæna terminalis, per dozen ...	...30 0-60 0	Musk, per dozen ...	4 0- 6 0
— viridis, per doz.	12 0-24 0	Palms in var., each	2 6-21 0
Erica Cavendishii, per dozen ...	...18 0-48 0	Pelargoniums, scarlet, per dozen ...	6 0- 8 0
— ventricosa, doz.	15 0-24 0	— per doz....	...12 0-24 0
Euonymus, in var., per dozen ...	6 0-18 0	Roses, various, doz.	12 0-24 0
Evergreens, in var., per dozen ...	6 0-24 0	— (Fairy), per doz.	8 0-10 0
Ericas, various, doz.	8 0-24 0	Saxifrage, per doz....	18 0-24 0
Ferns, in var., doz.	4 0-18 0	Solanums, per doz.	8 0-12 0
Ficus elastica, each .	1 6- 7 0	Tulips, doz. pots ...	6 0- 9 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.
Abutilons, 12 bun.	2 0– 4 0
Azaleas, doz. sprays	0 6– 1 0
Bluebells, doz. bun.	1 0– 2 0
Bouvardias, per bun.	0 8– 1 0
Calla æthiopica, 12 bl.	3 0– 5 0
Camellias, white, per dozen	2 0– 4 0
— various, per doz.	1 0– 2 0
Carnations, 12 blms.	1 0– 2 0
Cowslips, doz. bun.	1 0– 1 6
Cyclamens, 12 blms.	0 4– 0 6
Daffodils, 12 bunches	3 0– 6 0
Eucharis, per dozen	4 0– 6 0
Gardenias, 12 blooms	1 6– 4 0
Heliotropes, 12 spr.	0 6– 1 0
Hyacinths (Dutch), in boxes, various, per box	1 6– 3 0
Lilac, white, Fr., bun.	4 0– 6 0
Lilium, var., 12 bl.	2 0– 6 0
Lily of the Valley, doz. sprays	0 6– 1 0
Maiden Hair Fern, 12 bun.	4 0– 9 0
Mignonette, 12 bun.	2 0– 4 0
— French, per bun.	1 6– 2 0
Marguerites, 12 bun.	3 0– 6 0
Narcissus, various, doz. bun.	1 6– 6 0
Pelargoniums, scarlet, 12 spr.	0 4– 0 6
— dozen sprays	0 9– 1 0
Primroses, 12 bun.	0 6– 0 9
Primulas, double, 12 sprays	1 0– 1 6
Roses, Tea, per doz.	1 0– 3 0
— coloured, dozen	2 0– 4 0
— French, dozen	1 0– 2 0
— red, per dozen	2 0– 4 0
— Safrano, dozen	1 0– 2 0
Spirea, doz. sprays	0 6– 1 0
Stephanotis, 12 spr.	4 0– 6 0
Tuberoses, 12 blms.	1 6– 2 0
Tulips, doz. bunches	3 0– 6 0
— (Dutch), in boxes,	2 0– 4 0
Violets, 12 bun.	1 0– 2 0
— French, bunch	1 0– 2 0
— Parma, bunch	3 0– 5 0

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *May* 7.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, write that to-day's market was characterised by the quietude usual during the summer months, the transactions passing being few and unimportant. Clover and Trefoil seeds are firm at recent prices. Occasional small sowing orders still drop in. Mustard and Rapeseed keep steady. In Blue Peas the tendency is upwards. Other articles, in the absence of business, offer no subject for remark.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending May 3:—Wheat, 30*s.* 9*d.*; Barley, 27*s.* 9*d.*; Oats, 18*s.* 8*d.* For the corresponding period last year:—Wheat, 29*s.* 10*d.*; Barley, 24*s.* 7*d.*; Oats, 18*s.* 6*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *May* 7.—Plentiful supplies of all kinds of green stuffs; demand only moderate. Potato trade very quiet. Prices:—Cabbages, 2*s.* to 3*s.* per tally; Seakale, 1*s.* 3*d.* to 1*s.* 9*d.* punnet; Spinach, 1*s.* to 2*s.* per bushel; Cauliflowers, 1*s.* 6*d.* to 2*s.* per dozen; Sprouting Broccoli, 1*s.* 3*d.* to 2*s.* per sack; do., 10*d.* to 1*s.* 4*d.* per sieve; Greens, 2*s.* 6*d.* to 3*s.* 6*d.* per dozen bunches; Radishes (French), 2*d.* to 3*d.* do.; Carrots, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Spring Onions, 2*s.* to 2*s.* 6*d.* do.; Parsley, 1*s.* 6*d.* to 2*s.* do.; Mint, 2*s.* to 3*s.* do.; Horseradish, 1*s.* 1*d.* to 1*s.* 4*d.* per bundle; Mustard and Cress, 1*s.* 3*d.* to 1*s.* 9*d.* per dozen baskets; Leeks, 2*s.* to 2*s.* 6*d.* per dozen; Cabbage Lettuce, 1*s.* to 1*s.* 6*d.* do.; Endive, 1*s.* to 1*s.* 6*d.* do.; English Onions, 10*s.* per cwt.; Egyptian Onions, 8*s.* to 9*s.* do.; Beetroots, 4*d.* to 6*d.* per dozen; English Apples, 4*s.* to 8*s.* per bushel; American Apples, 18*s.* to 26*s.* per barrel; forced Rhubarb, 1*s.* 3*d.* to 1*s.* 6*d.* per dozen bundles; natural ditto, 1*s.* 6*d.* to 2*s.* 3*d.* do.; Carrots, 16*s.* to 26*s.* per ton.

POTATOS.

BOROUGH AND SPITALFIELDS: *May* 6.—Quotations:—Regents, 40*s.* to 60*s.*; Hebrons, 30*s.* to 80*s.*; Magnums, black lands, 35*s.* to 42*s.* 6*d.*; Lincolns, 50*s.* to 55*s.*; Kent and Essex, 50*s.* to 60*s.*; Yorks, 55*s.* to 75*s.*; Scotch, 60*s.* to 110*s.*; Imperators, 35*s.* to 70*s.*; new Malta and Canary Islands, £10 to £12 per ton.

SPITALFIELDS: *May* 7.—Quotations:—Regents, 40*s.* to 80*s.*; Hebrons, 30*s.* to 70*s.*; Imperators, 40*s.* to 70*s.* per ton.

NOTICES TO CORRESPONDENTS.

***** Owing to the large extension of our circulation we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

AURICULA: *T. S.* Pin and thrum are not marks of sex, in the sense you suppose: the flowers are bisexual. It is a pin when the stigma is visible above the plane of the bloom; and a thrum when it is level with the anthers or below the orifice, and consequently inconspicuous.

BUTCHER'S BROOM: *C. A. H. C.* "We should not mind telling you" if we knew. Unfortunately we do not know. It may secrete a juice that is acceptable to insects, and so aid fertilisation.

CARNATIONS: *Aster.* Your plants are attacked by nematoid worms. Start anew with fresh soil and fresh plants.

CUCUMBERS DISEASED: *D. K.* Please send a few portions of the roots of the affected plants.

ERRATUM.—At p. 544, line 13 from top, instead of 100 to 400, read 1—4; so that, whilst Dianthus barbatus shows 1—4, and D. alpinus 450, or nearly so, the hybrid shows about 290. *J. M'M.*

GARDEN PLAN: *L. J.* The plan would answer for a carpet-bed; but for other beds in the flower-garden, the taste of the day tends towards simplicity of design, and rightly so. Short notes on cultural topics are acceptable occasionally.

MAIN CROP PEA, 2 FEET HIGH: *E. M.* There are few really good main crop Peas of so low a growth as 2 feet. Some of Dr. Maclean's Peas as Advancer and Dr. Maclean, are excellent; but their height is nearer 3 feet. Veitch's Perfection is about the same height; Chelsea Gem is under 2 feet high, and is reputed to be good both early and late. All of these varieties are of good flavour, and might be grown as field crops without sticks.

NAMES OF PLANTS: *Ignoramus.* Helleborus viridis.—*E. D. L.* 1, Sedum latifolium; 2, Leiophyllum alias Ledum buxifolium; 3, 4, Fritillaria pyrenaica; 5, Claytonia perfoliata.—*W. C.* x1, Choisya ternata; x2, Amelanchier vulgaris, snowy Medlar.—*C. S.* 1, Diplacus glutinosus; 2, Lonicera Ledebourii; 3, Iberis sempervirens.—*G. W.* 1, Dendrobium primulinum; 2, D. Pierardi.—*Mrs. Simson.* Cattleya intermedia; Adiantum concennum.—*Fife.* Dendrobium fimbriatum oculatum; Eupatorium (=Hebeclinium) ianthinum.—*Vox.* Primula denticulata cashmeriana; Fittonia Verschaffeltii argyroneura.—*C. H. W.* 1, Asclepias curassavica; 2, Doodea aspera; 3, Polypodium crassifolium; 4, P. phymatodes.—*E. J. B.* Primula capitata var.—*W. G. M.* Send a flower to some grower of Azaleas. We cannot undertake to name them.

NURSERY AND GARDEN TERMS: *W. D.* An amateur: one who gardens without idea of pecuniary profit.—Gardener and florist: A gardener who is a florist (special), not necessarily a tradesman.—Professional gardener: A man who has had a garden training, and follows the business for a livelihood.—Nurseryman: One who grows and sells plants, hardy or otherwise.

PINE BUG: *F. W. B.* A coccus allied to American blight. Cut off all you can and burn, and apply petroleum emulsion in spray to the rest.

PRIMROSES: *T. H. W.* Primroses with leafy calyces. Good examples of their kind quite worth growing on.

SALARY AND NOTICE TO QUIT: *A. B.* Being a yearly servant paid quarterly, you can, in the absence of any agreement, insist on a quarter's notice, or its equivalent.

VINE LEAVES: *P. G.* The leaves sent are very thin and bespeak want of vigour. Such leaves are very likely to get scorched by a burst of hot sunshine, whilst the leaves are wet and the house insufficiently ventilated.

WEEVIL: *J. H.* Very destructive. Trap them with pieces of Carrot laid about; visit the houses at night, and demolish the enemy when feeding.

COMMUNICATIONS RECEIVED.—W. C.—J. M. McF.—G. N.—T. B.—W. E. G.—W. T. T. D.—J. H. G.—H. R.—C. H. H.—T. E. H.—H. N. R., Singapore—W. A. S., New York.—J. W. H.—B. Q.—G. Paul—E. B.—R. Gilbert.—R. A. R.—E. M.—J. J.—J. D—J. H. & Son.—J. C.—A. D.—D. C. P.—C. Lock.—F. S. & Co.—Club Ace.—G. C. W.—A. E. and Rhododendrons.—J. W. K.

ENQUIRIES.

"He that questioneth much shall learn much."—BACON.

GINGER BEER PLANT.—Will any correspondent (1), oblige me with a specimen of this plant; (2), say exactly how it is used, what ingredients are made use of, and in what proportions; (3), what was its origin; (4), how long it has been known? *H. Marshall Ward, The Laurels, Englefield Green, Staines.*

For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale Worms, Wood Lice, &c.

"PICRENA," THE UNIVERSAL INSECTICIDE.

SAFE—ECONOMICAL—EFFECTUAL.

15, PRINCES STREET, EDINBURGH, *July* 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95°, I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 120°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray.—I remain, dear sirs, yours truly. (Signed) A. MACKENZIE," of Messrs. Methven & Sons.

Victoria and Paradise Nurseries, Upper Holloway, London, *January* 7, 1888. "GENTLEMEN—I have given your Insecticide, 'Picrena,' a good trial in competition with many others. I am pleased to say that I have found it to be more effectual in destroying Mealy Bug and other insects than anything we have ever used. It ought to command a good sale. (Signed) B. S. WILLIAMS."

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in Bottles at 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.*; in Tins (1 and 2 gallons), 10*s.* 6*d.* and 20*s.* each; in quantities of 5 gallons and upwards, 9*s.* per gallon.

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SPLENDID LOAM, Yellow, Fibrous, in trucks, 16*s.* per ton.

SPHAGNUM MOSS, Fresh Picked, 2*s.* 6*d.* bush.; 7*s.* 6*d.* sack.

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NATIVE GUANO: BEST and CHEAPEST MANURE for Garden use, NATIVE GUANO. Price £3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5s.

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C. J. WAITE, Gr. to Col. the Hon. W. P. Talbot, says :—"I can strongly recommend your Native Guano as a first-rate Manure for any fruits or kitchen garden crops, also grass. In the 5 years during which I have freely used it, I have gained over 560 prizes."

NATIVE GUANO for ROSES, TOMATOS, &c. — W. G. BAILEY, Nurseries, Bexley, used it for Roses, Tomatos, and Cucumbers, and says :—"I find it a good and cheap article."

A. F. BARRON, Royal Horticultural Society, says :—"Without doubt a very valuable Manure, and easy of application."

Orders to the NATIVE GUANO CO., Limited, 29, New Bridge Street, Blackfriars, London, E.C., where Pamphlets of Testimonials, &c., may be obtained. Agents wanted.

GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens.

RUSSIA MATS—New Archangel, 9 ft. 4 ins. by 4 ft. 6 ins., 2*s.* doz.; Heavy Petersburg, 7 ft. by 3 ft. 8 ins., 12*s.* doz. SPECIALITE TOBACCO PAPER, 10*d.* per lb., 28 lb. for 21*s.* TOBACCO CLOTH, 1*s.* per lb., 28 lb. for 26*s.* ORCHID PEAT, 8*s.* per sack. PEAT, LOAM, SAND, MANURES, and SUNDRIES. Price List free. — W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

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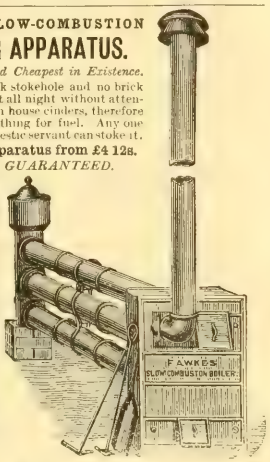
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"Hornby Castle, Lancaster, February, 1890.

"Major FOSTER has much pleasure in stating that the vineries and forcing houses which were erected by Mr. Helliwell in 1884, continue to give perfect satisfaction, both to himself and his gardener."

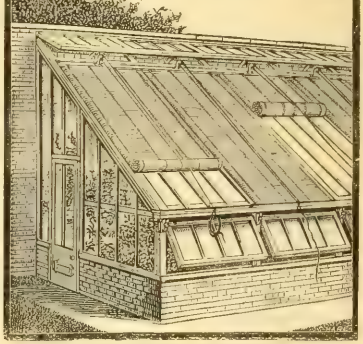
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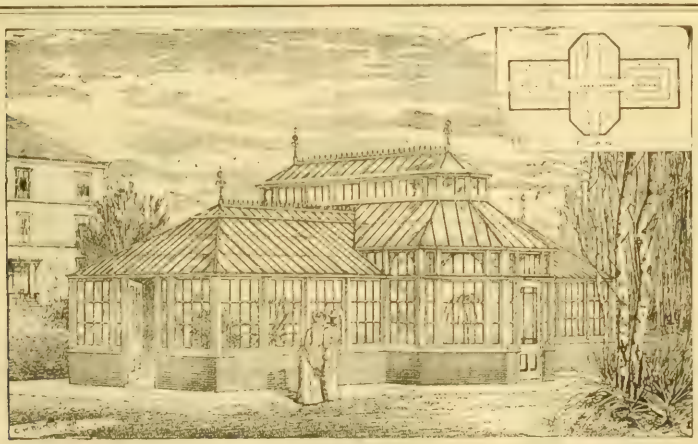
4	Gallons, sufficient for	100	gallons of water	..	£0	6	6
8	,,	,,	200	,,	,,	...	0	12	0
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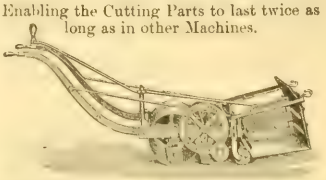
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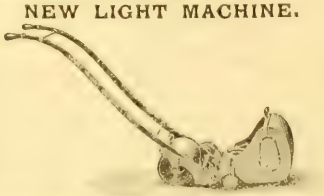
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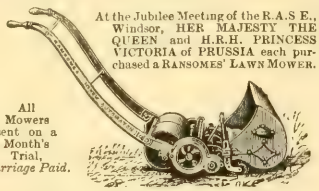
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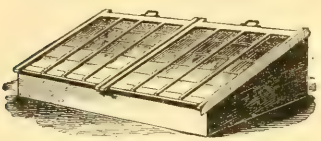
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	Length.	Width.		
1 Light Frame,	4 ft.	by 6 ft.		£2 0 0
2 " "	8 "	by 6 "	Cash	3 0 0
3 " "	12 "	by 6 "	Prices,	4 5 0
4 " "	16 "	by 6 "	Carriage	5 10 0
5 " "	20 "	by 6 "	Paid.	6 15 0
6 " "	24 "	by 6 "		8 0 0

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6 ft. by 4 feet glazed and painted ... 15s. each.
Unglazed and unpainted ... ... 6s. each.
Carriage Paid on Orders of 40s. value.

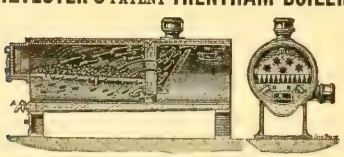
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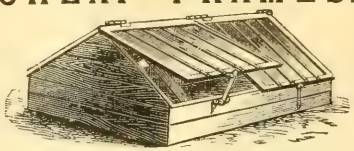
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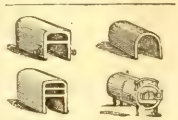
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6 feet long, 3 feet wide	Packing Cases FREE.	2	0	0
6 feet " 4 feet "		2	10	0
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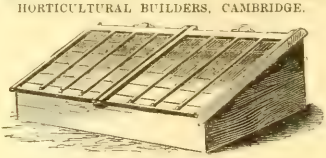
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7	„ ..	0	4	6	18	„ ..	0	10	0
8	„ ..	0	5	0	19	„ ..	0	10	6
9	„ ..	0	5	6	20	„ ..	0	11	0
10	„ ..	0	6	0	21	„ ..	0	11	6
11	„ ..	0	6	6	22	„ ..	0	12	0
12	„ ..	0	7	0	23	„ ..	0	12	6
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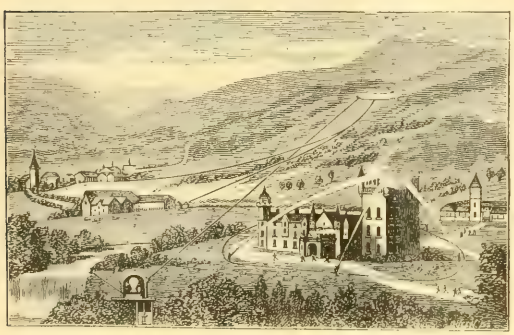
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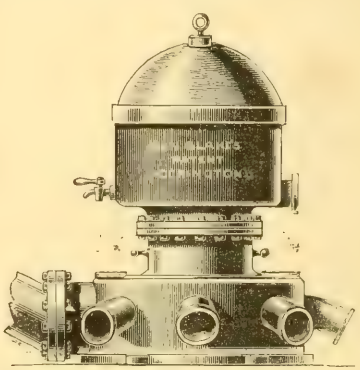
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ROYAL AQUARIUM, Westminster.
GRAND EARLY SUMMER EXHIBITION, WEDNESDAY and THURSDAY, May 21 and 22. Valuable Cash Prizes. Schedules and all particulars of WILLIAM HOLMES. Frampton Park Nurseries, Hackney, E.

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S. BAILEY, Secretary.

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Friday Next.

The whole of the VALUABLE COLLECTION of ESTABLISHED ORCHIDS, by order of F. Briesemann, Esq., of Paragon House, Blackheath, who is leaving England to reside abroad.

Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 23, at half-past 12 o'Clock precisely, without reserve, the choice COLLECTION of well-grown ESTABLISHED ORCHIDS, including, amongst numerous fine species, the following:—

Vanda Sanderiana, 2 plants	Cypripedium grande, 3 plants
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Cattleya exoniensis	,, selligerum majus
,, Skinneri alba	,, Ashburtonæ
,, Schofieldiana	,, Warneri
,, labiata, autumn flowering	,, vexillarium
,, crispa alba	,, Morganiæ, 5 strong growths
,, Trianæ alba	,, ornanthum superbum
,, Wagneri	,, Veitchi, Demidoff's variety, 2 plants
Lælia anceps Dawsoni	,, Io
,, Dormanniana	,, Leeanum superbum
Nanodes Medusæ, the grandest plant in the country, with over 50 growths	Sobralia macrantha nana alba
Cypripedium Dauthieri	Dendrobium nobile nobilius

And a general assortment of Cool, Intermediate, and Stove-house ORCHIDS.

On view morning of Sale, and Catalogues had.

Friday Next.—Dendrobium Bensoniæ.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 23, at half-past 12 o'Clock, by order of Messrs. Hugh Low & Co., a grand lot of imported plants, in the best possible condition, of DENDROBIUM BENSONIÆ, many specially fine pieces with large bulbs; D. Wardianum, best variety; D. Brymerianum, D. Dalhousianum, D. thyrsiflorum, &c. Also a few Established ORCHIDS, mostly in Flower and Bud, from a well-known collection.

On view morning of Sale, and Catalogues had.

Special Sale. Friday, May 30.

ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS respectfully announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be GLAD TO RECEIVE NOTICE of ENTRIES AS EARLY AS POSSIBLE.

Friday, June 6.

Important to Orchid Fanciers and Others.

The unique and singularly beautiful COLLECTION of Life-size WATER-COLOUR DRAWINGS of ORCHIDS, by Durham, comprising 288 Drawings in 22 handsomely bound volumes, formed by the late John Day, Esq., of Tottenham, and painted specially for him at great cost, the whole forming undoubtedly the most valuable Collection of Orchid Paintings extant.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions to SELL the ABOVE VALUABLE COLLECTION by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, June 6, 1890, at 2 o'Clock precisely, in one lot.

May be viewed at the Auctioneers' Offices two days prior to the Sale, or at any previous time by appointment. Descriptive Catalogues are now ready, and will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Priory Nursery, Acton Lane, Acton, W.

To Nurserymen, Gentlemen, and Others.

The First ANNUAL SALE of 12,000 Surplus Stock of PLANTS.

MESSRS. W. EYDMANN AND SON have received instructions from Mr. J. C. Jennings, the Proprietor, to SELL by PUBLIC AUCTION, on the above Premises, on THURSDAY, May 22, 1890, at 12 for 1 o'Clock, the Surplus Stock of STOVE and GREENHOUSE PLANTS, consisting of Pelargoniums, Fuchsias, Marguerites, scarlet, white, double ivy-leaf and rose-scented Geraniums, double white Primula, various Ferns, Azaleas, large Camellias, Tree Carnations, pot Roses, Eucharis, Agapanthus, Amyrilles, Liliums, Ficus elastica, Ficus repens, large Stephanotis, and various other Plants, &c.; useful OAT CRUSHER, Seakale POTS, new GREENHOUSE BARS.

May be viewed day previous, and morning of Sale. Catalogues may be obtained on the Premises, and at the Auctioneers' Office, High Street, Acton, W.

Ashford, Middlesex.

FRUIT FARMS, MARKET GARDEN, and ACCOMMODATION LANDS, in Lots to suit Small Capitalists and Investors, the purchase-money being payable by instalments extending over nine years; 73 acres of important Freehold Land, having the extensive frontage of 2054 feet to the main road from Ashford to Feltham; one mile distant only from Ashford Station on the London and South Western Railway, and 17 miles from London, thus being within easy reach of the metropolitan markets. The land is situate in a popular residential locality, and the nature of the soil renders it peculiarly adapted to the Cultivation of Fruit, Flowers, and Vegetables, an industry extensively carried on in this neighbourhood. The present Sale therefore, affords an opportunity for Purchasing Small Freeholds in a prosperous healthy locality, and developing the combined advantages of residence with a lucrative, pleasant, and refined occupation. With possession on completion of purchase.

MESSRS. HUMBERT, SON AND FLINT are instructed to SELL the above by AUCTION, at the Mart, Tokenhouse Yard, E.C., on WEDNESDAY, June 18, 1890, at 2 o'Clock precisely, in numerous Lots.

Full particulars may be had of Messrs. R. S. TAYLOR, SON AND HUMBERT, Solicitors, 4, Field Court, Gray's Inn, W.C.; at the Mart, E.C.; and of the Auctioneers, 11, Serle Street, Lincoln's Inn, W.C., and Watford, Herts.

To Nurserymen, Gardeners, and Others.

TO BE SOLD, the Lease of a well-established NURSERY, 11 Greenhouses, well-heated Pits, good Stabling, Sheds, &c., in all covering about 1 acre. First class Jobbing Connection. With or without Florist Shop in main thoroughfare. Price £100.

Apply on Premises, Waverley Nursery, Waverley Place, St. John's Wood, N.W.

FOR SALE, a SMALL NURSERY, Freehold Premises and Good Will, capital Show House, and four other Span-roof Glasshouses; well stocked. Good Heating Apparatus, Potting Shed, &c., all in good order. Rapidly increasing suburb. Rent, Freehold complete, £100; or owner would let the same. Rent, £20.

For full particulars, apply to T. BRADSHAW, Ravenswood Nursery, Ravenswood Road, Balham, S.W.

To Nurserymen and Florists, London, W.

TO BE SOLD, a first-class NURSERY within 7 miles of Covent Garden, comprising about 1 acre of Land, with two Cottages and eight large Glasshouses thereon, all well stocked and heated with Hot water. Lease fifteen years. Terms moderate.

Apply to W. E., 130, Percy Road, Shepherd's Bush, W.

To Gardeners.

FOR DISPOSAL, a good JOBBING BUSINESS, with three Greenhouses, full of Stock. A Small Sweet and Tobacco Shop attached.

H., care of C. Fuller, Stationer, &c., High Street, North Finchley.

To Gardeners.

FOR DISPOSAL, a Small Jobbing BUSINESS, with Span-roof Greenhouse 30 feet long, Hotwater. Stocked with Bedding Plants, &c. All Tools complete.

By letter, first instance, to R. N., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

West of England.

TO BE LET or SOLD, on exceptionally favourable terms, a very old-established general NURSERY BUSINESS, which has only changed hands three times during the last 100 years. Area about 28 acres, all in a ring-fence, of which 18 are Leasehold; numerous Glasshouses, Dwelling-house, Cottage Residence, Manager's House, Labourer's Cottage, Stables, and all necessary Offices.

The Land is in a high state of cultivation, and there is a large assortment of General Nursery Stock, including an extensive collection of Fruit Trees.

A Lease will be granted at a moderate rental, and the Vendors will be open to consider any reasonable proposal with regard to the Stock.

Fuller particulars may be had of Messrs. PROTHEROE AND MORRIS, Auctioneers, 67 and 68, Cheapside, London, E.C.

TO BE LET or SOLD, a FREEHOLD NURSERY, 6 acres of Land, with House; Seed Business combined, doing good trade; splendid supply of water. Capital investment.

Particulars, apply, BRYANT, Nursery, Chippenham.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city. Fully particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited.

Have just received large importations of Orchids from Mexico, Brazil, India, and other countries.

The Co. have also an immense stock of Established Orchids, all of which they offer at extremely reasonable prices.

Catalogues, with full particulars, post-free on application to the Co., The Vineyard and Nurseries, Garston, near Liverpool.

NOTICE to CREDITORS and DEBTORS.—All parties having claims against the late Mr. WILLIAM LEARMONT, NURSERYMAN, Larchfield, Dumfries, are hereby required to lodge them with JAMES H. McGOWAN, Solicitor, Dumfries, Agent for his Trustees and Executors, within 14 days, in order that arrangements may be made for payment; and all parties indebted to Mr. Learmont are requested to make Payment of their Accounts to Mr. McGOWAN.

The Business of NURSERYMAN so long carried on by Mr. LEARMONT will be continued as formerly in the name of his TRUSTEES for behoof of his Widow and Family under a suitable Manager.

Dumfries, May 5, 1890.

CLIBRAN'S A GAY GREENHOUSE. Ivy-leaved Geraniums, beautiful sorts, 4s. per dozen; Double Geraniums, 4s., 6s., and 9s. per dozen; Zonal and Nosegay, splendid sorts for blooming this summer, or for growing on to bloom next winter, 4s., 6s., and 9s. per dozen. Pelargoniums, show, fancy, or large-flowered, to bloom shortly, 9s. and 12s. per dozen. Bouvardias, small stuff for growing on, 4s. per dozen. Coleus, 12 sorts, 3s. Lantanas, 12 sorts, 2s. 6d. Tropæolums, 6 sorts, 2s. 12 beautiful distinct Greenhouse Flowering Plants, 9s., 12s., and 18s. 6 lovely flowering Greenhouse Climbers, 6s. or 9s. Calla æthiopica, all sizes, 9d., 1s., and 1s. 6d. each. 12 Succulents, 4s. and 6s. See List, free.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

FORBES' CATALOGUE of FLORISTS' FLOWERS for 1890—(116 pages),

Is the Largest, Best, Most Reliable, and Complete ever issued on Florists' Flowers. It gives accurate descriptions of thousands of varieties of Florists' Flowers that cannot be had elsewhere, besides a very full List giving Colour, Height, Month of Flowering, and Price of nearly One Thousand Perennials and Hardy Border Plants, with a mass of other useful information indispensable to all who would excel in the Cultivation of Flowers.

This Catalogue forms a most useful and convenient Reference Book on all sections of Florists' Flowers that should be in the hands of all who love a Garden. Free on application.

JOHN FORBES, Nurseryman, Hawick, Scotland.

Sterling Value.

HARTLAND'S "APRIL QUEEN" BROCCOLI, sealed Packets, 1s. 6d., for purity, weight, and quality not to be equalled. "*" Your Book of "Rare Seeds" for 1890. A few (partly reserved) Copies are now disposable, post-free. Everyone seems to want the Coloured Illustration with my "Illustrated Book of Daffodils." I shall be lifting the Daffodil crop the end of May, particularly "Ard-Righ," to fill Colonial Orders, and shall be happy to quote market growers. 1/6 His New Double Quilled Perennial SUNFLOWER "Soleil d'Or," plants, 1s. 3d., post-free.—WM. BAYLOR HARTLAND, Old Established Seed Warehouse, 24, Patrick Street, Cork.

CLIBRAN'S PRETTY FLOWERS. If you want a unique array of blooms try our Collection of Herbaceous Plants. No botanical weeds, but each plant distinct and beautiful. 12 vars., 3s., 4s., and 6s.; 50 in 50 vars., 15s. and 21s.; 100 in 100, 30s. and 42s. The "Iris Queen," Iris ochroleuca var. gigantea—finest by far of all the Iris family—robust habit, 6 feet high, enormous lovely white blooms, will grow in any ordinary soil, 2s. each, 1s. per dozen. Foxgloves, white and spotted; Lupinus, blue and white, each var. 3s. per doz. See Catalogue.

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GRAND NEW COLEUS, "DUCHESSE OF FIFE."

First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser,

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ADIANTUM CAPILLUS-VENERIS var. GRANDE, T. M.—The late Mr. T. MOORE, in his description of the above, says:—"It is the finest and most noble of all the varieties of this species of Maidenhair."

Strong plants, fit for 48's, now sent out at 12s. per dozen. Remittance from unknown correspondents. Packing free, for cash with order.—T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

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IN AID OF

The Gardeners' Orphan Fund,

ON

WEDNESDAY, MAY 21st, 1890, *from* 8 *to* 12 *p.m.,*

IN THE

WHOLESALE FLOWER MARKET, COVENT GARDEN,

SPECIALLY GRANTED FOR THE OCCASION BY

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

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Paid or promised on occasion of the 51st Anniversary Festival, June 12, 1890, on which occasion

Mr. HARRY J. VEITCH, the Treasurer, will preside.

HARRY J. VEITCH, Esq., Chairman... ...	£105	0	0
The Baron SCHRODER	52	10	0
The Right Hon. Lord ROTHSCHILD	26	5	0
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Miss BILLETER, Winfold...	1	1	0
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Messrs. NUTTING AND SONS, Southwark Street ...	5	5	0
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Mr. JAS. BECK, Cricbel Gardens (A.)	1	1	0
Mr. J. WILLS, Hollowmead Gardens	4	3	0
Mr. G. BLOXHAM, Brick Hill Gardens	0	15	0
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Mr. JAS. HOPKINS, High Cross Gardens	10	10	0
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Mr. DRAPER, Seaham Hall Gardens	0	5	0
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Mr. A. BAXTER, Foot's Cray Gardens	10	10	0
Mr. J. BUTTON, Dutton House Gardens	0	5	0
Mr. R. STRAND, Denne Hill Gardens	0	5	
Mr. SHIRLEY HIBBERD, Kew	5	0	
Mr. ICETON, Granard Nurseries, Putney	5	5	0
Messrs. THOMSON AND SONS, Clovenfords, Galashiels	5	5	0
Mr. DALDON, Halton Gardens	10	10	0
Mr. BENNETT and Under Gardeners, Rangemore Gardens	6	2	0
Mr. BAKER, Mombland Gardens	1	1	0
Mr. DAVIDSON, Royal Exotic Nursery	3	3	0
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HENDER AND SONS, Nursery, Plymouth.

BEDDING PLANTS.—BEDDING PLANTS.
Of All Quality and Strength

GERANIUMS.—Vesuvius, scarlet, 8s. per 100; Bonfire, 10s. per 100; H. Jacobs, 12s. per 100; West Brighton Gem, 12s. per 100; Master Christine, 15s. per 100; Lady Middleton, 12s. per 100, Madame Rudersdoff 12s. per 100, Queen of the Belgians, 2s. 6d. per dozen; Mrs. Pollett, 12s. per 100. White Vesuvius, 10s. per 100; Madame Vaucher, 10s. per 100; Comtesse, 12s. per 100; Niphetos 12s. per 100. Also in twelve choice varieties of single, 1s. per 100.

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The above being all in cool, strong, healthy, well-rooted plants, and nearly all from single pots, we can again, with confidence, recommend them to our numerous customers. As will be found, the prices are reduced from previous years, so that everyone wishing to do business with us must send cash with order, so as to save time and expence of booking, as well as making bad debts. An inspection is solicited by

FLETCHER, SON AND CO., Nurserymen, &c., Chesterfield.
Kindly note—Cash with all Orders.

50,000 LOBELIA, Emperor William, warranted true from cuttings JOHN SOLOMON offers the above in thorough good stuff at 2s. 6d. per 100, 20s. per 1000, for cash with order, package included.
Queen's Road Nursery, Walthamstow, E.

OLD-FASHIONED YET BEAUTIFUL FLOWERS FROM SEED.

N.B.—Prices are per packet—all seeds are post-free.

Alpine Auricula (lovely strain), 6d. and 1s.; Primrose (most charming shades), mixed, 6d. and 1s; Primrose yellow, 6d.; Myosotis robusta grandiflora (splendid variety of "Forget-me-Not"), 6d; Myosotis sylvatica alba (white flowering wood "Forget-me-Not"), 3d.; Aquilegia (Columbine), mixed, 3d.; Delphinium (finest and most distinct colours), mixed, 3d.; Foxgloves, mixed, 3d.; Viola, mixed, 6d.; Hardy Perennials, twelve distinct and beautiful sorts, 2s.

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VINES and VINE CULTURE.
The most complete and exhaustive Treatise on Grapes and their Culture ever published.
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Price 5s., post-free 5s. 6d.
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J. MONRO, Tomato Grower, Bulwer Road, New Barnet. Choice varieties are now ready.
Prices as usual, from 3s. per dozen.

Many Acres of Lilies of the Valley!
T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
T. JANNOCH (Lily of the Valley Grower by special appointment to H R H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

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Try the following strains and you will grow no others. Qualities being superb—the result of some years' careful hybridising:—

BEGONIA, Single, 1s. and 2s. 6d per packet; Double, 2s. 6d. per packet; CALCEOLARIA, 1s. and 2s. 6d. per pkt. CYCLAMEN PERSICUM, 1s. and 2s 6d per packet. TRY THEM! FERN SPORES (Seeds), Greenhouse and Stove varieties, 1s. and 2s. 6d. per packet. EUCALYPTUS, five packets, in five named sorts, 2s. LIST post free.

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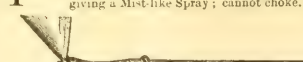
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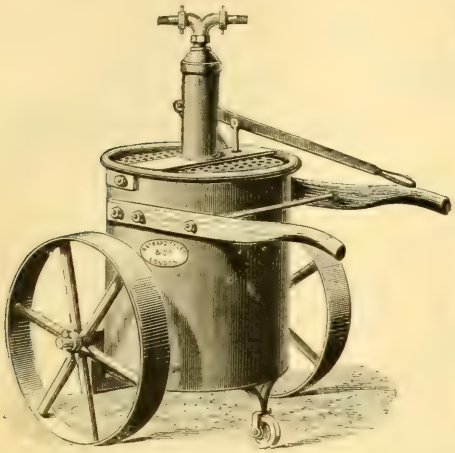
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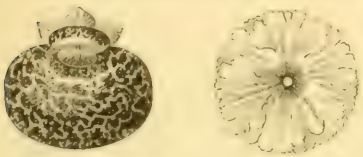
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THE

Gardeners' Chronicle.

SATURDAY, MAY 17, 1890.

THE APPROACHING ROSE SEASON.

THERE is a wonderful lull always at this time of the year in the Rose world, somewhat like the calmness which precedes a storm, or the night before a battle, when all preparations being made, and everything in order, the combatants of to-morrow lie down to snatch a few hours, or it may be minutes, of sleep, knowing the work that is before them. We have looked over our beds, have noted, and it may be, supplied our losses; have seen what the weather has done, pruned even our Teas, and are now watching the growth that they are making. So far the appearance is favourable, in some places indeed the plants have been hard hit by the frost of March 4, while in others they have escaped, owing to some advantage of position, or peculiarity of treatment.

We have had the usual mournful plaint from the foremost of Rose growers, "D. T. F.," and also from other correspondents in East Anglia, who tell a very different tale; but I can quite understand that in the same district one garden may have suffered and another got off scot free. I have already noticed how my friend, Mr. Geo. Mount, at Canterbury, suffered from that terrible morning frost of the 4th of March, and yet other gardens within a mile of his were untouched. My Euonymus were untouched by it, while in gardens not above 3 miles off, they are as if a fire had passed over them. Mr. Frank Cant tells me that his Teas are unharmed, but he adopts the plan which in cold districts may be advantageously followed, of lifting and transplanting the bushes every year; this checks the flow of sap. They do not push so early, and are, consequently, less likely to suffer from the early frosts of May. I do not think such a plan is necessary everywhere, although I would desire to disabuse the minds of people who imagine ours must be a warm county. I am persuaded that it is not true, at any rate, of East Kent; we are so peculiarly subject to east winds, and get very severe frosts and very heavy rainstorms. I imagine that few parts of England could beat our record of March 1 5° below zero in one place, and 20° and 30° of

frost in a good many places. So far, the latter part of April, and the first week of May, have been most favourable; the temperature has been high, and copious rains have pushed the plants into growth. Soon it will be necessary to look out for maggot and greenfly, but as yet they have not made their appearance.

It may not be out of place, therefore, to say a few words to exhibitors—not the old stagers who could most probably teach me many a lesson, and put me up to a dodge or two of which I am in blissful ignorance, for I have never been an exhibitor, and it is too late for me to begin; but seeing a good many shows, as I do, and the efforts, often very feeble, of young exhibitors, a word or two may be of use to them in the coming season.

1. What is the best time for cutting Roses for exhibition? There have been many and different opinions on this subject; how often have I heard it said: "Oh! what an advantage Mr. A. has; the show is so close at home that he put off cutting his Roses until the morning, and then brought them fresh to the show ground." Now, as I have said, I am not an exhibitor, but I have often seen Roses of some of our first-rate exhibitors on the day before the show, which is to be held close to their own doors, and I have found that by far the greater bulk of the flowers were cut the night before, and it was only some buds that had not sufficiently declared themselves the night before that were cut in the morning. Of course if you go out in the early morning before sunrise, or about sunrise, nothing can look more charming than your flowers do then, with the dewdrops glistening on them, and their colours glistening in the soft subdued light of early dawn; but to the Rose exhibitor there is no room for sentiment, and the question is, not how do the Roses look at 3 A.M., but how will they look at 11 A.M., when the judges begin to examine them? I remember once, one most ardent exhibitor losing a much-coveted medal by giving way to sentiment: he went round his garden in the early morning, and there stood before a most lovely bloom of Marie Baumann, the very perfection of a bloom of that most perfect Rose. "Oh! I must have that—is it not a beauty?" "Yes, it is now," I said, "but it will not be in four or five hours' time, and pray do not trust to it." He could not be persuaded out of it, and as a consequence lost his medal. All his other blooms were good; but this, though of course retaining its size and form, had lost its colour. When these flowers are cut with the dew on them, they are apt to be spotty; and there is, moreover, the possibility that you may have a thunderstorm during the night, which will be utterly destructive to all the exhibitor's hopes.

Of course, the exhibitor who is close to the show ground has an advantage in that his flowers are not so kept shut up in the boxes, and have not to endure a long railway journey; but I am convinced he does not enjoy the advantage some people imagine of being able to cut his flowers on the morning of the show day. The best time, I believe, to be before the dew falls the night before; moreover, if cut then and placed in water, they absorb a good deal, and are thus kept fresh.

2. The next question is, at what state of expansion ought the blooms to be when they are cut? This is a point on which I am sure young exhibitors make great mistakes. In most cases they depend upon blooms much too expanded. Like my friend already mentioned, they do not consider what the lovely flower they are looking at has to go through before it passes under the judges' eye, and they have only to cut a bloom and place it in their sitting-room for a few hours to see what a change takes place in these bright-coloured flowers, and they will then see how very careful they ought to be as to the age of the flowers. Of course there is a difference (I am now alluding to the H.P.'s); if a flower is not very full, it will open all the sooner, and those with a good deal of stuff in them will bear the treatment they have to submit to better. But, as a rule, it is safer never to take a fully expanded flower; a flower three-quarter expanded or half-blown is better—but care must be taken in this matter too, for if the flower is too full, it will not open properly afterwards. It is well to tie a small piece of bast or raffia round the flower, so as to keep it well together; this is almost always done with Teas, which, from their greater substance, hardly require it, and it certainly ought to be done with flowers which are more likely to open.

The 3rd point is, how to treat the flower when cut? I was very much surprised the other day to hear an exhibitor for a good many years (I must own, not a very successful one) that he always put dry moss into his boxes. To some extent, this may account for his want of success. The box in which the Roses are to be placed should be packed freely with wet moss, and the tubes then jammed tightly into it; they should then have some of the wet moss, as green and as short as possible, placed on the surface. The tubes should then be filled with water, of course (Foster's will be used), the Roses wired and inserted into the tubes, the surface of the moss may be then watered, but not a drop must go on to the flowers; the lid should then be put on the box, and slightly tilted. It should be placed in some cool outhouse or coach-house, and the ground thoroughly well watered round it, so as to create a cool atmosphere, and to prevent any dust from rising and settling on the flowers. In the morning the exhibitor will go round his garden, and see if any buds have come forward during the night, and these may be cut and put amongst his "spares," with which every prudent exhibitor should be provided; they are like the reserves which a prudent general always has in store.

But all these preparations will be of no use unless the prospect be good of having good Roses. As far as I can see, Roses have broken remarkably well, and the glorious rains that we have had lately have helped them on greatly, and it is earnestly to be hoped that we may escape those unwelcome frosts which do so much damage. It only shows how very little, however, we can write of other places in our most extraordinary climate. Thus, I read that in Hertfordshire during the month of April there was only 0·77 in. of rain; whereas here, which is not perhaps more than 60 miles in a bee-line, we had 2·95 in., and in one day we had 1·3 in.; so that, if I were to talk with the inhabitants, and tell them what a quantity of rain we had, they would be very much astonished indeed—and I think very often but little allowance is made in these matters, so that we get very conflicting statements. Let us wait, however, and then perhaps in another fortnight or so we may be able to tell better what is in store for us. *Wild Rose.*

New or Noteworthy Plants.

DENDROBIUM × VENUS, *n. hyb.*

The work of hybridisation proceeds apace. Mr. Norman C. Cookson, of Oakwood, Wylam-on-Tyne, has just flowered a very handsome seedling Dendrobium, raised from D. Falconeri, crossed with the pollen of D. nobile. The raceme is two-flowered, the sepals lanceolate, acute, bright rose above, much paler below, 2¼ inches long by ⅝ inch broad. The petals are much broader, acute, white, with light rose apex. The lip is broad, acute, white, tipped with bright rose, and with a large deep maroon blotch. Thus the flowers have much of the general appearance of D. Falconeri, except that the yellow is absent from the lip. They are large and very showy, and as the plant has now only flowered for the first time, it should develop into a good thing. The leaf sent is narrowly lanceolate-linear, 3½ inches long by ⅝ inch broad. Mr. Cookson remarks that the pseudobulbs are almost intermediate between the parents, being semi-pendulous, and the nodes not nearly so much swollen as in D. Falconeri, with which it also agrees in its habit of producing new pseudobulbs from the summits of the old ones. It is also said to be a robust grower. The most obvious character derived from D. nobile is the absence of the yellow disc of the lip. *R. A. Rolfe, Herbarium, Kew.*

Cypripedium × Numa, *n. hyb.*

This is a new hybrid, raised by Mr. Seden for Messrs. Veitch, between Cypripedium Lawrenceanum and C. Stonei, the latter being the pollen-parent. It was exhibited at a meeting of the Royal Horticultural Society on March 11 last, when it was awarded a First-class Certificate by the Orchid Committee (*vide* p. 336). A note sent with the flower points out that the "leaves are longer and narrower than in C. Lawrenceanum, and tesselated in the same way but less brightly; that is, well-nigh intermediate between the two parents." The flower has the general aspect of C. Stonei, but the dorsal sepal is less abruptly acuminate, and bears eleven irregular stripes of purple brown, the petals are not twisted and more spreading, the lip almost uniformly light purple-brown, not distinctly reticulated, while the staminode is nearly orbicular, very concave, closely hairy, a little paler than the lip; three-toothed above, the central tooth minute, the outer ones much larger, and curved almost till they meet, so as to enclose a nearly circular open space. C. Stonei has been crossed with two other species, in each case it having been used as the seed-parent: first with C. barbatum, giving rise to C. × euryandrum, and afterwards with C. superbiens, when C. × Morganiæ, the *facile princeps* of hybrid Cypripediums, was produced. In each case the credit is due to the indefatigable Mr. Seden. *R. A. Rolfe.*

Prunus pseudo-cerasus.

In fig. 99 we reproduce the single form of the above plant, one of the showiest of flowering Japanese trees. Originally named by Lindley, a double form of it is figured in the *Revue Horticole*, 1866, p. 371, as Cerasus Sieboldtii Carrieri, but the older name will now have precedence.

This double form of Prunus pseudo-cerasus is known also in gardens as Cerasus Wateri. The flowers are possessed of several rows of petals, making it a pleasing full flower, but there are some other varieties which differ considerably in size and somewhat in colour. The form known as C. Wateri, flowers of which were recently shown to us by Mr. T. Baines, measured nearly 2 inches in diameter, white, each petal prettily marked with bright rose. Mr. Baines asserts that this particular plant blooms a fortnight earlier than C. Sieboldtii, and that too in a position not fully exposed to the sun.

The double forms of Prunus pseudo-cerasus if planted in fairly good soil, on banks and on rising ground, or as solitary plants on the lawn, are very decorative when in flower. The single flowered type form bears numerous reddish sour fruits on long stalks.

Garden Edgings.

Nothing adds more to the appearance of a garden, be it large or small, than well-kept edges, which are almost the first objects that come under the eye. The plant most generally employed for edgings to walks is Box, which, if in good trim, looks neat; but the worst of live edgings is, that they do not admit of weed-destroyers being used, and that is against them, as gravel, even if it be of the best binding nature, will get foul to a greater or less extent, and then it involves much time and labour to clean it. This being so, it is better in many cases to have a dead edging of some kind, but it should be of a very hard, indestructible material—one of the neatest I have seen being a tile with a cable-patterned top, and it is one which does very well for kitchen gardens. If the appearance of a long line of these tiles, or anything else that may be used, is objected to, they may easily be hidden, and the sides of the walks made very beautiful by planting Gentiana acaulis, Thrift, double Daisies, or other suitable plants, of which there are many; and, if a more utilitarian spirit prevails, thin rows of Strawberries, Parsley, or such-like, may be grown. In some places flints, and in others, large

pebble stones are readily obtainable, and either of them answer admirably for laying at the sides of walks as a boundary, and to support or keep back the soil, and both serve well for the purpose of nurses to the flowering plants named, as each likes them to nestle to and send their roots under. The Gentian especially is benefited by the flints or pebbles, cneorum, Alyssum saxatile, Pinks, Sedums, Aubrietias, or any other low-growing, trailing subjects, as positions of that kind are just the home for them, and they form a splendid foreground for plants used behind without being stiff and formal as any other edging would be. In cases where borders are flat, a grass verge in front looks well, but an annual trimming and the frequent use of the shears.

Box, where it succeeds and keeps its colour, makes a very satisfactory edging to walks, but it should never be allowed to get thick and high, as when in that state it not only looks heavy, but forms a harbour for slugs and other insects, which sally



Fig. 99.—Prunus cerasus pseudo-cerasus, white flushed with rose. (see p. 608.)

and when planted between will soon hug them closely, and do all the better for the moisture they conserve, which the plants find at the sides. Flower borders may be raised, or can be placed in that desirable form, and much beautified by placing any rugged waste pieces of stone, burrs, or clinkers along the edge and partly burying them, and then planting between such plants as the lovely deep blue Lithospermum prostratum, the Rock Rose, Daphne it should be of good width, and in that respect proportionate, or its appearance will be meagre and out of accord with the ground that it bounds. Grass verges not only look well, but they are very easily kept, as a mowing machine run over them weekly during the summer will maintain them in excellent order—that is, so far as their surface is concerned; but, in addition to that, it is important to have the edges sharp and well defined, which may be done by forth at night and do irreparable harm. There are two ways of reducing such bulky Box edgings when they have become too large, the one by heading back and cutting in the sides, and the other by entire relaying. The present is a good time for carrying out either of these operations; but to give the Box a fair chance to break again or make root, there is now no time to lose. The heading back and cutting in may quickly be done by the use of a pair

*

of sharp shears; but in a general way it is better to dig up and relay and in doing this the Box should be shortened as much below as it will bear without taking off too much of the roots. With the Box so reduced, it may then be pulled apart and packed closely, when it will be ready for putting in again, but to carry this part out well, a good workman is needed to get the rows regular. The way to have them [illegible] putting it level with the back of a spade, when done it only remains to strain a line, and cut out a trench beside it, and then lay the Box in. As soon as this is done, the soil should be closely pressed against it, and so finished off, when the gravel may be returned, and the job made complete.

With regard to clipping or trimming Box, the best time to do that is just after it makes its first growth, or say the beginning of May—at which season we always do ours, and it makes just growth enough afterwards to take off the shorn appearance, and look well. By pursuing this course annually, just before bedding out, we are able to keep our edgings close, and though some have stood for over twenty years, they are only 3 inches high, and less than that through. Any gaps that occur are made up by dibbling fresh Box in the lines, or rather by using a wedge-shaped tool to make a hole in which to plant it, refilling with soil. *J. S.*

THE FIXING OF FREE NITROGEN BY PLANTS.

(*Continued from p. 580.*)

In regard to the yellow Lupins, with which the most striking results were obtained, it may be stated that, under the influence of the soil-extract seeding, the above-ground growth was not only very luxuriant, but the plants developed great maturing tendency, flowering and seeding freely. The development of the roots generally, and that of swellings or nodules on them, were also very marked. In pot 4, with the Lupin-sand itself, which would supply a not immaterial amount of combined nitrogen, although the growth was normal, it was, both above-ground and within the soil, very much less than in the pots with soil-extract only; and the development of nodules was also less. It is possible that the less development in the Lupin-sand itself, than in the quartz-sand with soil-extract only, was partly due to the much less porosity of the Lupin-soil, especially when watered. The blue Lupins failed; the Cloves and Lucerne experiments are still in progress.

Referring to the main object of the investigation, it will be admitted that the results, so far brought forward, are abundantly confirmatory of those obtained by Hellriegal, and that the fact of the fixation of free nitrogen in the growth of Leguminosæ, under the influence of microbe seeding of the soil, and of the resulting nodule formation on the roots, may be considered as fully established.

It appears that, almost concurrently with the experiments made at Rothamsted, M. Bréal, of the Physiological Laboratory of the Muséum d'Histoire Naturelle, of Paris, has made various experiments on lines suggested by the results of Hellriegal and Wilfarth.

He examined the contents of nodules from Lucerne roots, and observed rounded grains and bacteria-like filaments. He determined the nitrogen in the root-tubercles from various Papilionaceæ, and found it much higher in them than in the stalks, leaves, or roots. He germinated Peas in a nutritive solution, and added some of the matter from a crushed Lucerne root-tubercle. The Pea roots became covered with tubercles, and eventually the nitrogen in the plant was about double that in the seed sown.

In another experiment he germinated two Lupin seeds, inoculated one of them from a living Lucerne root-tubercle, and planted both in gravel with a nutritive solution free from nitrogen.

Eventually the roots of the inoculated plant were covered with tubercles, whilst those of the other had none. The inoculated plant also contained about two-and-a-half times as much nitrogen as the seed, whilst without inoculation there was practically no gain. In another experiment, Peas were germinated in a Lucerne-soil transplanted into gravel, and nutritive solution free from nitrogen added, when the roots became covered with tubercles, and the nitrogen assimilated was nearly twenty-five fold that of the seed. On inoculating the germinated roots of Haricots and planting them in sand, they grew vigorously, formed pods, developed many tubercles on their roots, and assimilated nearly fifteen times as much nitrogen as the seed supplied. Lastly, he planted a fragment of Lucerne root with nodules on it, in a sandy soil, reserving a similar fragment for analysis. Several cuttings of Lucerne were obtained; and when taken up the root had many nodules, and the nitrogen assimilated was more than eighty times as much as in the cutting planted.

As to the importance to agriculture, in a quantitative sense, of this newly established source of nitrogen to the Leguminosæ, the evidence at present at command is insufficient, say the authors, to enable them to form any very decided opinion. Both agricultural investigation and direct vegetation experiment have clearly shown that Leguminosæ do take up much soil-nitrogen, and, at any rate in great part as nitrate. But in some special cases, there was no evidence to justify the conclusion that the whole of the nitrogen had been so derived; and it was admitted that some other explanation of the large amounts of nitrogen assimilated was needed. It is not improbable that, in those cases, the agency now under consideration contributed to the result. *J. J. Willis, Harpenden.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT CLARE LAWN, EAST SHEEN.

Of the twenty-six glass-houses devoted to fruit and flowers in F. Wigan, Esq.'s garden at Richmond, nine are set apart for the Orchids, which are in the care of Mr. W. H. Young, who was formerly employed at Kew. Among them at the present time are two specially attractive houses, and in which a varying display is kept up. The first, a rockery planted with Ferns and Palms, has a fine display of Cattleyas arranged among the overhanging foliage, many very fine Cattleya Mossiæ being employed, as well as the varieties of C. Mendelii, C. Schroderæ, C. Lawrenceana, and one or two of the latest flowering of the C. Trianæ. With these appear the fine sprays of that handsome old species, Oncidium sphacelatum, some good Odontoglossum crispum, and O. nebulosum; several specimens of Cypripedium Lawrenceanum, a finely flowered C. Swanianum×, with large flowers; some Lycaste Skinnerii, and L. cruenta, a large many-flowered specimen of Bifrenaria Harrisoniæ, the curious Masdevallia ephippium, Vanda tricolor, Dendrobium Jamesianum, D. thyrsiflorum, and other species, the drooping sprays of Odontoglossum citrosmum, the clear yellow Cattleya citrina, and the elegant old Dendrobium Pierardii hanging overhead, the whole forming an example of effective arrangement.

In the Phalænopsis-house, the other show-house referred to, was a good display of blooms on a really healthy and thriving collection of these handsome Orchids, which so many fail to grow successfully. A plain gravel walk, and unpaved basement, which some believe to be essential to these plants, are to be found in the house; and on the side and end are ornamental rockeries of Tufa planted with Fittonias, Tradescantias, and plants of similar nature (the Phalænopsis being suspended overhead), carrying out the idea, advanced by many, that the presence of other healthy vegetation is advantageous to the Phalænopsis. Be that as it may, it is certain that the Clare Lawn Phalænopsis succeed beyond some others that we have seen. Some magnificent forms of Phalænopsis Luddemannianum, P. Sanderiana, and P. grandiflora, were in bloom, and P. leucorrhoda and P. Cynthia were in bud. Other handsomely-flowered plants in this house were Thrixspermum Berkleyi, Saccolabium curvifolium, S. ampullaceum, Angræcum Sanderianum; and in bud was a splendid example of A. Ellisii with about a dozen leaves. In the same house was a collection of Cypripediums, many of them in flower.

The Cattleya-house, recently overhauled and rearranged, had a good show of the varieties of Cattleya Mendelii, a plant or two of C. Skinnerii, Lælia majalis in bud in several plants, one with six flowers; C. Schilleriana, Platyclinis filiformis, with about fifty spikes coming on; Lælia monophylla, a small and lovely gem, which possesses five spikes of its bright scarlet flowers yet to open; many Odontoglossum citrosmum that are fully open, and other species of the intermediate-house. In the collection of Cypripediums were in bloom good specimens of C. bellatulum, C. Godefroyæ, and others of that group; also C. Druryii, C. lævigatum, C. hirsutissimum; some grand C. ciliolare; C. Curtisii, C. superbiens, C. Dominianum×, C. conchiferum×, and several varieties of C. longifolium. In bloom or bud in other houses were plants of Cymbidium Lowianum, Diacrium bicornutum, Vanda teres with ten spikes, some good Miltonia vexillaria, Trichopilia suavis, Masdevallias, and other cool-house Orchids.

The collection of Orchids now under Mr. Young's care will doubtless show further improvement as time goes on.

ODONTOGLOSSUM × WILCKEANUM, *Rchb. f.*

The hybrids between Odontoglossum luteo-purpureum and O. crispum, known in gardens under the above name, are becoming rather numerous, and it is interesting to observe the variation in colour they present. In some, as in the original form, the colour of O. luteo-purpureum preponderates, while in others, as in Wilckeanum pallens, the balance is in favour of the other parent. They are all, however, tolerably intermediate in form, and for this reason are easily recognised. A fine raceme just received from E. Harvey, Esq., of Aigburth, near Liverpool, for determination, is almost exactly the form figured in Warner's *Select Orchidaceous Plants*, ser. iii., t. 23, and very well represents the original form. The plant which was certificated by the Royal Horticultural Society, on April 8, 1884, as Odontoglossum Shuttleworthii, now in the possession of Erastus Corning, Esq., of Albany, U.S.A., and from whom flowers have recently been received at Kew for preservation, is also a natural hybrid between the same two species, and very closely approaches O. Wilckeanum pallens, as well figured in the *Orchid Album*, t. 201. O. Wilckeanum sulphureum is, perhaps, about intermediate in colour. All the forms are very handsome garden plants. *R. A. Rolfe.*

CYPRIPEDIUM LEMOINIERANUM ×.

A cross of uncertain origin, but it belongs to the Sedeni group. It was raised by M. R. Lemoinier, of Lille, and obtained the prize at the last Ghent Quinquennial for a new seedling. Mr. Sander grows these hybrids in rich loam and peat, gives abundance of water in the growing season, and a smaller quantity during the winter. The stages should always be kept moist. Temperature 60° to 65° in winter, rising 10° in summer. *Reichenbachia*, t. 89.

CATASETUM TIGRATUM.

According to an article in *Reichenbachia*, accompanying t. 90, this magnificent plant is the same as that subsequently described by Mr. N. E. Brown as C. Bungerothi. They require, says Mr. Sander, to be grown in a warm moist house in a compost of fibrous peat and chopped sphagnum. Baskets are most suitable, which should be hung near the glass, shading from the direct rays of the sun. Water sparingly at first, gradually increasing the quantity as the growths develop, and again diminish the quantity as the flowers appear. Temperature in winter, 55°, with a rest of two to three months, in which no water at all should be given.

DECORATIVE WILD FLOWERS
OF MALTA.

MALTA is noted for its numerous flowers, many of which are brought in large quantities into Valletta in their various periods of blossoming, for decorative purposes. The following are the most important from the point of view now considered:—

Acanthus mollis and spinosus.—This occurs in many of the rocky valleys. The form of the leaf is familiar to the reader as it is carved on the Corinthian capitals. It is often grown in wild parts of gardens, where its handsome leaves are very effective.

Adiantum Capillus-veneris.—This is the only Fern which is really common in caves and elsewhere in Malta. The usual method of cultivating it is on the outsides of globular earthern pitchers, which have two handles, the form being taken from the ancient Roman vessels. Clay is put on the outside, and the Fern roots bound upon it; the plant readily establishes itself. The jar is kept full of water, which percolates through the jar, and so keeps the clay moist. The vessels are called "bombli." They are generally suspended. (See p. 461, April 12, 1890.)

Adonis autumnalis.—Many fields are sometimes almost scarlet in places where this plant grows; great quantities are sold in the streets. There is a variety called citrina, which has generally three yellow petals. It is a degraded form, and appears to be a reversion. Orange-coloured flowers are occasionally met with.

Amygdalus communis.—The Bitter and Sweet Almonds are much grown, and bear profusely. Though not truly wild in Malta, the flowers, pink and white, are often cut for decorative purposes.

Anemone coronaria.—The purple flowers of this species are dotted about the fields in many places; a large bunch can soon be collected by jumping over the wall of a field, which have no gates, only loose stones piled up where the gate ought to be. There is no variation in the wild species, but it gives rise to many different colours under cultivation. It is grown in several gardens.

Antirrhinum majus and siculum.—These two species are plentiful in certain places; the former abounds on the walls and rocks round the Orange groves of Boschetto, on the south side of the island. It is the ordinary purple form of our English gardens. A. siculus has a rather smaller flower, nearly white, with a little yellow and purple about it. It is common in the forts of Valletta, and in some of the valleys.

Arundo donax.—This handsome bamboo-like grass is indigenous, but also cultivated. The inflorescence is often cut for halls and passages, and is employed in union with Pampas-grass. The split stems are used for making market baskets.

Asphodelus ramosus.—This is very abundant all over the island wherever rocks are exposed, and so prevent cultivation. The stems grow to 3 or 4 feet high, and have much-branching panicles of star-like white flowers, each petal being streaked down the middle.

Aurantiaceæ.—Oranges, Lemons, and their kind being a staple commodity, the profusion of Orange blossoms at certain seasons, one need hardly say, does not fail to supply some for decorative purposes.

Calendula maritima and fulgida.—The commonest species of this genus is C. arvensis, which grows profusely by roadsides, but the flowers are not larger than that of a Daisy; those of the two mentioned are much larger, but, as they are not so common, they are not much used.

C. officinalis is more generally grown, and mostly has a somewhat deeper orange tint than in England.

Ceratonia siliqua.—The Carob, or St. John's bread, is the only tree of any abundance in Malta; being much exposed, the trees grow low and assume a scrubby form. The leaves are used for strewing the floors of churches at the time of Festas.

Chrysanthemum coronaria.—This is most abundant about the ditches of the forts of Valletta and elsewhere. In some inaccessible enclosures it forms a perfect sheet of yellow, and is much gathered for sale. There is a variety with about half the corolla white, going a pale rose on the circumference.

Crataegus Azarolus.—Several trees of small size occur in the valleys, the foliage is tomentose, but the bunches of flowers are very like our "May;" the fruit is very large, and eaten by the peasants. Being rare, it is seldom seen. I have gathered it in quantities from one valley.

Diplotaxis crucifera.—This white crucifer is one of the most abundant of plants, the slopes outside the forts being a sheet of white in December. It is also very abundant in the fields. Bunches are occasionally brought for decorative purposes in the winter.

Erica peduncularis.—This is the only Heath in Malta, and is abundant in the rocky parts. It varies in tint from pale pink to cerise. Men and boys collect it in sacks, and bring it to Valletta, where it is sold in the streets.

Fedia cornucopia.—This herb has bright crimson flowers; it occurs in waste places, barren rocky ground, and in fields. It is collected and sold.

Ferula communis.—This plant is common, and bears large decomposed leaves like Fennel (which also grows wild in many places), though the ultimate divisions are not so fine; the foliage is used for decorating the "carozzi," or "cabs," during the carnival.

Glebionis segetum.—This species is very abundant as a "corn-field" weed.

G. coronarium is also in the island, but is less common. Large quantities are sold.

Hedysarum coronarium.—This is called "Sulla," or Maltese Clover, and is cultivated for making "hay;" when in full flower little else than a crimson sheet is seen in the fields.

Hyacinthus Muscari comosus.—This is very abundant in fields, the terminal barren blue corymb—the origin of the feathery process in the cultivated form—is not ineffective with the dark purple bells below.

Iris germanica.—Though not usually recognised as a wild flower of Malta, I found it far away from the haunts of man in a deep rocky valley. In Mr. Harry's garden it changes from purple to white, and much resembles I. florentina.

Matthiola incana.—The Brompton Stock is abundant in the rocks, fortifications and elsewhere near the sea. It is usually purple, but a variegated variety, striped with purple and white, grows on the rocks of the fort just outside Valletta. Both kinds as well as white and the double forms, are cultivated for sale.

Narcissus Tazetta.—This is extremely abundant on all rocky ground. Great quantities are collected by boys, and brought to the florists in Valletta. The usual form has a thick short stem and numerous flowers; another form has slender and longer stems and fewer flowers.

Nigella damascena.—Our old-fashioned garden flower, "Love in a Mist," here grown wild in the fields.

Ophrys and Orchis.—There are four or five common species of each of these genera. I have personally gathered many bunches of Ophrys fusca and O. bombyliflora, as well as Orchis saccata, O. tridentata, O. pyramidalis, and O. undulatifolia. They are not, collected, however, for sale.

Oxalis cernua.—This so-called "English weed," introduced from the Cape of Good Hope by Prof. Giacinto in 1811 for the botanic garden, has become the greatest pest in Malta, though its golden-yellow flowers brighten up every field, wayside, tops of walls, crannies, &c., where it vies with the ubiquitous Pellitory. It is disappointing, for though a nosegay looks well for half-an-hour, the petals then roll themselves up, and they never open again.

Pancratium maritimum.—This handsome plant produces long leaves, sometimes nearly a yard in length, and broad in proportion, and is grown in large pots in passages, halls, &c., for decoration.

Phlomis fruticosa.—This shrub, with whorls of orange-coloured flowers, would doubtless be more sought for if it were commoner. It only grows abundantly in one valley. It is called "Jerusalem Sage."

Phœnix dactylifera.—The Date will not ripen in Malta, so that it is not cultivated. Here and there one sees a tall, solitary tree, a relic of a bygone time. Only the foliage is sometimes used at festas.

Reseda alba.—This Mignonette is most abundant in fields, and is often gathered with the Adonis. It has a slight perfume, the corolla being white, and larger than in R. odorata, making the flowers more conspicuous.

Rosmarinus officinalis.—Large bushes of Rosemary grow in several rocky places; in one I found a pure white variety.

Salvia officinalis.—This accompanies the Rosemary in some valleys. Neither plants, however, are much collected.

Scilla sicula.—This has several varieties of colour, from white to deep blue. The latter form is cultivated, and the size of the umbels enlarged. Mr. Harry has splendid examples in his garden.

Sempervivum arboreum.—Though a true Sicilian plant, like almost all the Maltese plants, it is regarded as not having been introduced. It produces large golden trusses, which are often used.

Silene sericea.—This closely resembles in general appearance our cultivated S. pendula, also a native but not common. The former is as abundant as Daisies, waste ground being perfectly red with it. It is not collected for sale, but is often gathered for rooms.

Tordylium apulum.—This common umbellifer has large white flowers on the circumference of the umbel, like the wild Gueldre Rose. It is collected somewhat largely for sale.

Triticum sativum.—Wheat grown in saucers, &c., till the germinating plants were several inches in growth, is much used as decoration at Christmas.

Tulipa sylvestris.—This is abundant in one particular valley; but nowhere else at the present time. It resembles our English form. Cultivated, it gives rise to several varieties.

Urginea scilla.—The medicinal squills is extremely abundant on all rocky parts of the island. It is exported to England and elsewhere; and is often dug up, the bulb stripped of a few outer scales, and then put in vessels of water for temporary decorations as on hotel dinner-tables. *G. Henslow.*

SOME NOTES FROM STONELEIGH ABBEY.

THIS is a well-known place in Warwickshire, the residence of Lord Leigh. The kitchen gardens are amongst the finest in the country, extensive, surrounded by excellent walls covered with fine well-trained Peaches, Pears, Apricots, and other fruits, one of them with nine large trees of Cox's Golden Drop Plum. One long wall is planted with cordon Pears and Apples, another with Apricots, and others again with large fruiting Pear trees in fine condition. One of the sights of Stoneleigh is a north wall, 60 feet long and 10 feet high, covered with Gooseberry trees trained as erect single cordons, and standing 9 inches apart. These cordon Gooseberries are closely spurred in and bear fine crops of fruit, the variety mostly grown being the old Ashton or Warrington.

On the opposite side of the walk, at the back of the herbaceous border, is a trellis 5 to 6 feet high, and 50 yards long, planted with erect cordon Gooseberries about 8 inches apart. There is a flat even surface on both sides. Such a fence of small fruits is of easy protection from birds—when birds make protection necessary—and is, moreover, a great economy of space.

A trellis of similar length in another garden is planted in the same manner. High class cultivation is followed out at Stoneleigh, and *apropos* of vegetables in season, and Mr. Beddard, the head gardener, speaks very highly of the lily-white Seakale, which is extensively grown there, although it is not so easily forced as the ordinary variety. Large

crowns were now being cut (April) from a bed covered with a moderate thickness of stable litter.

The glass structures, of which there are many, are put to the various purposes of growing decorative plants, and supplying large quantities of cut flowers. In the Strawberry house, once a Pine stove, Vicomtesse Héricart de Thury was in full bearing.

The River Avon, which flows on towards Stratford-on-Avon, broadens out at the lower part of the pleasure-grounds, and there is richly-wooded scenery in the background. In a corner of the pleasure-ground is a spacious summer arbour with open sides, from which a charming view across the river is obtained, and from this structure branch out two long Ivy-covered walks of singular beauty, the Ivy being trained up the sides and over the top of a trellis of iron. Visitors to the garden should not miss seeing these remarkable Ivy bowers, as they are called. Clusters of St. Bridget's Anemones in some of the beds were in full beauty at the time of my visit, and very gorgeous they looked. Stoneleigh is easily reached from Leamington, Warwick, or Kenilworth, and Mr. Beddard is glad to see a gardener, and will always show him everything that is of interest in the gardens. *D. S. H.*

ZENOBIA SPECIOSA VAR. PULVERULENTA.

Under this name we have a plant from North Carolina, growing in swampy places, which everyone should grow. It is of dwarf habit, with leathery ovate leaves, covered with a glaucous bloom, and in the young state often flushed with pink. The flowers are borne in racemes (fig. 100), and bear some resemblance to those of the Lily of the Valley. The forms, Z. speciosa, and Z. s. nitida, have green leaves, but the variety here figured is much superior in every way.

The genus Zenobia is so close to Andromeda, that it is a matter of surprise that it should be retained. The differences as given by Bentham and Hooker reside in the corolla, which is bell-shaped in Zenobia, and globose urceolate in Andromeda; in the anthers, which are prolonged into long tubes in Zenobia, whilst they are blunt in Andromeda. The seeds of the former are cubical, and those of the latter compressed. It likes a peaty or light loamy soil, and is readily increased by layers.



Fig. 100.—Zenobia speciosa: flowers white.

STRAWBERRIES.

I notice in last week's issue of the *Gardeners' Chronicle*, that Mr. Barham speaks highly of Laxton's Noble. I have forced it, and have no fault to find but one, and that is, the flavour is not up to my standard, and I look upon flavour as the all-important point in a Strawberry, or any other fruit.

Permit me to give the readers of the *Gardeners' Chronicle* a short *résumé* of some of the best varieties. Taking Mr. Laxton's three varieties —Noble, A. F. Barron, and Commander—to start with, I have no hesitation in saying that Noble, as an early Strawberry outside, leads the way, its large size and imposing appearance rendering it unique. A. F. Barron, for looks, surpasses any other Strawberry of my knowledge; the flavour, when well ripened, I admit to the full, is tart, but still most refreshing; A. F. Barron is a cross between Sir Charles Napier and Sir Joseph Paxton, so that its parentage may be thought to be almost perfect. These two kinds do really well with us; they are great croppers and good setters. Commander has not been a success, but the few fruits that we have had are of a good colour, and the flavour is absolutely British Queen itself. We are this year trying a number of varieties, both in pots and otherwise, but I give the palm to Auguste Nicaise; it is just now beautifully set indoors, and the large hearts, full of blossom, give very good promise.

Outside, Crown Prince, which I think a great deal of, is a perfectly distinct foliaged Strawberry; while La Monstrous and Monstrosity are both showing admirably. I may also mention two seedlings, Cosmopolitan and the Chief Secretary, which also look as though they meant good business.

Touching what I may term £ *s. d.*, which means late Strawberries, there is some conflict of opinion. Many gardeners boldly assert that Omega and Helena are one and the same variety; permit me to say they are nothing of the kind. I grew Helena thirty years ago, but Omega I never saw before coming here, and both foliage and fruit are quite

different, and if opportunity offers, I shall exhibit both varieties this year in London.

I look upon Omega as the best late Strawberry, unless Latest of All should supersede it; but this, all being well, I shall find out this season,—it gets a good name from a great man. Two others that are very little behind these are, Jubilee (Laxton's), and Lovell's Late Pine, both of which do well here. It is said by many that we have too many varieties of Strawberries, but it must be remembered that some kinds do well at certain places, while in others they are, comparatively speaking, useless. I may instance that grand Strawberry, Sir Joseph Paxton, which almost refuses to grow with Mr. Laxton, and here, upon real good Strawberry land, it does fairly well; while at Uppingham, 10 miles from here, it does really well.

In conclusion, I would say that there is nothing like introducing fresh blood among the Strawberries. I am sure one dozen plants of Sir J. Paxton I had from Mr. Lovell taught me that if you wish to excel in Strawberry growing, "introduce new blood." The thousands of plants sold in a season tell me only too plainly that the majority of Strawberry growers do what I advise. *R. Gilbert, Burghley.*

BATTLE OF THE PASTURES.

The Rye-grass question seems to be far from settled, even now, and many important facts are continually being brought forward. The most recent is a pamphlet just issued by Prof. W. Fream, *On the Botanical Constitution of Certain Pastures Laid Down without Rye-grass.*

It appears that Colonel G. W. Raikes had stated, in a discussion at the Surveyors' Institute, on March 4, 1889, "Upon the Rye-grass Question," that he had laid down many hundreds of acres of land with grass in the last ten years, but in several of which he had left Rye-grass altogether out of his mixtures; and that those pastures which had been sown without Rye-grass had overtaken and surpassed others sown before them with Rye-grass, on similar land.

In replying to this statement, Prof. Fream said he was strongly of opinion that, even on pastures in which Rye-grass seed was not included in the mixtures with which they were laid down, Rye-grass would nevertheless be found, and that he believed, in a great many cases where it was thought that there was no Rye-grass at all on the land, careful examination would reveal its presence.

At the suggestion of Prof. Fream, blocks of turf from two of these pastures were furnished to him by Colonel Raikes and during the past season he has periodically inspected, and noted every species of plant which grew upon them as they became recognisable. In July the crop upon each area was mown, and subjected to a careful botanical analysis.

The results demonstrated in a remarkable degree the fact that about one-fourth of the herbage of No. 1 pasture consisted of Rye-grass, and that considerably over one-half of the herbage of No. 2 pasture was made up of the same species. From which is inferred that No. 2 pasture contained from twice to three times as much Rye-grass as Cock's-foot, and showed that the six-year old pastures of which Colonel Raikes spoke in high terms, contains a larger quantity of Rye-grass than of any other species. *J. J. Willis, Harpenden.*



Fig. 101.—Exochorda grandiflora: flowers white.

EXOCHORDA GRANDIFLORA.

This little known but beautiful Chinese shrub, mentioned favourably by our correspondent, "E. M.," p. 582, in our last issue, and by Mr. Van Volxem in the present one, was originally described

in these columns by Lindley, in 1858, p. 925, and has since been figured in the *Botanical Magazine*, t. 4795. It forms a bush 3 or 4 feet high, with slender, erect, or spreading branches, and thin glabrous leaves. The snow-white flowers are arranged in racemes along the ends of the branches, each about 1½ inches in diameter, with five orbicular petals.

It was introduced by Fortune from Northern China, and has proved hardy in this country. The flowers shown in our illustration (fig. 101) are much smaller than the average. It was well shown as cut specimens from Kew at the last meeting of the Royal Horticultural Society. It is propagated by suckers or layers, and will thrive in any good soil.

Cultural Memoranda.

WALLFLOWERS.

These should be raised early and given a long season of growth, so as to allow of full development and time for the shoots to get thoroughly ripened by lifting time. Harbinger is a very early flowerer, but there are many others which are excellent also for various purposes, that any selection made by me would not be of much use. The seed should be sown at once on well prepared beds in an open position, treading the soil to moderate firmness before sowing. The drills may be made at 6 inches apart, and when the plants are large enough to be thinned, pricking off at 6 inches apart into nursery beds those which are pulled up, and the strong growing varieties at wider distances. The plants need plenty of water in dry weather, and occasionally, manure-water also. *H. Markham.*

PANSIES.

Plants raised from seed sown in pans in heat, and subsequently pricked off into boxes, will ere this be strong and fit to plant out in the open. Give the bed a good dressing of manure and a deep digging. The finest blooms I ever grew were on a bed that had been manured with cow-dung, this having been put 6 inches under the surface of the bed. The soil was trodden firm and planted. A little soot-water will be found a capital fertiliser, and it gives the foliage a healthy dark green colour. *H. M.*

Trees and Shrubs.

BERBERIS STENOPHYLLA.

It seems impossible to say too much in praise of this charming spring-flowering shrub. A reputed hybrid, it would be interesting to know how it originated, and to whom we are indebted for the introduction of such a beautiful subject to English gardens. It is one of the features in the pleasure-grounds at Gunnersbury Park, where it is to be found forming large beds, the branches laden with flowers of a bright yellow colour, produced in small pendulous racemes springing from each of the leafy tufts, and exceedingly numerous. I have a plant of it growing against a west wall in my forecourt garden, on a spot where but little sun falls, and in a soil that tends to starve rather than nourish the plant; the growth is somewhat slow, but each spring it heaps up its racemes of blossoms in happy plenteousness. Whether from the weight of the flowers, or from a natural tendency to take this form, the branches become arched and pendulous, which adds to its attractiveness as a decorative shrub. It does not appear to be very particular as to the matter of soil or situation, and, judging from my own experience of it, it is as hardy as a shrub can well be. B. dulcis is also a very pretty early-flowering species, and very free of bloom. I am not quite sure if it is as hardy as B. stenophylla. B. Darwinii completes a trio of beautiful shrubs well worthy of general cultivation. This also flowers in racemes, and they are yellow, tinged with red, abundantly produced, and very ornamental; it is later in flowering, and makes a splendid group. I think this subject should be more employed in forming hedgerows in gardens; beauty and utility would thus be combined. For a spray of bloom, see p. 619, fig. 103. The late Mr. A. Mongredien, in his book on *Trees and Shrubs for English Plantations*, pointed out as well worthy of notice the fact that "a large proportion of the known species of Berberis are natives of that barren and inhospitable land which, on either side, coasts the Straits of Magellan. In that region of cloud and wind, the flora is very poor in number of species generally, but wealthy beyond all other localities in species of Berberis. This singular fact cannot arise out of climatic influences alone, as the species of Berberis indigenous to that region thrive vigorously when transplanted into England, nor can it be owing to local hybridisation, as the species are all sufficiently distinct." *R. D.*

EXOCHORDAS AND PTEROCARYAS.

There is another species of Exochorda besides E. grandiflora, E. Albert (Regel), from Central Asia, which was in the trade as early as 1886 at least, and may be found in good continental nurseries at 1*s.* 6*d.* per plant. The old species is perfectly hardy here, and flowers very freely when of a sufficient size and left to itself, but it is never a neat and compact bush. It attains a height of 6 or 7 feet.

Mr. G. Wythes is right as to natural station of Pterocarya caucasica; I found it wild in marshes at the foot of the southern slope of the Caucasus, along the river Alazon, near Lagodechi. A little higher up, in less humid soil, are extensive natural forests of Juglans regia. This common origin explains why both are so liable to be injured by late frosts, although quite hardy in winter.

There is a fact ascertained lately by myself which I cannot explain, and which is quite unique so far as I know. In the same soil and position, this tree grows either as a large bush 25 to 30 feet high, or as large as a fine Elm, with a high and clean bole. Both forms are entirely mixed up with each other without any intermediary forms, and are perfectly similar in foliage. I propagate it always by layers, which strike very easily, and make much sooner marketable trees than seedlings possibly could do. I never had fertile nuts on my trees, but they can be got sometimes at Erfurt (good or not, I cannot say), at 7*s.* per lb. I have in my nurseries four species of the genus as distinct as possible, and perfectly hardy—P. caucasica, P. lævigata, serrated shiny leaves; P. japonica, and P. sinensis, downy leaves. *Jean Vokeen, Perck Nurseries, Brussels.*

SPARTIUM JUNCEUM.

The Spanish Broom is very showy just now in shrubberies, and on rockeries near the water, which it overhangs in a graceful manner, reflecting its beauty in the water. It has a strong perfume, yet not of the sweetest; the growth is exceedingly quick, vigorous shoots being formed every year, which never fail to bloom abundantly. As a water-side plant, this pale yellow-flowered shrub is much appreciated. *E. M.*

PRUNUS PISSARDI.

Some mention was made a short time ago of this beautiful shrub. We find it is most useful for cutting, very graceful withal, and good for early flowering, it being about the first to open its flowers. Another fact worth recording is, that it maintains the beautiful purple tint longer in the autumn than any other purple-leaved plant. It will grow in any soil that is in good heart, and in any position, and does remarkably well upon a northern slope, as at this place. *W. A. Cook, Compton Bassett.*

Plants and Their Culture.

The Inmates of the Stove.—Closer attention will now be necessary in shading and ventilating, the sun having got powerful, though in May we often get cold winds, which require that airing should be carefully done, always doing it by the ventilators at the top of the house, thus avoiding cold currents. The evaporating troughs should be kept filled; syringing and damping down frequently to correct injurious dryness. Plenty of moisture should be thrown about at closing time, and again later in the evening, with the view of checking the advance of thrips and red-spider. Allamandas in pots, Bougainvilleas that were started early, and other strong growers will have filled their pots with roots, and begun to flower, at this stage weak liquid-manure should be given them, and the shoots should be trained to the trellis; the Allamandas being kept dry twenty-four hours before beginning to train the shoots. Clerodendrons, as they come into bloom, should be put into a drier and cooler house, so as to prolong the bloom, but still keeping the plants well supplied with water, and all decayed flowers removed. Anthuriums that are full of spathes should be similarly treated, and put into an intermediate-house for a short time. Gloxinias in bloom may be placed in a cooler and drier house to prolong their season of bloom. Crotons will now take copious supplies of water and weak liquid manure, and any ties or sticks required should be attended to before the foliage gets far advanced, and abundant syringing resorted to in fine weather, wetting every part of the plant. Palms should be assisted with manure-water, &c., to give the new leaves strength, especially those of them that are not often repotted.

Dracænas, Aralias, and similar plants, that have filled their pots with roots, may be repotted if intended to be grown into large specimens. Dracænas soon get disfigured if the foliage be not kept clean, and frequent sponging is necessary to keep them in good condition. When full of roots, daily syringing is necessary. The ornamental-leafed Begonias may now be repotted, dividing the roots if stock be required and for a short time after doing this, the plants ought to be kept close, watering them carefully till new growth is made. These are useful decorative plants, and easily grown in smallish pots. Begonias strike readily from the old leaves, and soon make useful plants. The stock of autumn-blooming Begonias may now be transferred from the cutting pots into 60's if they have been propagated as advised in a previous calendar, placing them when potted in an intermediate house. These species of Begonia, if overwatered when short of roots or in a young state, soon show signs of distress, and some degree of care is required in managing them. Most of the plants for the autumn bloom, as Plumbago rosea, Libonias, Justicias, Lasiandra macrantha, and Eranthemums, need similar treatment to the Begonia. A good supply of Poinsettias should now be secured, and the old plants which have been kept dry should be placed in an intermediate house for furnishing cuttings, and if placed on shelves short sturdy cuttings will be obtained. Take these off with a heel when from 2 to 3 inches long. When sufficient stock has been secured, the best of them may be cut hard back, and when they break, shaken out, repotted and grown on for early bloom. A few pots of Euphorbia jacquinæflora propagated now, by putting three cuttings round the side of a 60 pot, and once repotting the whole potful later on, will make nice decorative objects; they should be pinched two or three times whilst growing freely. All species of plants which were struck early and require a shift should be attended to. Thrysacanthus rutilans should be secured, for it is a charming winter decorative plant. The useful Epiphyllum truncatum will now be growing freely, and should get weak liquid manure frequently; these plants do well on shelves near the light, with free circulation of air. Any repotting required by them should be attended to in the case of small plants, keeping them closer for a few days afterwards. *Geo. Wythes, Syon House, Brentford.*

The Orchid Houses.

East Indian Orchids.—In a previous Calendar, I promised to report at a later date on the effect of keeping Vanda Hookeriana in the warmest house during the winter months, and not allowing it to remain dry for any considerable time together, as it is usually treated. I am glad I tried the experiment, for my plants are now sending out spikes in a very satisfactory manner, and more freely than does Vanda teres when subjected to the same treatment.

Phaius (Thunia) Marshalliana will now be passing out of flower. It is a handsome Orchid when well done, and it is one that is, in too many cases, put away in any corner to take its chance as soon as it has flowered. Nothing can be worse for the

plants, as it should receive regular attention in watering, in supplying it with liquid manure once a week, and thoroughly syringing of the under side of the foliage at least twice a day, thrips being its great enemies. It should not be taken to rest in a cooler house before the foliage begins to fall naturally from the lower part of the new pseudobulbs.

Phalænopsis speciosa in flower now is well worthy the attention of lovers of Moth Orchids, coming in as it does when there is little else than P. Luddmanniana in flower, and to which species it is nearly allied, although sufficiently distinct to be desirable. All opportunities should be seized to go over the stock of Phalænopsis with a sponge and soft soapy water. This is of great benefit to these plants; and a dewing overhead with the syringe may be given them every fine morning and afternoon.

Cattleya Sanderiana showing or sending up flower-sheaths should be at once repotted, if this was not done last year. If the proper time for doing this work is neglected, it will probably take two years for the plant to regain health. Dendrobium McCarthie, now sending up flowering-spikes, should have as light a position as possible, and should not be allowed to become too dry. Contrariwise, D. Bensoniæ should receive no water whatever until the plant has passed the flowering stage, and the young growths are some 3 inches in length. D. cambridgeanum should receive copious supplies of water, and be kept at the warmer part of the house, so that the plant may be induced to form stout, plump pseudobulbs at an early period. If these plants are not finished up ready for taking out to their resting quarters by the middle of June, the chances are that the flower of the following year will be small. Fumigate each house with tobacco, with the exception of that containing the Odontoglossums. The foliage of the plants should not be wet when fumigation is done, but a humid and buoyant atmosphere should be maintained in the houses, and the temperature kept up to 70° at night. *A. G. Catt, Packfield, Worcester.*

THE FLOWER GARDEN.

The Occupants of Flower-beds.—The next few weeks will be a busy time in the flower-garden, the removal of most of the spring bedding plants, even if they are still in perfection, demanding attention. As a rule, summer bedding is the more important, and therefore late spring-blooming plants must be taken up, any delay after the proper time for planting causing a lessening in effectiveness in the summer beds, and shortening the duration of bloom. In the mixed herbaceous and shrubbery borders, on the contrary, they may be allowed to finish flowering.

The bulbs of Hyacinths, Crocuses, Tulips, Narcissus, if their foliage is already decaying, may be dug up, and spread out in an airy place to ripen off, but those with foliage still green should be laid in in the reserve garden until the foliage is ripe, when they, too, may be taken up, dried, and stored away for use again in the autumn.

In southern and other favourable localities, all the better hardened-off bedding plants, as Pelargoniums, Calceolarias, Pyrethrums, Centaureas, Asters, Stocks, &c., may be planted out, thus facilitating the hardening-off of Coleus, Iresine, and other tender things, including some of the plants employed in subtropical gardening.

Annuals that were early sown should be thinned, if standing too thickly, in beds and patches, and successional sowings made of Mignonette, Sweet Peas, Asters, Coreopsis, Godetias, and specially of flowers used for cutting. Ornamental grasses which may have been raised in pots, may, when hardened-off, be somewhat divided into separate bunches with soil attached, and planted at suitable distances apart in fairly good soil. These grasses are extremely useful for bouquets, &c. The last of the Gladioli should now be planted. The ground-work of hardy plants in carpet-beds may be planted. Subtropical beds should, as a rule, be richly manured and deeply dug, to ensure strong growth and handsome fully-developed foliage. The hardiest species of plants may now be planted, also edgings of Centaurea, Cineraria, Cerastium, Chamæpeuce, Sedums, &c. Any species of plants which it is at present unsafe to plant, but may be getting pot-bound, should be shifted into larger pots, so as to prevent any check for want of root-space. Nothing is gained by starving these strong-growing plants, and attention given them at this season is well repaid by the superiority of their growth in summer. *D. C. Powell, Powderham Castle, Devon.*

FRUITS UNDER GLASS.

Trees in Orchard-houses.—Where the fruit is stoning or seed forming, trees must be patiently dealt with, this stage being a critical one. Expose the fruit to the sunlight, make a final thinning of the same, removing all deformed and undersized ones, and those situated at the base of the branches or in the centre of the bushes. Trees in pots should be examined twice daily, and if they ring "dry," thorough soakings of clear water, and occasionally of liquid manure, should be afforded; if the pots are plunged in soil or other material, much watering will be saved. Syringe the trees morning and afternoon with soft water, and beware of there being lime or other substance in the water that would disfigure the fruit or coat the foliage. Stop gross shoots, and remove superfluous and weakly spurs. Search the curled leaves for caterpillar larvæ on Plums, Cherries, Pears, and Apples, and ventilate freely, but avoid a current of cold air, and maintain a buoyant air within the house. Thin very thick clusters of Cherries with the scissors, and do not over-crop. If aphis appear, fumigate with Tobacco-paper, or syringe with soft water and Calvert's carbolic soft-soap, at the rate of one quarter of an ounce to one gallon of water, or use tobacco-water at the rate of half a pint to three gallons of water, and follow the use of these insecticides with a douch from the garden-engine on the following morning. Plums require full ventilation to bring up the flavour. July Green Gage is one of the best earlies, although a trifle shy; Kirke's, Jefferson's, and Early Prolific also do well in pots. Plum trees, planted out, should be well mulched with manure. Black Tartarian Cherry is one of the best Cherries, and does well under glass; whilst Pears and Apples are so improved in appearance under glass as to be almost unrecognisable.

Figs-house.—Early Figs will now be ripe, and their flavour will be improved if the air be kept drier by means of the heating apparatus, and top air left on at nights. Lose no opportunity between the ripening stages to syringe the trees on all sides, to rid them of insects. Brown Turkey and Negro Largeare good kinds, but the latter must have its root run restricted, or it will not fruit well; shallow borders made very firm are essential for the certain fruiting of Figs, abundance of water being afforded the trees whilst growing. If this year's shoots have grown well, the second crop of Figs now appearing will require to be thinned soon, the object being to encourage growth and fruits in the embryo stage up to the end of the month of September, in readiness for the next season. Figs are surface feeders and pay for generous supplies of liquid manure. *W. Crump, Madresfield Court.*

THE HARDY FRUIT GARDEN.

The coverings over fruit trees on walls may now be removed, but it is well to keep them handy, and all temporary coverings should remain for some time longer, as sometimes a sharp frost happens on or about the 20th of this month.

Peaches and Nectarines have seldom, perhaps, set their fruit so freely, and broken away more satisfactorily than this year. Wash the trees after the fruit is safe with the garden engine and clean water, and have the usual insecticides ready for application to any part of a tree that is infested with aphis.

Disbudding will require constant attention, and must be done according to aspect and situation. In warm sheltered gardens, Peaches and Nectarines will now require a final disbudding, but in others more exposed this final disbudding will be later. Little and often is the rule in disbudding, removing forecright growths first also some of the weaker fruits from the shoots. The usual mode of training these trees against a south wall, or within a few inches of the glass coping or roof, so that every leaf is exposed to the sun in a trying position, and unless a liberal supply of water is afforded the roots, and heavy syringing is adopted, insects will soon become abundant on them, and trees heavily cropped will ripen their fruit prematurely if they do not cast many when stoning. The condition of the borders should be ascertained, and water given accordingly. Blistered foliage must be pinched off, and as the shoots advance in growth all traces of it will disappear.

Gooseberries.—A sharp watch must now be kept for the Gooseberry caterpillar. In our locality insects of nearly all kinds are plentiful enough, and the trees are annually brought to the verge by them. By watching carefully for their first appearance and dusting the bushes with powdered lime—an effectual remedy, the creatures have to be washed off later with the engine or hose. Strange as it may appear, the bushes which are covered with fixed netting have not suffered from caterpillars for some years past, and not a trace of it has been noticed. Extreme Currents and Plums and Pears on the walls at the points of the shoots and sprinkle the trees with soot-sacks or tobacco-snuff on the first appearance thereof, the latter is good to destroy the young shoots, and soot makes very short work of the crop. Our orchards are surrounded with Oak plantations, and I fear the Apple crop will be a poor one this year, the Oaks being already covered with caterpillars, and if the fruit trees were cleared several times of the pests, they would still be eaten up by them; they may be seen letting themselves down from the Oaks by a thread, and others blowing about for some distance, ultimately alighting on the fruit trees.

Orchards in Hampshire do not suffer so much, owing to there being fewer Oak woods, and the orchards more open. In the gardens I have had the trees syringed with soot-sacks and paraffin, also with clean water, and with fairly good results, and I hope to give London Purple a trial. I am sure some radical measures must be adopted to stop the ravages of these creatures. *A Fierce Hardwooder.*

THE KITCHEN GARDEN.

Peas.—To keep up a plentiful supply of Peas till late in the autumn there should be at the least three more large sowings, and no better varieties than Ne plus Ultra, British Queen, and Veitch's Sturdy, can be selected for the purpose. These, if sown on May 20th, 30th, and the 10th of June, will in most gardens keep up a supply of pods till cut down by frost. Plenty of manure should be put in the trenches made for these crops and as much space as possible between the rows should be secured for the tall kinds. If the soil be dry at the time of sowing, the trenches should be well soaked with water, and the seed may also be immersed in water for two hours before sowing it.

Potatoes.—Freely ply the hoe between the rows, and earth up the plants when the stems are 8 inches high. Early varieties growing at the base of warm walls will be much benefited if a few inches of earth be put over the roots, and guano sprinkled among the moss will be found of use as a further [illegible]. It should be dug in shortly with the [illegible] earthing up. As these are [illegible] for eating, they should [illegible] the tops but not too dry, [illegible] are apt to acquire a bitter flavour.

Dwarf French Beans.—Varieties of these should be sown in small breadths, and at intervals of fourteen days. For a regular supply, Osborn's Forcing and Ne plus Ultra will be found serviceable; the first named is of good flavour, and resists drought well. Allow one yard from row to row, or long single lines across the quarters, and see that the soil is well enriched. Those that were sown in pots to be planted out should now be placed in a cold frame for at least ten days before planting them, ventilating the same freely, and supplying them with sufficient water, failing which red-spider and thrips are almost certain to appear on the foliage. Basil raised in pots, if properly hardened, should now be transplanted to the open border at 6 inches apart, and a sowing of seed made at the same time on well-prepared soil. Marjoram, Savory, &c., may now be sown, covering the seed with a thin sprinkling of sifted soil. Make [illegible] to lay a net over the beds until [illegible] takes place.

Celery.—The plants from the latest sowing will be large enough to prick out on a warm border. Give water plentifully and dust them [illegible] with fresh soot, to keep away the Celery fly. We would here mention that after repeated trials of various things, I have found nothing so effectual as soot; but it should be applied early and frequently when the leaves are damp with dew. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, May 21 { Bath, Royal Aquarium (two days).

FRIDAY, May 23—Manchester (till 28th).

MEETINGS.

WEDNESDAY, May 21 { Gardeners' Orphan Fund Floral Fête, in Covent Garden Market.

SATURDAY, May 24—Linnean Society Anniversary.

SALES.

WEDNESDAY, May 21 { Greenhouse and Bedding Plants, at The Nurseries, High Street, Watford, by Protheroe & Morris.

THURSDAY, May 22 { Stove and Greenhouse Plants, at Beddington House, Croydon, by Protheroe & Morris.

FRIDAY, May 23 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, May 24 { Greenhouse and Bedding Plants, at the American Nurseries, Leytonstone; also at St. John's Park Nursery, Blackheath, by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—55°.9.

Diseases of Plants.

IN a communication to the Royal Society, an abstract of which is published in the last number of the *Proceedings*, Professor MARSHALL WARD discusses certain diseases of plants due to parasitic fungi. In order to understand such diseases, and we must understand them before we can pretend to cure, or even palliate them, Mr. WARD points out that we have to learn (1), the life-history of the fungus; (2), the ways and life-habits of the affected plant; (3), the influence of heat, light, moisture, &c., on parasite and on host-plant. Even then there is (4), an "unknown variable," in the internal changes going on in both the host and the parasite. Practical gardeners are familiar with the climatal conditions which favour the spread of the Potato disease, and at one time they were too ready to attribute the disease in question to the weather, and especially to that mysterious influence known as electricity, which has or had for some minds, till it was displaced by "Bacteria," as great an attraction as the "blessed word Mesopotamia" had for others. It is truer doctrine that Professor WARD teaches when he says, that a low temperature, feeble light, and a moisture-laden atmosphere render the plant less able to withstand the inroads of a parasite, because its cell-walls are thinner and more watery, and the contents of the cell in a more unstable condition than under normal circumstances.

Experiments have proved that such plants not only offer less resistance to the fungus threads, but the conditions above-mentioned cause the plant to abound in materials suitable for the fungus. Circumstances then are propitious to the growth of the fungus at the same time that they are injurious to the host-plant. One such fungus, common in greenhouses, causes a sort of "rotten ripeness" in Grapes on the Rhine, and these mouldy Grapes are in some districts used to produce the finest wine, the explanation being that the diseased Grapes undergo remarkable changes, by which the proportion of acid is reduced, and the must of the Grapes rendered richer.

The fungus attacks the plant by destroying first its cell-walls, and then its protoplasm, cell by cell. The destruction is effected by means of a poisonous secretion, which acts as a ferment, dissolves the cell-walls, and kills the protoplasm. So long as the protoplasm can resist the injurious agency exerted by the fungus, by oxidising the poison, or by other means, so long will the plant remain unaffected; but, when once the poison succeeds in overcoming the resistance of the protoplasm, the battle is won, and the intruding fungus revels in the food provided for it.

One point Mr. WARD specially insists on, and that is, that there is no mysterious predisposition to disease; but that while, as before said, conditions are favourable to the fungus, they are prejudicial to the host-plant. "If we wanted," he concludes, "to cultivate the fungus in one greenhouse, and the host in another, we should endeavour to provide one set of conditions for the fungus, and another, and a very different set, for the host."

Cultivators who have not the opportunities nor the time to study for themselves the intricate details connected with the growth of parasities, will be glad to have the general principles so clearly laid down.

HARDY SHRUBS.—As previously announced, Mr. GOLDRING, having just returned from India, where he is engaged in making a garden for the Gaekwar of Baroda, read a paper at the last meeting of the Royal Horticultural Society, on the employment of flowering trees and shrubs of a hardy nature for the embellishment of our parks and gardens. He said, in commencing, that the title of his paper was scarcely a correct one, seeing that the flowering period of shrubs that bloom in the spring overlaps that of early summer, and so on, throughout the season. Much will always depend on season, position, and locality. The foreign element amongst our best shrubs was alluded to, and the lecturer very pertinently pointed out how much poorer, and deficient in floral beauty, and wanting in interest our gardens would be if it were not for the exotics we plant in them, and in fact without these, we could not have fine gardens at all. It was to be regretted that the subject had been hitherto treated with neglect by employer and gardener, the result of which is that very few amongst us are so well acquainted with these plants as is desirable. He thought little advance had been made since LOUDON'S time, and inclined to the belief, rather, that we had in this respect retrograded. We had now to be taught what to plant and what to avoid. There was one class of the community which had not retrograded—the nurserymen. They saw a change was taking place in the ideas held concerning planting, and were preparing accordingly. He would recommend all who intended to plant something better than the common things one saw in the generality of gardens, to pay visits to nurseries dealing in shrubs and trees at various periods in spring and early summer, and make selections at those times. Buyers would then know what they were getting, and would know better the habit of the plant, colour of flower and foliage, and obtain data of all kinds that would afterwards prove of value. Proper preparation of the soil was referred to as being an essential, if good results were to be obtained, and thick planting was condemned—that is, of flowering shrubs themselves. The lecturer then went on to deal with the various species and varieties of shrubs and half trees, employing some of the specimens exhibited by the Director of Kew Gardens, Mr. G. PAUL and others, to elucidate his remarks. At the finish, Mr. NICHOLSON, of Kew, in response to the request of the Chairman, Mr. G. PAUL, supplemented Mr. GOLDRING'S remarks. As a finger-post, pointing the direction future planters should take, the paper has much value; but so extensive a subject needs fuller treatment than was possible in the time allowed. The various plants which are figured in our present issue were mentioned by the lecturer as being indispensable in gardens.

ROYAL HORTICULTURAL SOCIETY.—His Royal Highness the Prince of WALES has consented to open the Society's Great Summer Show of Orchids, Roses, Azaleas, Rhododendons, Begonias, Palms, &c., which will be held, by the kind permission of the Treasurer and Benchers, in the Inner Temple Gardens, on Wednesday and Thursday, May 28 and 29. We understand that the catalogue of the show will take the form of a twenty-page octavo pamphlet, comprising—1st, a short history of the Society; 2nd, programmes of the music each day by the Band of H.M. Royal Horse Guards (Blues); 3rd, a list of exhibitors, and of their chief exhibits. But we are requested to state that no names, &c., can possibly be inserted in No. 3 unless they are received by Mr. BARRON, Royal Horticultural Society's Gardens, Chiswick; or at the Society's offices, 117, Victoria Street, on Saturday, May 24, at the latest. Ten thousand of these schedules are being printed.

THE REV. W. WILKS.—The gardening world was startled last week by a statement in the pages of a contemporary, to the effect that Mr. WILKS had resigned the honorary secretaryship of the Royal Horticultural Society, and we are now desired by that gentleman to contradict that statement. The report has, however, somewhat more truth in it than have most reports, inasmuch as he is very anxious to find some one who will take up the work. The Society may, he thinks, now be said to have turned the corner, and has, he hopes, seen its worst days. He feels, therefore, that he has done his duty by the Society, and that he should now retire, leaving its affairs in a far more satisfactory condition than he found them. A new era, too, is commencing with the prospect of a new hall for horticulture, and therefore it seems to him a most fitting time for a new shoulder to be put to the wheel. At the same time, though on many accounts he is very desirous of retiring into private horticultural life, he has not actually resigned, nor will he do so until a successor is forthcoming, unless more urgent reasons should arise than, he is glad to say, at present exist. As to having done his duty, we do but echo the feeling of all who know, when we most cordially and gratefully acknowledge that he has done so to the utmost—that to a very large extent the improved position and prospects of the Society are due to him, and we trust it will be long before the Society loses the services of one who has made himself so essential to it.

THE FLORAL FETE, which has been organised for the benefit of the Gardeners' Orphan Fund, will take place in the Wholesale Flower Market, Covent Garden, on Wednesday evening next, May 21. The Lady MAYORESS will open the fête, while the Duchess of BEDFORD, and the Baroness BURDETT COUTTS, have signified their intention of being present. It is to be hoped that the Fund will derive a substantial benefit from the venture. Admission is by ticket, price 5*s.*, and as the number is limited, early application should be made to Mr. A. F. BARRON,

Chiswick, or to Mr. J. Assbee, Covent Garden. In connection with the Gardeners' Orphan Fund, we learn with pleasure that Shirley Hibberd, Esq., will preside at the annual dinner on July 19.

"Kew Bulletin."—The May number contains commercial information relating to Lagos rubber produce of Linum perenne, but little is known of it at present as an economic plant. Liberian Coffee has, we are told, found a congenial home in the Straits Settlements.

The Royal Botanic Society.—The first of a series of lectures on botanical subjects was given in the in May and June, and will be free to all visitors to the gardens.

Two-Flowered Inflorescence of Cypripedium.—So long back as 1866, we remember taking part in a little controversy with Prof. Reichenbach on this subject. We advocated the notion that



Fig. 102.—Magnolia stellata: flowers white, with yellow anthers. (See p. 618.

the produce of Ficus Vogelii and other species, and which is well spoken of by Mr. Silver. The Alexandrian mealy-bug, Crossotosoma ægyptiacum, which is doing much harm in Egypt, comes in for a share of notice. Rosin washes are recommended as follows:—Rosin, 20 lb.; caustic soda (70 per cent. strength), 6 lb.; fish oil, 3 lb.; water, to 100 gal. Boil till dissolved, add cold water, and stir. Finally dilute with 100 gal. of water. Siberian flax is the

Museum of the Royal Botanic Society of London on Friday evening last, by Mr. E. M. Holmes. Mr. H. M. Best was in the chair. Mr. Holmes' subject was 'British Seaweeds.' His interesting lecture treated more particularly of the colours, structure, and modes of growth of the many species common upon our coasts. Living specimens of the more interesting varieties were exhibited. The lectures are to be continued on the Fridays

the structural characteristics were such that branched inflorescences might naturally be looked for as the result of good cultivation and vigour of growth. The Professor considered them as purely exceptional. Since that time plenty of such cases have occurred, and now we have before us, as we write, a fine spike of Cypripedium Lawrenceanum, and another of C. selligerum majus, grown by Mr. Reginald Young, Fringilla, Liverpool, and sent to us by Messrs.

SANDER. The original flower-stalk is terminated by a flower, the secondary or lateral one being produced at a lower level, forming an illustration of what botanists call a definite inflorescence. The great peculiarity in these cases, is that although the two flowers belong, as it were, to distinct generations, yet the older flowers preserve their good looks so long that they bear comparison with their younger rivals.

BOUQUETS AT THE DRAWING-ROOM. As it is no longer considered impertinent to publish an account of a lady's dress, there can be no impropriety in copying the following extract from the *Daily News*. "The bouquets were in great variety and beauty. Some glorious Orchids were to be seen. A posy of white Roses was almost as lovely as any there. The Countess of ABRAN carried a lovely bouquet of Mimosa [?] and brown foliage. The Hon. VIOLET LANE-FOX'S Souvenir d'un Ami Roses were deliciously fragrant. Lady WOLSELEY carried crimson Roses. Mrs CORNWALLIS WEST'S pink Roses were mingled with beautiful green foliage. Enormous blooms of giant Mignonette composed another."

LINNEAN SOCIETY.—The anniversary meeting of this Society, for the election of a council and officers for the ensuing year, &c., will be held at the Society's rooms, Burlington House, Piccadilly, on Saturday, May 24, at 3 o'clock precisely.

IRIS IBERICA PARADOXOIDES.—This beautiful new Iris, writes M. MAX LEICHTLIN, turned up among my numerous seedlings, and seems to be a natural hybrid, which, had it been found wild would certainly have been declared a new species. In form it is exactly like I. iberica, except the outer segments, which are spatulate with a very broad beard. The colour of the inner segments is pale purple with reticulate markings of very bright shining purple; outer segments stretching out horizontally, slightly recurving, of a pale sulphur-yellow ground colour, which is covered by the broad velvety-purple beard and velvet-black blotch, also a thick reticulation of the same velvet-black. It is just midway between I. iberica and I. paradoxa, a very striking and showy flower.

SCHOOL OF FORESTRY.—A deputation from the Associated Chambers of Commerce waited upon Mr. CHAPLIN (with whom was Sir JAMES CAIRD) at the offices of the Board of Agriculture, in St. James's Square, for the purpose of urging upon him the desirability of establishing a National School of Forestry. Colonel HILL, addressing Mr. CHAPLIN, said those who were with him desired to point out that the growing of timber as an industry might be most usefully extended in this country, especially in view of the timber supply from abroad becoming more and more diminished. They recommended, therefore, that Her Majesty's Government should establish a National School of Forestry, which would be an encouragement not only to the planting of Crown lands with trees, but would also induce private landowners to utilise ground which was at present of little or no service in the same direction.—Mr. G. HARPER next spoke, and said he had received letters approving of the objects of the deputation from Lord BASING, official verderer of the New Forest, Sir EDWARD LECHMERE, and other gentlemen. He further pointed out that, with the exception of Spain, this was the only country of any position that did not have National Schools of Forestry. England was the greatest timber-buying nation in the world, and at present imported annually something like £13,000,000 worth of that commodity. There was a vast acreage of land now lying waste in this country which might, were the proper instruction forthcoming, be used for timber growing, and practically enable it to produce all the timber it required.—Mr. CHAPLIN said there could be no doubt of the growing interest and importance of the question under discussion. The purport of the remarks he had heard seemed to be that his department should establish a National School of Forestry. He desired, however, to point out that the Act under which that department was instituted provided only for its inspecting and reporting upon schools which provided education either upon agriculture or upon forestry. So far as he could see, his department had no power to institute a school, but he would consider the matter very carefully, with a view to seeing if he could recommend such a course to the Government. Before he did this, however, he should like to obtain some further information upon the climate and soil of the waste land which Mr. HARPER had said it would be possible to turn into profitable forest land.

SEATS AND GARDENS FOR THE WEARY. The Metropolitan Public Gardens Association have granted £50 for seats for St. James's Churchyard, Clerkenwell. They are in communication with the Ecclesiastical Commissioners respecting certain lands in Fulham; with the Corporation as to the Hilly fields, S.E., and Wandstead Flats; with the First Commissioner of Works respecting banks of flowers for Trafalgar Square; and with the Governors of St. Bartholomew's Hospital asking that Bartholomew's Square may be opened to the public. It was reported at the last meeting of the Association recently that the Vestry of St. James's, Westminster, had undertaken to maintain the shrubs at Piccadilly Circus; that the Association employés had improved for the public use a small ground attached to the Victoria Docks Congregational Church; that the Vestry of St. Martin's had agreed to maintain the garden round the church of St. Martin's-in-the-Fields, which the Association laid out and has maintained for the past three years; and that the Charity Commissioners had received a deputation respecting the preservation of Emmanuel Hospital, Westminster, and the space adjoining it.

THE HORTICULTURAL HALL.—From the list of gentlemen who have subscribed money for the above building, which was published in the *Gardeners' Chronicle*, April 26, the nursery firm of DICKSONS (Limited), Chester, was inadvertently omitted. The list, however, was professedly incomplete.

THE SILK TRADES' EXHIBITION, to which we drew attention at p. 555, has proved very successful. The ball-room at 7, St. James's Square, kindly lent by Lady EGERTON OF TATTON, is not quite the place for such an affair, the exhibits suffering from lack of space and occasional lack of light. A well-drilled band of lady mandolists, and a loom at work, gave the necessary life to what might otherwise have been a dull affair. Where there was so much excellence, it would be invidious to distinguish. Many of the exhibits were simply superb, the colours and shades being very pure. Floral effects were aimed at by nearly all the exhibitors, cleverly achieved in some instances, in a few conventionality of a wonderful character being shown. It is a pity that so much was hung literally on the line, the effect in several cases being quite undesirable. One or two bric-a-brac lots of a high class were crowded out, and had to be pulled out and spread, in order to get a fair view of their fine design. Some of the work most admired was in imitation of the French—temp. LOUIS XVI., also of Genoese velvet. One or two court dresses were of English style, with just a thread of French taste running through them. The faults of the present exhibition will easily be deleted from any succeeding one, whilst all its beauties ought to be retained.

MAGNOLIA STELLATA.—In this fragrant white-flowered shrub (fig. 102), a native of Japan, we have a lovely addition to the spring flora. The flowers, which are 3 inches across, with yellow anthers, expand before the foliage is fully developed—that is from March to May, according to position and locality. Under the name of M. Halleana, given to it in compliment to its introducer to the U.S. of America, it was figured in the *Garden* (vol. xiii., p. 15). The plant has been long cultivated in Japan, and it is said by FRANCHET and SAVATIER to be indigenous in woods around Mount Fusi Yama and in Central Niphon, where it forms a small tree. The leaves, which grow from 2 to 5 inches long, are variable in shape, from narrowly obovate with rounded tips, to eliptic and acuminate, and membranous, the petiole about one-third of an inch long. The petals number about fifteen, spreading at first, and becoming reflexed in a day or two after opening, and have a faint pink central streak on the white ground. It is a plant which every one with a sheltered garden should grow, and it will succeed as a bush or as a wall tree. The plant was recently in flower at Messrs. J. VEITCH & SONS' nursery, Coombe Wood, but the specimen figured was sent by Mr. J. O'BRIEN. It is figured in the *Botanical Magazine*, t. 6370.

CATASETUM BUNGEROTHI.

M. LUCIEN LINDEN writes with reference to this plant, which is considered in the last number of the *Reichenbachia* to be C. pileatum, of Reichenbach: —

"Permit me to protest against the name pileatum, which Reichenbach is said to have applied to this plant so long ago as 1882. Some time before his death, the Professor wrote to me that the C. Bungerothi was the same species that we had sent to him in 1882, and which he had then named C. pileatum. In reply, I told him that neither my father nor myself had at any time sent him a Catasetum at all like C. Bungerothi. This assertion I now repeat. I cannot remember what Catasetum we may have sent to the Professor, but I am quite sure it was not C. Bungerothi. This species is so extraordinary, that my father and myself must have recollected it.

Catasetum pileatum was described in these columns by Professor Reichenbach on April 15, 1882, and was again described by him, November 13, 1886. What Reichenbach said of his C. pileatum in 1882 reads rather tamely in comparison with the sensation that C. Bungerothi excited when it first appeared in London.

"A curious species, comparable to Catasetum cernuum. It has rather large flowers, comparable to those of C. Naso. Sepals narrow, light reddish. They may, however, have been green before, as sometimes is the fact, from withering. Petals broad, oblong acute, white. Lip a wide, nearly obtuse-angled expansion descending in a blunt cone, white. Column with a very long beak and two cirrhi. This interesting species was introduced from Venezuela by Director Linden, and flowered by the Compagnie Continentale d'Horticulture, Société Anonyme, Gand."

On November 13, 1886, as above stated, the Professor again described a plant under the same name and as a new species in our columns, without any reference whatever to his previous description. Could he possibly have forgotten that he had already described the (or a) plant under the same name more than four years previously? The second account runs thus:—

"A curious species, which in the breadth of the lip, the ivory broad lip, the whitish colour reminds one of Mormodes luxatum. It has rather large flowers like those of that plant. Sepals narrow, large, ligulate-acute, light reddish. I am, however, by no means sure whether the colour is natural, or a consequence of withering. Petals broad oblong, acute white. Lip a wide, nearly triangular, obtus-angled expansion, descending at the base into a blunt cone. Column white, with a very long apicilar beak and two well-developed cirrhi. A specimen has been kindly sent to me by Messrs. Linden."

This second account, and especially the reference to Mormodes luxatum, gives a better picture of C. Bungerothi than did the first one, but still the omissions are very noteworthy.

On December 16, 1886, as the *Gardeners' Chronicle* was going through the press, we were summoned in hot haste to Stevens' Rooms to see a most wonderful Catasetum. There we found a plant sent for sale by Messrs. Linden, and of it we took some notes which were published at p. 785 of our volume for that date. We were the more struck with it as we had, if we remember rightly, previously seen the original sketch made by the collector; at any rate, we must certainly have seen the reproduction of it in *Lindenia*, published early in 1886, and we had had some conversation about it which Mr. N. E. Brown, who described the species, as we thought at the time from rather unsatisfactory material. In any case, the plant was a far finer thing than the picture represented it to be.

On January 29, 1887, we published a full page illustration of this species taken from the first plant which flowered in this country, and which was in the collection of F. G. Tautz, Esq. At the same time we also published from our own memoranda a further description of the first plant seen in flower in Europe, and which was the one sold in Stevens' Rooms to Baron Schröder. We prognosticated the existence of considerable variation—a prognostic which has been amply verified.

This figure was, we believe, the first representation of the plant, except the rough memorandum-sketch made by Bungeroth, published in the *Linnæa*. We mention these dates and historical reminiscences because, although in constant correspondence with the Professor, it is remarkable that he should have allowed us to publish this illustration and these memoranda without having called our attention to his previously published C. pileatum. He appears, however, to have stated the fact to M. Linden, and to have apprised Mr. Sander that "Baron Schröder has sent me, through Ballantine, an enormous spike of Catasetum pileatum." This last letter was dated on August 8, 1887, the spike alluded to being taken from the same plant that was shown in Stevens' Rooms.

In October, 1887 (p. 431), the flowering of Catasetum Bungerothi at Kew was noted, and subsequently numerous references have been made to the plant, always under the name Bungerothi. Under this name also it has been figured in the *Pharmaceutical Journal*, 1887, t. 10; *Botanical Magazine*, t. 6688, 1888, *The Garden*, 1888, p. 388, and the *Orchid Album*, viii., t. 352.

According to Mr. Rolfe, who retains the name Bungerothi (see *Gardeners' Chronicle*, October 26, 1889, p. 466), specimens of this Catasetum, collected by Spruce, had lain unrecognised and unnamed for more than thirty years in the Kew herbarium. It is remarkable, if this be so, that it should have escaped the lynx-eyed scrutiny of Professor Reichenbach; but this may have been because it was misplaced in some other genus.

In the case of so very distinct, and so well known a plant, the confusion arising from the dual name is not likely to be so inconvenient as in the case of more obscure and less well known plants. We, or our successors, can well afford to wait patiently till the Professor's herbarium is unlocked a quarter of a century hence at Vienna, to ascertain for certain what it was that Messrs. Linden sent to him, and it may prove that established custom may, as it often does, prove more potent than the laws of priority.

Lastly, we would call attention to the notes on the sexual variation of these plants by Mr. N. E. Brown, April 13, 1889, p. 461, fig. 83, and by Mr. Rolfe, at p. 467 of our number for October 26 of the same year, and to the highly important observations of the latter gentleman before the Linnean Society, March 21, 1889, as reported in our columns March 30, 1889, p. 407.

BERBERIS STENOPHYLLA×.

This species of Berberry, fig. 103—a hybrid between B. Darwini and B. empetrifolia—is a graceful evergreen shrub of drooping habit, covered in the spring with wreaths of golden blossoms, and in the autumn less so. Like others of the genus, it is well adapted for groups, borders to beds of shrubs, or for clothing a low fence. It is easily propagated by layers by cuttings in a cold frame, and by seeds—the commoner method of increase in nurseries. (See p. 614.)

OLEARIA GUNNIANA.

Olearia Gunniana is a Tasmanian shrub, long known in gardens under the name Eurybia Gunniana, but as Eurybia cannot be generically separated from Olearia, the older name must give place to the one given above. The plant grows from 3 to 4 feet in height, with hoary branches and polymorphous leaves, which are oblanceolate, coarsely toothed, and hoary beneath. The starry, white flowers are very numerous, and cover the ends of the branches with a snowy sheet. The flowers, represented in our illustration, p. 623, of their natural size, have white ray florets, and a grey disc. In sheltered situations it will stand out-of-doors uninjured in our usual winters, although in very severe ones, and in cold situations, it may be preserved from injury by a small amount of protection.

About London this shrub is often found, smothered with bloom in the spring months, and it is undoubtedly a town plant, although the flowers get smirched with "blacks."



Fig. 103.—Berberis stenophylla×. Flower yellow.

Of Olearias eighty-five species have been described; of these, sixty-three are Australian, and the remainder natives of New Zealand and the neighbouring islands. O. Haastii, white, flowering in dense subterminal hoary cymes, is undoubtedly hardy in this country, and is a dwarf shrub everyone should grow. A native of New Zealand, and figured in *Botanical Magazine*, t. 6592.

AMELANCHIER VULGARIS.

The Amelanchiers are amongst some of the best of ornamental hardy deciduous shrubs of large growth, which no planter should omit to plant, either as specimens on the lawn, or in the back rows of the shrubbery. The tree is common in Switzerland and other European countries, in the former country clothing the hills in April with its snowy plumes (see fig. 104, p. 621). The leaf is roundish oval, pubescent beneath whilst young, and becoming glabrous with age. The foliage of A. vulgaris, like that of the American forms, assumes reddish tints in the autumn, and this is another point of attraction possessed by the plant.

It is not fastidious as to soil, provided it is not very poor or clayey, and is well trenched and manured previous to planting.

It is propagated by layering in the spring, and by cuttings taken in the autumn. The name is Savoyard for Medlar, to which this genus is allied.

Home Correspondence.

PASSIFLORA CŒRULEA, CONSTANCE ELLIOTT.—The above variety will repay for any trouble bestowed on its culture. Every one is familiar with the long pendulous shoots of Passiflora cœrulea, and we have only to imagine a white form of this beautiful flower. I have a plant growing on the roof of the Rose-house over the pathway that has been in flower for two months past, and has at the present time one hundred of its white-scented blooms. It continues to grow and form blooms, and on most of the shoots there are twenty-blooms in every 2 feet, and each bloom measures 3½ inches in diameter. For cutting, for festoons, and for the use with artificial light, it is an acquisition, and for church decoration it is equally good. The flowers keep fresh for a long time in water, and it is well to remind floral decorators that bottles of water should be placed somewhere out of sight, to put the stems in. Although a hardy plant, it is just the thing for lofty cool conservatories, where, after the main shoots gets established, the shoots may be allowed to hang down in graceful fashion. I feel sure anyone planting this variety will not regret having done so. Wreaths are very pleasing made with it, and it is well adapted for such purposes, for although the stalks are not very long, the blooms themselves may be wired, and so made use of. I shall try some small plants for early forcing during the coming season. Cuttings of the plant root readily. *A. Evans, Lythe Hill.*

WALLFLOWERS.—No time should be lost in sowing seed of approved varieties of Wallflower for flowering twelvemonths hence. Harbinger, crimson, and Cloth of Gold, bright yellow, are two very effective varieties to grow. The seed may be sown in shallow drained boxes, filled nearly to the top with fine light mould, made firm and covered lightly. The boxes should be placed in a frame or pit, and watered with a fine rose, shaded and kept close until germination takes place, when full air and light must be afforded them. Wallflowers ought to be pricked out as soon as large enough at about 6 inches apart. The only after attention necessary until planting out time arrives in October, is to keep them supplied with water at the roots and free from weeds. If a layer of rotten dung, 1 inch thick, be placed on a hard bottom in a sunny situation, and over this a like thickness of fine loamy soil made firm, and the young plants dibbled into it at the distances indicated, making the soil pretty firm about the roots, and afterwards watering them through a fine rose to settle the soil, the plants will not only grow well, but also lift and transplant well, with nice balls of soil, and manure attached to the roots. *H. W. Ward.*

LONGFORD CASTLE.—To the already extensive area of glass here, there has recently been added a light and substantial lean-to house, 100 feet long, 12 feet wide, and the same height at the back wall. The back wall, I may mention, is well furnished with trained Fig trees, and Tomatos are trained half way up the roof on a wire trellis. The roots are restricted to a narrow border, which runs the entire length of the house, and is bordered by a brick wall. Sutton's Perfection is the principal variety grown. The heating apparatus consists of two 4-inch flow-pipes, being fixed close up to the ventilators. There

is one return-pipe down the gangway. The 3-inch wide cross-pieces of the lattice-path, usually nailed on the sleepers at right angles, are in this case placed diagonally, which makes the walk much easier to the feet. The roof is constructed of T-iron rafters, and five panes of glass (each 35 inches by 13½) to each length of rafter, and embedded in putty, none being used, however, on the top. Lengths of three-quarter inch gas-pipe are used as supports, and are placed at or about 8 feet apart. The top and front ventilators are efficient, and good provision has also been made for water supply. For this a large tank covered with lattice-wood has been built in the centre of the house for the reception of roof-water. A colonial pump is fixed close to the tank, so that water may be pumped up from the earth when necessary. In addition to the above structure, there is also a capital range of four Orchid-houses, made of Pitch Pine. Robinson's expansion joints have been used throughout. Mr. Ward, the gardener, is his own architect in both cases. The grounds, too, have been considerably extended and beautified within the last twelve months, 18 acres having been enclosed from the park. Avenues and groups of Acacias, Laburnums, scarlet Oaks, copper Beeches, &c., have been planted, and new ferneries made and planted with British varieties. Several new summer-houses have been added, and pleasant peeps and surprises are provided in various parts. The present Earl and Countess of Radnor, it is gratifying to note, take a great interest in the gardens. In conclusion, I would mention the large vineries, pineries, and other fruit-houses, are full of promise, while the garden throughout is a model of cleanliness. *Visitor.*

STRAWBERRIES.—If practical criticisms have any value with respect to new Strawberries, they point to the conclusion that we have these fruits as good as Nature can produce them, and beyond that we shall not go. When we remember the many kinds which have been not only certificated from time to time, but have also been put into commerce, it is surprising to find how few of those introduced during the past twenty years have succeeded in finding a permanent footing in gardens. If we take Héricart de Thury, Keen's Seedling, President, Sir Joseph Paxton, Sir Charles Napier, and British Queen—in spite of the latter's comparative shyness in some soils—it yet must be conceded that there is not to be found another half-dozen sorts which can touch them, be they old or new. I commend this fact to the promoters of the Congress on Soft Fruits, to be held during the ensuing summer. The cleverest essayist in the world can tell us nothing new about the cultivation of the Strawberry, but there may be room for wider information. As to the methods of raising sorts, which shall exhibit undoubted excellence beyond what is already found in older varieties, that is, of course, assuming that such a thing be at all possible. The undoubted failure of so many very highly-praised sorts, after they have been subjected to practical cultivation in many districts, and in divers soils, shows that raisers have been on the wrong track. If we have fine fruits, they are comparatively flavourless, or are so soft as to be useless for travelling, or show demerits of some sort, and may not be employed to oust other older varieties. That we generally prefer for all ordinary purposes the old sorts above-named, shows that the preference must have a solid foundation. It does, therefore, seem obvious that in Strawberry raising we have about reached the end of our tether. *A. D.*

—— Having read the correspondence relative to the merits and demerits of Strawberries for forcing in your last week's issue, it may interest some of your readers to know that I am growing a few of the following varieties in pots, in a temperature of 55° to 60° at night, with a gentle circulation of air:—Noble, Jubilee, British Queen, Paxton, Preston Seedling, and Vicomtesse Héricart de Thury. I find Noble and Jubilee by far the heaviest croppers. *Joseph Meredith, Oak Road, Timperley, Altrincham, Cheshire.* [No one has denied its being a good cropper. Ed.]

—— It would, I think, after all that has been said in favour of different varieties for forcing, seem as if the soil and climate have much to do with flavour. I shall grow no more of Laxton's Noble indoors, as the flavour is poor and the flesh dry and woody; this, however, will not stay my growing it outside, where it is early, large, and of passable flavour. I have had fruit indoors 1 oz. each this season, and very fine in colour, but that is all. I was pleased to see Mr. Coomber speaking highly of Vicomtesse. My early house this season was devoted to that variety, with the exception of a few Nobles, and no finer fruits could be wished for; and the flavour, although not A 1, as is the case with most early forced fruits, was excellent in comparison with the others. President, as a successional variety, does not do so well here as at Burghley and Longford Castle, in both of which places it used to be a grand fruit. Our favourite is Sir C. Napier, and I annually force 1200 of that variety. It is a capital variety to travel, the flesh being firm, although not so sweet as some. I send you a few fruits and leaves, and I think you will agree with me that they are good in all points. *H. Markham.* [A very fine sample. Ed.]

CAPTAIN STRAWBERRY.—To the best of my recollection, I have never said that the Captain Strawberry fruits grew in the autumn. Mr. Laxton credits it with that pleasant habit, but on this soil, although a strong grower, it never even blooms for the second time in one season; neither do I think it a good Strawberry, except for market purposes. It is a large and handsome fruit, as well as an early one, robust of growth, and of strong constitution, so far as present experience goes; therefore I am inclined to doubt whether Noble, although rather earlier, will ever supersede it. *R. D. Blackmore.*

STRAWBERRY LAXTON'S NOBLE.—The above is, no doubt, one of the finest, if not the very finest, looking Strawberries grown. On the 17th of last month, I saw eighteen fruits whose weight was 17½ oz. These fruits were grown by Mr. S. White, gardener, Cannon's Park, Edgeware, and were finely coloured and of perfect shape. Mr. White started with only twenty-five plants last autumn, and all these plants were heavily cropped. My own experience of it is, that it is very free, and grows well, but the flavour is bad. Every care was taken with it; it grew side by side with other varieties, but all to no purpose. *Edwin Beckett, Aldenham.*

ANEMONE FULGENS.—A clump of this Anemone, which has flowered annually for the last ten years, commencing in January, is now (May 2) showing a few straggling open flowers. The 18° of frost we experienced on March 4 checked the plant for a time, but since then they have been much finer than was previously the case. Once only in the time named have the roots been moved. The clump is growing at the front of the herbaceous border, facing south. The soil is strong, stony. It is the adhesive nature of the soil, and non-removal for so long a time, which may be the cause of the long continued vigour of the clump of plants. *E. M.*

STURMER PIPPIN APPLE.—I send a specimen fruit of this Apple [a very fine one, but flavourless. Ed.] to show how late Apples will withstand frost. This Apple was not gathered until November 29 last year. It withstood three rather sharp frosts the first of 12°, the second of 13°, and the third frost of 14°. I have found if this Apple be gathered too early, it will shrink and shrivel in the spring of the year. *Robert Smith, Yalding, Kent.*

SPRING TINTS.—Your leader, p. 584, on this evergreen subject, must have been of great interest to your readers. You only do late justice in insisting on the share the leaf-scales have in the *ensemble.* In Spain and Portugal, the ruddy tints of the leaf-scales in the Sweet Chestnut woods are seen from afar, and give a beautiful colour contrast. One view near Cintra, seen in April, of a Chestnut wood trending down the slope of the hill on which is situated the Cork Convent, where as Byron has it

"Honorius long did dwell
In hope to merit Heaven by making earth a Hell,"

will never be effaced from my memory. At the foot of the hill, merging into the ruddy glow of the opening Chestnut leaf-buds, were some bright green strips of foliage, and further on still was the grey of the Eucalypti, whose tall waving heads lined the high road, and the darksome green of the Stone Pines on the sandy flats of Collares. Another prospect, although it did not depend entirely for its loveliness on spring leaves, still clings to me. Near the fountain at Cintra, by which in the mid-day heat there is always resting a picturesque wine cart with its team of yoked oxen, is a steep declivity thickly strewn by Judas trees with a small wood at the base. The lovely contrast between this long stretch of bright purple and the shimmering emerald leafage of the trees below, held one spell-bound. Two instances, where the grouping of the trees seems almost as if it were planted for the "merry month of May," occur to me at home. One is the drive from Wolverton Station to Sandringham, over what used to be bare moorland; and the other the long approach through the park to Eaton Hall. The former is quite the prettiest part of the Prince's estate at this time of the year. The plantations chiefly consist of Larches and Corsican and Austrian Pines. The contrast between the two shades of green and the brown soberer tints of the Ling, forms a most attractive picture. *C. A. M. Carmichael.*

AUCUBAS UNDER TREES.—In the gardens at Gunnersbury House, I observed the variegated Aucuba growing satisfactorily under a large Horse Chestnut tree. The plants were about 1 foot high, and the ground was thickly covered, the branches having been pegged down to form a close covering. The effect was as good as could be desired. Those who find a difficulty in getting plants to grow on bare places under trees would do well to make a note of this. The Aucuba, being easily raised from cuttings, no difficulty need be experienced in obtaining a stock of the plants. *E. M.*

SOCIETIES.

ROYAL HORTICULTURAL.

Tuesday, *May* 13.—The above meeting, favoured with fine weather, which brought numerous visitors, took place in the Drill Hall, James Street, Westminster. The display was both a varied and a bright one, and was mainly contributed by exhibitors residing at long distances from the metropolis. The Pansies of Mr. Forbes, of the Hawick Nurseries; the single and double-flowered Pæonies of Messrs. Kelway & Sons; Mr. Ryder's Primula Sieboldi, were brilliant in colour, and large in quantity, and took up a considerable amount of space.

Kew sent a most interesting collection of flowering shoots of hardy shrubs, which well served to show what a wealth of beauty remains still to be utilised before our gardens can be said to be well-furnished. Many of the specimens were utilised by Mr. W. Goldring in pointing his lesson on the employment of early flowering shrubs in the garden. Of this lecture it may be said that, owing to the extent of the subject, the lecturer was only enabled to touch but little more than its fringe, indicating some of the showier plants which planters ought to make use of, beginning with arborescent forms, and descending to shrubs. We allude to the paper a little fuller on p. 616.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. R. Dean, B. Wynne, H. Herbst, T. Baines, C. T. Druery, H. B. May, W. C. Leach, Ed. Mawley, H. Cannell, R. B. Lowe, L. Castle, G. Paul, H. H. D'Ombrain, W. Holmes, and G. Nicholson.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W., contributed some good specimens of Ledum buxifolium, with rosy flowers; L. latifolium, with whitish-yellow flowers; and L. palustre, with flowers of pure white, and of good size. Cydonia japonica Moerloosei was a showy object, by reason of the large size of its blossoms of rich red; also Enkianthus campanulatus, a hardy Japanese shrub, with fascicles of pendent, brown-red, bell-shaped flowers. There was a variety of Azalea mollis, with flowers of "old gold" colour; and Cytisus scoparus Andreanus, a variety which has the wings of the flower of a rich red-brown colour—very showy. Sir Trevor Lawrence, Bart., M.P., also had a specimen of this shrub. A few Cactaceous plants also came from Messrs. Veitch, among them being Phyllocactus Rose Perfection, with moderate-sized flowers of rich rose. In P. Admiration was a large and beautiful bright crimson-carmine, and decidedly showy flower. Epiphyllum Gaertneri with a good number of flowers was also shown. Giving variety to the flowering shrubs and also illustrating what picturesque effects may be had from foliage alone, were two Conifers, also from Messrs. Veitch, viz., Picea excelsa mutabilis, with the pendent young growths of pure yellow; and Juniperus canadensis aurea, which also showed yellow buds, the plant is a dwarf and spreading bush.

A showy seedling Anthurium, with dark crimson varnished spathe, and yellowish-white, green-tipped spadix was shown by Mr. Bain, gr. to Sir Trevor Lawrence, Burford Lodge.

A new variety of Regal Pelargonium, Duchess of

Buccleuch, was exhibited by Mr. Forbes, Hawick, N.B. It was semi-double and pure white, a useful flower, if free.

Mr. G. Prince showed his new Rose Souvenir de S. A. Prince, a nice white Tea-scented variety, but without the points that will make it anything more than a garden Rose. Messrs. W Paul & Son, Waltham Cross, showed their new Tea-scented Rose, The Queen. It is a flower prettily formed, a good bouquet bloom, and white. They showed also a Tea Rose, the Danmark Queen, a flower bearing great resemblance to La France in colour and shape, but wanting the silvery sheen of that fine Rose.

The show of cut blooms of zonal, decorative, regal, and show Pelargoniums, set up by Messrs. Cannell & Sons, Swanley, were of exceptional good quality. The double whites, Bush Hill Beauty and Cannell's Double, are capital regals. In Shows, Sultana is a beautiful crimson flower with a white wire edge and white centre; Mrs. J. C. Stone is a light purple zonal Pelargonium, deserving of mention for its novel colour—light purple. Some bedding Pansies in a variety of self colours, came from Swanley, but they paled before the Scotch flowers shown.

Mr. J. Forbes, who came all the way from Hawick, set up a very varied collection of fancy and show Pansies. Violas, &c., in plants, bedded in moss in charming variety. Of fancies, the best were:—W. Dean, John Cooper, John Sutherland, Mrs. E. H. Wood, Acme, and Display—all excellent. Of show or English Pansies, chiefly selfs, were:—George Murray and Tom Bates, yellow; and Alexander Scott, Sparkler, and Major-General Stewart—blues of deep hue. Bedding Violas included Countess of Kintore, bicolored; Virginalis and Gipsy Queen, white; Blue Cloud, white, edged blue; Archie Giant, deep blue; and Abercorn Gem, creamy-white. The Violas were not so good as we have seen from other sources, but the Pansies, in spite of long carriage, were admirable.

The collection of flowering-shoots of hardy shrubs was both opportune and of value to those who possess gardens in or out of London, and who may desire to render them as beautiful as may be from early spring to midsummer. The collection, as befits Kew, was richer in species than varieties, and we will name some of those which are showy, beautiful, and indispensable: Amelanchier botryapium, A. asiatica, A. canadensis, A. vulgaris, all of them white-flowered;



Fig. 101.—Amelanchier vulgaris: flowers white. (See p. 619.)

Cerasus avium and C. avium fl.-pl.; C. pumila, from the U.S.A.; C. Mahaleb chrysocarpa, C. oxycarpa, also white-flowered; Choisya ternata, Exochorda grandiflora, white; a pendulous variety of Crataegus oxycanthoides, C. coccinea glandulosa. The collection was rich in Pyrus, viz., P. arbutifolia, P. serotina, white flowers, with the reverse of petals of a shade of pink: P. sorbus, P. Maulei superba, scarlet; P. floribunda. Azalea amœna, purple flowers, numerous and small; Cytisus præcox, Malus microcarpa, Viburnum cotonifolium, V. lantana; common Broom, and the brown and yellow

variety—Cytisus scoparius Andreanus, C. albus, C. ruthenicus, from the Caucasus; Magnolia conspicua var. Soulangeana; M. purpurea; Ribes serotinum, a yellow-flowered Currant; Ledum palustre, and L. p. latifolium, the minute rosy-flowered and pretty Leiophyllum buxifolium from the eastern U.S.A.; Piptanthus nepalensis, a yellow-flowered Broom-like plant; Rhododendron Kewense, a blush-coloured showy flower, and its white variety; several richly-coloured Lilacs, as Camille de Rohan, vulgaris rubra, and vulgaris insignis—all of them being better to plant than the common pale-coloured variety.

The erect-growing Ulex Welwitschianum is a distinct-looking Furse, of free-flowering habit, better fitted for small groups and borders than the common species.

An extensive collection of Tree Pæonies was contributed by Messrs. Kelway & Son, Langport, Somerset, the majority were double varieties, and many were very fine, showy, and of large size too. An elegant flower was seen in the single variety named Beatrice Kelway, the petals being of a pure satiny white, while the golden stamens arranged themselves round purplish stigmas, making a very pleasing combination of colours. Of the double varieties, we may name Reine Elizabeth, bright rose, ocellata purple at the base fading to pink, and very full; Lumen, like the foregoing, but more compact and solid; L. Mouchalet, salmony-rose, rather ragged in appearance; Jura, purplish-mauve, intense at the base—a very pretty, full, and heavy flower; Fascinatus, flesh colour, with distinct guards almost white. Single Pæony officinalis splendens was noticeable for its deep crimson colour. Other cut flowers were also staged, among which were Pyrethrum Albert Victor, rich carmine, single; Eurybia Gunni, Clianthus puniceus, Aponogeton distichum, White Lilac, Trollius europeus, &c.

An interesting lot of cut specimens was sent by Messrs. Paul & Son, Cheshunt, in which a number of well-known flowering plants were included, as Cydonia japonica, and its white variety, Staphylea colchica; several varieties of Lilac, Ribes aureum, Double Cherry, also the double white and pink forms of Cerasus pseudo-cerasus (=Sieboldi), Wisteria sinensis, Ghent and mollis Azaleas, Deutzia gracilis, Daphne cneorum, Malus spectabilis (a pretty and very free-flowering shrub), Cytisus scoparius Andreanus (already described), and Magnolia conspicuua. Among plants were Eleagnus macrophyllus, Juniperus canadensis aurea, Clematis montana, and a fine standard specimen of Azalea mollis Consul Pitcher. Cut shoots of various ornamental-leaved plants were shown, as the Golden Elm, several forms of the elegant Japanese Maples, than which nothing is more charming, and a variety of Acer (probably pseudo-platanus), named Prince Hendjery, the young leaves of which are red-brown, with the veins of clear Apple-green.

Mr. F. Hooper, Vine Nurseries, Widcombe Hill, Bath, contributed a large number of Pansy blooms of fine strain, and also specimens of a pure white Pink named Her Majesty.

Numerous Pansies and also some handsome varieties of their strain of Primula Sieboldi were staged by Messrs. Ryder & Son, Sale, Manchester, one form of which, viz., Alba magnifica was very handsome; it is pure white, large, and the petals heavily fringed.

Messrs. W. Cutbush & Son, Highgate Nurseries, Highgate, London, N., sent a few plants of Leschenaultia biloba major, with a fair amount of bloom, and also Lunaria biennis variegata, which has leaves of green and white.

Some excellent pots of Lily of the Valley came from Mr. Poupart, Twickenham. Mr. R. Dean, Ealing, W., sent a few Alpine Auriculas, of which Emir, an intense brown maroon self with a gold centre, was the best.

One plant which received a considerable share of notice was a Richardia shown by Mr. G. Knight, Farnborough Park Gardens, Farnborough, and named by him Elliottiana. The spathe is of a beautiful rich yellow colour, and the whole plant has the general appearance of R. æthiopica, and the green leaf has numerous irregular translucent spots; but whatever the plant may be, it is decidedly a pretty thing, and the colour of the spathe is most pleasing.

Messrs. F. Sander & Co. had a plant of Blandfordia nobilis imperialis, which had bell flowers of large size, bright orange-red, with yellow margins. From R. J. Measures, Esq., Cambridge Lodge, Streatham (gr., Mr. Simpkins), came a pure white Pelargonium, Miss F. Measures. Messrs. Barr & Son, 12, King Street, Covent Garden, W.C., sent a group of Narcissi, very good for this late time of the season; and also various Parrot Tulips, Anemones, Irises, &c. Mr. J. Hudson, Gunnersbury House Gardens, Acton, sent a branch of Cercis siliquastrum, well laden with flowers. Messrs. Hennequin-Denis & Co., Angers, France, had Anemone coronaria varieties, which were of no particular merit, and not so fine as the "St. Brigid" strain.

Mr. R. J. Lynch, Cambridge Botanic Garden, sent a few remarkable plants in Aristolochia ringens, which has two long lips like A. ornithocephala; the colour is pale green, marbled with black-brown, and the whole flower about 8 inches or more in length; Arisarum Hookeræ var. ringens, dull brown; A. proboscideum, which has the spathe drawn out into a long brown beak; also Baccharis patagonia, an evergreen shrubby composite; and Neviusa clabamensis, with leafy sepals. None of the foregoing, however, except, perhaps, the Aristolochia, are of great horticultural interest.

Orchid Committee.

Present: Sir Trevor Lawrence, Bart., M.P., in the chair; and Messrs. S. Courtauld, H. J. Veitch, F. Sander, H. M. Pollett, C. J. Pilcher, J. Dominy, E. Hill, J. Douglas, A. H. Smee, H. Williams, H. Ballantine, T. B. Haywood, J. O'Brien, and Baron J. H. W. Schröder.

There was no specially striking plant shown here, although exhibits were fairly numerous. Mr. G. Wythes, Syon Gardens, Brentford, contributed a group of eighteen plants of good Cypripedium barbatum, well-grown examples in perfect health, for which a vote of thanks only was given. Mr. Quaterman, gr. to A. S. Smith, Esq., Cobham, Surrey, sent a plant of the same species.

From W. C. Atkinson, Esq., Aigburth, Liverpool, came a plant of Odontoglossum maculatum anceps, the spike bearing eight flowers. There were transverse yellow bars at the base of each deep brown sepal, the lip and petals being rich yellow, with conspicuous large spots of brown, confined to the lower half in the petals; a flower of Cypripedium Hookeræ type was also sent.

Sir Charles Strickland, Bart., Hildenly, Malton, contributed a piece of Cattleya citrina with three flowers. He had shown the same plant last year, but it had developed well in the interval.

M. Lucien Linden sent from Brussels a piece of imported Cattleya Warocqueana which had opened on the journey from Belgium. Dendrobium Gallicæanum, which is like D. thyrsiflorum, with a paler and expanding lip, was also sent by Mr. Linden, and from the same was a fine pure white form of Odontoglossum crispum named virginale, the spike bearing nine good sized flowers.

A pretty form of Cattleya Mendelli called Venus was sent by R. J. Measures, Esq., which, with the exception of a little purple mottling in the centre of the median lobe of the lip and yellow in the throat, is perfectly white, a very pretty form; and from the same source came Masdevallia O'Brieniana, a pigmy about 2 or 3 inches high, the flowers embedded in the leaves, each sepal half an inch long, dull yellow, with brown transverse bars; and Cœlogyne tomentosa, a fine plant having five spikes of salmony-brown flowers, the column being yellow, and the lip yellow with brown veins; and a finely-flowered piece of Masdevallia ignea Shuttleworthi, red, with crimson-red veins—very bright and attractive.

A deeply-coloured form of Odontoglossum crispum came from N. N. Sherwood, Esq., Dunedin, Streatham Hill, S.E., the plant having eight flowers; and also a fine piece of Phalænopsis grandiflora.

Sir Trevor Lawrence had Lælia purpurata Brysiana, a variety in which the petals are richly suffused and veined with purple.

Mr. D. Cullimore, gr. to Malcolm S. Cooke, Esq., Kingston Hill, Surrey, contributed a pale form of Lælia purpurata, Cattleya Mossiæ var., and a pale form of Lycaste Harrisonæ. Specimens of Cattleya Warneri and Cymbidium Lowi came from Mr. Balderson, Hemel Hempsted. Mrs. Studd, Bath, sent Lælia purpurata var. Mr. J. O'Brien, Harrow-on-the-Hill, showed a little Disa, D. tripetaloides, the flower of which is very small, and the plant only about 9 inches high; the flower is pale pink, with small rose spots, two sepals spatulate and one hooded, with a straight spur; the plant is a native of South Africa.

Odontoglossum excellens var. Albert Edward was sent by Messrs. F. Sander & Co.; the parts of the flower are white with a yellow margin, spotted chocolate-brown, the lip very pale in the ground colour.

G. Barnham, Esq., Stoke Newington, sent a well-grown Dendrobium thyrsiflorum, and also a piece of Cymbidium albucæflorum, a species having small yellowish-green flowers, and not at all decorative.

A little group of hardy Orchis were shown by Messrs. Pitcher & Manda, U.S.A. Nursery, Hextable, Swanley. There were O. fragrans, white; O. incarnata, mauve, with crimson lip; O. provincialis, yellow and white; O. Branceforti, purple; O. coriophora, green, all of them small-growing curiosities; Fritillaria lanceolata of very dwarf habit, and with purple-brown and yellow flowers; and Cypripedium calceolus completed the exhibit.

Fruit Committee.

Present: Sir C. W. Strickland, Bart., in the chair, and Messrs. J. Lee, R. D. Blackmore, H. Weir, T. F. Rivers, J. Cheal, W. Bates, G. W. Cummins, T. J. Saltmarsh, G. Bunyard, Jas. Smith, P. C. Veitch, G. Wythes, H. Balderson, T. Q. Lane, and J. Hudson.

Some excellent specimens of Broccoli were furnished by Mr. W. C. Leach, gr., Albury Park, Guildford, consisting of Veitch's Model; he showed good Parsley.

From the Society's garden came fine heads of Ledsham, Latest of All (Veitch), Gilbert's Victoria, compact and of middling size, Ransome's Conqueror, Wilcove's Improved, and others. A few heads of the new green Asparagus were exhibited by Mr. Miller, gr. to Lord Foley, Ruxley Lodge, Esher; also a bushel of Mushrooms.

Mr. Aslett, gr. to C. Butler, Esq., Warren Wood, Hatfield, had a dish of well-coloured fruits of Peach Alexander; and Col. T. F. Turberville, Evenny Priory, Bridgend, furnished a green flesh Melon.

The awards will be given next week.

ROYAL BOTANIC.

May 14.—The first summer show was held last Wednesday, when the weather was all that could be desired. The display of flowers was very effectively arranged, but on close examination one or two very poor lots were noticed. In many instances, plants were what had already been doing duty at the Royal Horticultural Society's show on the previous day, or at the Crystal Palace on the Saturday before.

In the amateurs' classes for ten and for six stove and greenhouse plants in flower, Mr. W. Chapman, gr. to J. Spode, Esq., Rugeley, was an easy 1st, showing very creditable examples, neatly trained, Aphelexis grandiflora, Darwinia tulipifera, Tremandra ericifolia, and several Ericas, being the best.

In the large class for nurserymen (twelve), Mr. H. James, Castle Nursery, Norwood, was awarded 1st for plants of fair quality, he was placed 2nd for a collection of six stove and greenhouse plants; a large Erica Cavendishii and Ixora Dixiana being his best. In the class for six, the leading prize went to Mr. J. T. Mould, Pewsey Nursery, Wilts, who had a very nicely flowered Bougainvillea glabra and Erica Cavendishii. Mr. James was again to the fore, however, for six fine foliage plants (nurserymen), having a good example of Chrysophyllum imperiale and Cycas revoluta.

A successful exhibitor was Mr. A. Offer, gr. to J. Warren, Esq., Handcross Park, Crawley, who had the best lots of fine foliage plants, Azaleas and Ferns, from amateurs, showing well as at the Crystal Palace.

Mr. C. Turner, Slough, showed a good number of Azaleas, and won 1st for six specimens in the nurserymen's class, having capital examples of Comtesse de Flandres and Duc de Nassau, and was again leading for a collection of twelve in 12-inch pots, having small pyramid-trained plants in good condition. Mr. C. Turner also showed an excellent lot of Pelargoniums, and was again placed 1st for six plants, any section; but 2nd for six fancies, where Mr. D. Phillips, Langley Broom, Slough, was leading, as also for a group of six from amateurs, Kingston Beauty, Delicatum, and Mrs. Potter, being capitally flowered varieties; while Mr. Turner's best were East Lynne, Prince of Prussia, and Ellen Black.

Collections of herbaceous plants and alpines were sent by Messrs. Paul & Son, Old Nurseries, Cheshunt, who were awarded 1st in both classes; among the plants included were Trillium grandiflorum, Saxifraga muscoides purpurea, Arnebia echoides, Cypripedium calceolus, Primula japonica, &c.

Orchids were not largely shown, and the prizes were awarded without any competition. Mr. Whillans,

gr. to the Duke of Marlborough, Blenheim, Woodstock, had 1st for a collection of twelve plants, shewing finely-grown specimens of large size; a piece of Odontoglossum Sceptrum had five spikes of bloom, and each flower measured over 4 inches across; Dendrobium thyrsiflorum, Lælia purpurata, Cypripedium selligerum, and C. caudatum, also deserve mention.

Mr. Howard, gr. to H. Little, Esq., Twickenham, was awarded 1st for a collection (no number specified), Lycaste Skinneri, Cymbidium Lowi, Cattleya citrina, and Cypripedium caudatum, being among the best.

Roses were fairly numerous, and of average quality. Mr. W. Ramsey had the best collection of twenty plants, and Messrs. W. Paul & Son led for nine (distinct), both having evenly flowered specimens of popular varieties.

Non-competing collections were numerous, among them being an extensive and effectively arranged group of choice Orchids, including Cattleyas, Odontoglossums, and Oncidiums, Clivias, and foliage plants, for which a Silver-gilt Medal was given. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, contributed a group of Tree Pæonies and cut herbaceous plants, including Trollius ledebouri aurantiacus, a bright orange form (Silver Medal). Messrs. Paul & Son, Cheshunt, sent a group of cut flowering shrubs and ornamental Maples, including those plants referred to in the Royal Horticultural Society's report (Bronze Medal). Mr. J. Walker, Thame, received a Large Bronze Medal, for a number of cut Maréchal Niel Roses; a similar award being made to Mr. Turner, for a group of well-grown Lilium Harrisi, who also had Azalea J. T. D. Llewelyn, a double flower, rosy-pink, fading off to white at the edges of the petals. From Messrs. J. Veitch & Sons, Chelsea, came a collection of interesting plants, for which a Silver Medal was given; among the constituents of the group were Ledums, Daphne cneorum, hardy Azaleas, Phyllocactus Brilliant, scarlet-red; P. Exquisite, soft rose; Rhododendron The Queen, a greenhouse hybrid, with delicate cream-yellow flowers; Gloxinia Mr. J. Donaldson, very bright and intense red. Acer japonicum laciniatum, with the first divisions of the bright green leaf pinnatifid; and Nephrolepis cordata compacta, having fronds 1 foot long—very compact; also Cytisus scoparius Andreanus, Abies excelsa mutabilis, and Juniperus canadensis aurea (or all of which see the Royal Horticultural Society's report).

Messrs. J. Laing had a good group of Caladiums, Begonias, and foliage plants, with a few Orchids, in which the following were conspicuous:—Begonia Mammoth, double, large bright red; B. Princess Victoria, single, white, with crimson undulate edge; B. Rosy Morn, double, large rosy-carmine—loose flower; B. Duchess of Portland, double, moderate size, solid flower, deep red and white centre; and B. Profusion, single, large, and old gold or apricot colour; also Caladium Gaspard Crayer, the leaf having a rosy-red centre and veins, with a very dark green edging; and C. Mrs. H. Veitch, whitish-pink ground, with rose veins. A Small Silver-gilt Medal was given.

Messrs. W. Paul & Son, Waltham Cross, had a Large Silver Medal for an extensive group of pot and cut Roses, including Souvenir de S. A. Prince, Claire Jacquier, Catherine Soupert, &c.

Messrs. Barr & Son, King Street, Covent Garden, were awarded a Bronze Medal for a collection of cut flowers of Daffodils, Tulips, and Anemones, including Tulipa elegans alba, creamy-white, with a crimson picotee edge; a similar award going to Messrs. Kelway & Son for a collection of continental Pæonies and other flowers, including Syringa alba grandiflora, a pure white lilac, with large flowers.

Messrs. J. & J. Haves, Lower Edmonton, sent a group of show Pelargoniums, the variety Empress of India being very fine. It is rich scarlet, with a white edge, spot very large and crimson.

Mr. G. T. White, Winchmore Hill, had a small collection of Orchids, chiefly varieties of Cattleya Mendelii, one variety of which named albens was very attractive. It is a pure white, with a yellow throat, and the just faintest trace of crimson on the lip. Silver Medal.

Mr. Knight, Farnborough, had his yellow spathed Calla (see Royal Horticultural Society's Report); and a good example of Medinilla magnifica came from Mr. Kelf, gr. to T. J. Waller, Esq., Regent's Park.

The list of certificates will be given next week.

CRYSTAL PALACE.

MAY 10.—The show held last Saturday was decidedly poorer and smaller than has been the case for some years at the Crystal Palace, and not for want of liberal prizes. The exhibits in the amateurs' section were of finer quality than those in the open classes, and, indeed, some of the plants were very creditable examples.

For six stove and greenhouse plants (amateurs), Mr. W. Chapman, gr. to J. Spode, Esq., Rugeley, Staffs, was a capital 1st; and he also had nine good specimens in the open class, when he again led. Among the best plants were Darwinia tulipifera, Tremandra crecinefolia, Aphelexis grandiflora, and Ericas.

Mr. J. Ford, gr. to Sir C. Pigott, Bart., Wexham Park, Slough, was a good 1st for six fine foliage plants (amateurs), with vigorous specimens of Dieffenbachia gigantea, Latania borbonica, and Alocasia metallica. This exhibitor was also very strong with Calceolarias in both the amateur and open classes, having very finely flowered and healthy plants. A large and successful exhibitor was Mr. J. Offer, gr. to C. Warren, Esq., Handcross Park, Crawley, who came in 2nd for stove and greenhouse and for fine foliage plants in the amateur's classes, and was leading for nine fine foliage plants in the open class, having Cycas revoluta and C. circinalis in fine condition in this section. He also had the best Crotons (including a grand C. angustifolius), and the best nine stove and greenhouse Ferns, Cyathea Smithii and Cibotium Schiedei being noticeable examples. In the amateurs' class he received 1st for Dracænas, and also for six greenhouse Azaleas showing profusely flowered pyramids, one of the best features of the show, Model, Baronne Vriere, Mrs. Turner and Duc de Nassau may be named.



FIG. 105. GLORIA SYNANA. FLOWERS WHITE. (SEE P. 619.)

Mr. C. Turner, Royal Nursery, Slough, was leading for Azaleas in the open class, having smallish examples, Grandis, Charmer, and Mrs. Turner being the best varieties. Mr. Turner also had a grand specimen of Azalea Duc de Nassau, which was judged to be the best specimen greenhouse plant, while the best specimen stove plant was Ixora Dixiana, from Mr. W. Chapman.

Mr. J. R. Bird, Dulwich, had some well-grown Dracænas, and Mr. W. Clark, gr. to W. Sopper, Esq., Herne Hill, showed well-flowered Gloxinias; also a box of cut flowers of stove plants, winning 1st for both. Mr. Prewett, Hammersmith, also received 1st for a collection of cut flowers of stove plants.

Orchids were shown only by Mr. J. Douglas, Great Gearies, Ilford, who was awarded 1st in the amateur's class, and 2nd in the open. A specimen of Cypripedium caudatum had sepals 29 inches long.

Bouquets and made up floral arrangements were numerous, and of decidedly good quality. Messrs. Perkins & Son, Coventry, and Mr. G. Newman, Bromley, were awarded prizes in the order named in the two leading classes, and each had tasteful and elegant exhibits.

Pelargoniums were a good feature, and Mr. C. Turner and Mr. D. Phillips, Langley Broom, Slough, were in close competition. Mr. Turner led for a collection of eighteen show and decorative varieties, and he also had the best lot of fancies, and Mr. Phillips was 2nd in both instances. In the class for nine show and decorative varieties, the order of merit was reversed. Mr. Turner's best specimens were seen in Marguerite, Triomphe de St. Maude, Spotted Beauty, Rosetta, Delecatum, East Lynne, The Shah, and Empress of Russia; while Mr. Phillips' best were Kingston Beauty, Prince Leopold, Lady Isabel, Gloriana, Miss Inez, and Duchess of Edinburgh.

A collection of grand specimen Caladiums was shown by Messrs. J. Laing & Sons, Forest Hill, for which they were deservedly placed 1st. L'Automne, Candidum, Mithridate, Clio, and Souvenir de Mdme. Bervart were very fine plants.

Roses were fairly good. Mr. W. Rumsey, Joyning's Nursery, Cheshunt, N., was placed 1st in a close competition, having a well-flowered collection, Thomas Mills, Centifolia Rosea, and Magna Charta, were very well represented; Messrs. Paul & Son, Cheshunt, and Mr. C. Turner, Slough, were respectively 2nd and 3rd.

Among the miscellaneous collections were a group of several varieties of Narcissi, &c., from Messrs. Barr & Son; a collection of hardy herbaceous plants from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham; Messrs. W. Paul & Son, Waltham Cross, N., had an extensive group of well-flowered Roses, and which included the recent novelty, Corinna; and a box of good specimens of Maréchal Niel came from Mr. J. Prewett, Hammersmith; Messrs. Rider & Son, Manchester, contributed a few varieties of Primula Sieboldi; a collection of Calceolarias, finely flowered and vigorous, came from Messrs. Sutton & Sons, Reading; a group of Anthurium Scherzerianum and Sarracenias were staged by Messrs. J. Peed & Sons, Roupell Park, S.E.; Messrs. Paul & Son, Cheshunt, had a collection of herbaceous plants, and also a flowering branch of Genista Andreana, with flowers of yellow and brown: Messrs. J. Carter & Co., High Holborn, London, had a pale yellow Wallflower, under the name of Miss Primrose Carter—a distinct if not very showy variety; Messrs. J. Laing & Sons sent a collection of Tuberous Begonias, in which one named Mammoth, very large, bright red, and quite double, was distinct; and from Messrs. Balchin & Sons, Hassock's Gate, Sussex, came plants of that fine-coloured flower, Leschenaultia biloba major.

THE SCOTTISH PRIMULA AND AURICULA.

This Society held its fourth annual show in the City Assembly Rooms, Dundee, on the 8th inst. The show, a very good one, was the best that has yet been held under the auspices of the Society, and the committee may be congratulated for deciding to have the show in Dundee this season. Financially the result was very gratifying, the takings for admission being more than double those of Edinburgh last year. This will enable the energetic secretary, Mr. W. Straton, and his committee, to increase the prize-list in desirable directions, and thereby add to the popularity of those plants, the cultivation of which the Society is so desirous of fostering.

Auriculas generally were very fine, and the competition keen. The following is briefly the competition in the principal classes:—

Stage Auriculas, six dissimilar.—Eight competitors staged in this class; Mr. W. Kilgour, Blair Drummond, was 1st, with a well-grown lot of plants, consisting of Mrs. A. Potts, Beeston's Apollo, George Lightbody, Lancashire Hero, Acme, and A. Millar, self (Kilgour's). Mr. J. D. Ker, Douglasfield, Dundee, was 2nd, with Acme, George Lightbody, Black Bess, F. D. Horner, Col. Taylor, and George Rudd; Mr. J. Black, East Calder, was 3rd, with George Lightbody, Brunette, John Simonite, Mrs. A. Potts, F. D. Horner, and Mrs. Dodwell.

Four, dissimilar.—Here Mr. Kilgour again took 1st honours, with Talisman, Acme, Blackbird, and Geo. Rudd; Mr. J. D. Ker was 2nd, with Acme, George Lightbody, Blackbird, and Col. Taylor; Mr. W. Straton, Broughty Ferry, was a close 3rd, with Lancashire Hero, Acme, Blackbird, and Alex. Meiklejohn.

Two, dissimilar, brought Mr. Ker again to the front, with George Lightbody and F. D. Horner; Mr. Ker 2nd, with Acme and George Lightbody; Mr. John Menzies, Duns, was 3rd, with Acme and Mrs. Erskine, self (Morris).

For one green-edge, Mr. Menzies outdistanced all with an admirable Prince of Greens, that also secured the prizes for the best green-edged flower and the best plant in the show. In every good quality it was, in its class, perfect, and it has rarely been excelled; the truss, a fully developed one, bore nine pips. Mr. Kilgour took 2nd and 3rd honours, with F. D. Horner and with Lancashire Hero respectively.

One grey-edge.—Here Mr. J. D. Ker had the competition and the honours all to himself, taking 1st, 2nd, and 3rd prizes, with Alex. Meiklejohn, G. Rudd, and G. Lightbody in their order.

One white-edge.—1st and 2nd prizes went to Mr. Kilgour, with John Simonite and Regular (Ashton's), in their order. Mr. Ker was 3rd, with John Simonite.

One self.—1st, Mr. Galloway, Gagie, Forfarshire, with Paronella (Headley's); 2nd, Mr. J. Menzies, with Black Bess; 3rd, Mr. Kilgour, with Heroine.

The premier white Acme was set up by Mr. Kilgour; the premier grey, George Lightbody, by Mr. Kilgour; and the premier self, Mrs. A. Potts, by Mr. Kilgour.

A special prize and certificate were awarded to Mr. Kilgour for a seedling blue self named Vidette; four competitors entered this contest.

In the alpine classes, Messrs. Kilgour, Menzies, W. Storrie, Lenzie, and Black, were prize-taking competitors. In the classes for Polyanthus, Messrs. Menzies, W. Straton and O. Straton, Broughty Ferry, were the prize-takers.

Exhibits from nurserymen and private gardeners added much to the interest of the show. Messrs. Laird & Sinclair, Dundee, had a fine miscellaneous group of plants staged on the floor, consisting of Hydrangeas, Lilium Harrisi, Gladiolus The Bride, choice and beautifully coloured Conifers, &c.

Messrs. Peter Barr & Son, London, exhibited a numerous collection of Narcissi.

Messrs. D. & W. Croll set up a fine group of stove and greenhouse plants, and Messrs. Storrie & Storrie exhibited an attractive group of stove and greenhouse plants, among which were some well-bloomed Erica Cavendishiana, Boronia elatior, and B. Drummondii, along with hardy spring flowers and florists' flowers. *W. S.*

GHENT.

The 154th exhibition of the Royal Agricultural and Botanical Society was held on May 11. The large hall of the Casino was literally packed with interesting and varied collections, of which we can only note a few.

Orchids.—A collection of forty specimens of great merit came from M. J. Hye Leysen, to whom an "objet d'art" was awarded by acclamation. Amongst the plants were Miltonia vexillaria var. Hyeana, good in size and colouring; Odontoglossum Pescatorei Hyeanum, a superb variety with deep purple spots on the inner side of the petals, and which seen by transmitted light have a fine effect; Odontoglossum crispum, with a well-marked lip; a very fine variety of O. guttatum; Cattleya Lawrenceana; C. Mendeli, of extraordinary dimensions; Cypripedium Schröderæ, of large size, and well flowered; Trichopilia suavis, with deep red spots; Oncidium monachicum, Masdevallia Veitchii. Odontoglossum Andersoni, and O. citrosmum, with four fine spikes.

In the interesting collection of M. Van Imschoot were Epidendrum Stamfordianum Wallisii, Dendrobium Jamesianum, Phalænopsis Luddemanniana, Cattleya Mossiæ, Cypripedium caudatum, Odontoglossum Reichenheimii, and a superb Lælia elegans.

MM. Vervaet & Co. showed a good group, including good forms of Odontoglossum hastilabium luteopurpureum, O. Ruckerianum, Cattleya Mendelii, Oncidium phymatochilum, and an Odontoglossum crispum, with pure white flowers.

New Plants.—M. Auguste van Geert showed fine examples of Boronia heterophylla, Nephthytis picturata, Cuprania elegantissima, Begonia Arthur Malet. M. Ed. Pynaert Van Geert had Nidularium amazonicum var. rubro-striatum, Curmeria Leopoldi, Caraguata Peacockii fol. rubris, Canistrum Leopardinum, and Pandanus Glaziovianus. A fine Anthurium, called Flambeau, came from M. Louis de Smet; a seedling Anthurium, from M. Dallière, like Rothschildianum, but superior to it; Cytisus scoparius Andreanus, from MM. Dubois; and white-flowered Azalea mollis from M. Louis de Smet.

Stove Plants.—M. Dallière sent a fine collection of foliage plants. M. Louis de Smet exhibited twenty forms of Anthurium Scherzerianum, of large size, with bold foliage, large spathes, brilliantly coloured; amongst them were the varieties Wardianum, sanguineum, giganteum, grandiflorum, and Madame Arthur de Smet. For this group, which formed one of the features of the exhibition, a Gold Medal was awarded. A fine Canistrum Sallieri came from M. Moens, and an unrivalled specimen of Anthurium Hookeri from the Countess Kerchove, of Denterghem.

Palms, Cycads, Ferns.—An admirable lot of twenty-five large Palms came from MM. De Smet Frères, containing Glaziova insignis, Cocos Weddelliana, Jubæa spectabilis, Kentia australis, an exceptionally fine K. Canterburyana, and the rare Pritchardia Martiana. In the group shown by M. de Ghellinck de Walle were Kentia Belmoreana, Brahea dulcis, Areca Baueri, and Thrinax Chuco. M. Auguste Van Geert had Washingtonia robusta, Areca sapida, and A. Baueri, Kentia MacArthuri, and K. Wendlandi. Countess Kerchove showed a fine specimen of Kentia Fosteriana, M. Spae Vander Meulen a Latania robusta, M. B. Spae an Areca Baueri, M. Pynaert a Chamærops, and M. Van Geert a remarkable specimen of Bismarckia nobilis. These were all fine specimens of choice Palms. A number of fine Cycads came from M. Ghellinck de Walle, including a unique specimen of Zamia Katzeri, a fine Lepidozamia Peroffskiana, and L. MacLeayii. Among Ferns, mention may be made of the Tree Ferns of MM. de Smet Frères, especially their Cyathea dealbata.

Miscellaneous Plants.—Here may be mentioned a fine series shown by M. de Smet-Duvivier, well selected and well cultivated. Among them were Philesia buxifolia, Asparagus comorensis, Hebeclinium atrorubens, and Medinilla magnifica.

Plants in Flower. M. Rosseel, Secretary of the Society, sent fine Cliveas, M. Boelens fifty fine Amaryllis, the Countess Kerchove and M. Ghellinck de Walle remarkable groups of Azaleas. M. Pynaert showed a collection of the hybrids between Azalea mollis and A. sinensis, with bright lustrous colours. MM. Baumann, Pynaert, and De Smet Frères contributed Rhododendrons.

Among the Jury, which was presided over by Count Oswald de Kerchove, were Messrs. Protheroe and Shuttleworth. *Ch. D. B.*

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending May 10, is furnished from the Meteorological Office:—

"The *weather* has been in an unsettled, changeable condition, with cloudy skies and frequent, and in some cases heavy, falls of rain. Thunder and lightning have occurred from time to time in various parts of the kingdom. In the Hebrides and Shetlands the weather was generally fine and bright.

"The *temperature* has been above the mean in Scotland and Ireland, as well in 'England, N.W.' and 'England, S.,' but in the other English districts it has not differed materially from the normal. The highest of the maxima, which were registered during the earlier days of the period, ranged from 65° in 'Ireland, S.,' and 'England, N.W.,' to 71° in 'England, E.,' and 72° in the 'Midland Counties.' The lowest of the minima were recorded either on the

6th or 7th, and varied from 31° in 'Scotland, E.,' to 39° in 'Scotland, W.' In the 'Channel Islands' the thermometer did not fall below 45°.

"The *rainfall* has been somewhat less than the mean in the north and east of Scotland, and the north of Ireland, and about equal to it in 'England, N.W.;' in all other parts of the kingdom a rather decided excess is shown, especially in the east of England, where the total fall for the week was about three times the average.

"*Bright sunshine* has been slightly more prevalent than it was last week in 'Scotland, N.,' but in all other districts there has been a very considerable decrease. The percentage of the possible amount of duration ranged from 17 in 'England, N.E.,' and 22 in 'Scotland, E.,' and the 'Midland Counties,' to 38 in 'Scotland, W.,' 46 in 'Scotland, N.,' and 47 in the 'Channel Islands.'"

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	Districts.	Temperature. Accumulated. Above (+) or below (−) the Mean for the week ending May 10.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
			Day-deg	Day-deg	Day-deg.	Day-deg.	10ths Inch.		In.		
1		5 +	39	0	+ 104	− 64	1	99	18.2	16	27
2		2 +	47	0	+ 57	− 55	1	75	9.9	22	29
3		0 av.	48	0	+ 21	− 91	6 +	66	6.9	17	28
4		1 −	40	0	+ 1	− 33	8 +	72	8.0	28	33
5		0 av.	62	0	+ 11	− 21	4 +	66	7.3	22	28
6		1 +	69	0	+ 13	− 67	5 +	68	9.2	27	30
7		4 +	68	0	+ 61	− 72	1 +	79	16.6	38	29
8		2 +	69	0	+ 48	− 81	0 av.	74	10.3	26	27
9		0 av.	66	0	+ 17	+ 12	3 +	77	13.1	38	33
10		2 +	67	0	+ 21	− 5	3 +	84	10.8	34	30
11		1 +	69	0	+ 23	+ 12	5 +	85	16.0	31	34
12		0 av.	73	0	+ 100	− 2	4 +	89	11.4	17	30

The districts indicated by numbers in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 8, England, S.

Principal Grazing &c., Districts—7, Scotland, W.; 8, England, S.W.; 9, England, W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, May 15.

Large supplies of indoor fruit to hand. Prices lower, Grapes especially meeting with a very dull trade. Business generally steady. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0–18 0	
Arum lilies, per doz.	8 0–12 0	
Aspidistra, doz.	...18 0–42 0	
— spec. plants, each	7 6–10 6	
Azaleas, various, each	2 0– 3 0	
Cineraria, per doz.	6 0–10 0	
Cyperus, per dozen	4 0–12 0	
Dielytra, per doz.	9 0–12 0	
Dracæna terminalis, per dozen	...30 0–60 0	
— viridis, per doz.	12 0–24 0	
Erica Cavendishii, per dozen	...18 0–48 0	
— ventricosa, doz.	15 0–24 0	
Euonymus, in var., per dozen	... 6 0–18 0	
Evergreens, in var., per dozen	... 6 0–24 0	
Ericas, various, doz.	8 0–24 0	
Ferns, in var., doz.	4 0–18 0	
Foliage plants, various, each	... 2 0–10 0	
Ficus elastica, each	1 6– 7 0	
Genista, per doz.	... 8 0–12 0	
Heliotrope, per doz.	6 0– 9 0	
Hydrangeas, doz.	...12 0–18 0	
Liliums, various, per dozen	...18 0–36 0	
Lily of the Valley, p. doz. pots	...12 0–18 0	
Lobelia, per dozen	3 0– 6 0	
Marguerites, doz.	... 6 0–12 0	
Mignonette, per doz.	5 0– 9 0	
Musk, per dozen	... 4 0– 6 0	
Palms in var.	each 2 6–21 0	
Pelargoniums, scarlet, per dozen	... 6 0– 8 0	
— per doz.	...12 0–24 0	
Roses, various, doz.	12 0–24 0	
(Fancy), per doz.	8 0–10 0	
Saxifrage, per doz.	...18 0–24 0	
Solanums, per dozen	6 0–12 0	
Tulips, doz. pots	... 6 0– 9 0	

"*.*" Bedding plants in variety in boxes, and also in pots.

Cut Flowers.—Average Wholesale Prices.

	s. d.	s. d.
Abutilons, 12 bun.	2 0– 4 0	
Azaleas, doz. sprays	0 6– 1 0	
Bluebells, doz. bun.	1 0– 2 0	
Bouvardias, per bun.	0 8– 1 0	
Callas æthiopica, 12 bl.	3 0– 5 0	
Carnations, 12 blms.	1 0– 2 0	
Cowslips, doz. bun.	1 0– 1 6	
Daffodils, 12 bunches	3 0– 6 0	
Eucharis, per dozen	4 0– 6 0	
Gardenias, 12 blooms	1 6– 4 0	
Heliotropes, 12 spr.	0 6– 1 0	
Lilac, white, Fr., bun.	4 0– 6 0	
Lilium, var., 12 bl.	2 0– 6 0	
Lily of the Valley, per doz. bunches	8 0–12 0	
Maiden Hair Fern, 12 bun.	... 4 0– 9 0	
Mignonette, 12 bun.	2 0– 4 0	
— French, per bun.	1 6– 2 0	
Narcissus, various, doz. bun.	... 1 6– 6 0	
Marguerites, 12 bun.	3 0– 6 0	
Pelargoniums, scarlet, 12 spr.	... ... 4 0– 6 0	
— dozen sprays	0 9– 1 0	
Primulas, 12 bun.	0 6– 0 9	
Primulas, double, 12 sprays	... ... 1 0– 1 6	
Roses, Tea, per doz.	0 6– 1 6	
— coloured, dozen	2 0– 4 0	
— French, dozen	1 0– 2 0	
— red, per dozen	2 0– 4 0	
— Safrano, dozen	1 0– 2 0	
Spirea, doz. sprays	0 6– 1 0	
Stephanotis, 12 spr.	2 0– 4 0	
Tuberoses, 12 bunches	1 0– 2 0	
Tulips, doz. bunches	3 0– 6 0	
— (Dutch), in boxes	2 0– 4 0	
Violets, 12 bun.	1 0– 2 0	
— French, bunch	1 0– 2 0	
— Parma, bunch	3 0– 5 0	
Wallflowers, 12 bun.	2 0– 4 0	

Orchid-bloom in variety.

Fruit.—Average Wholesale Prices.

	s. d.	s. d.
Apples, ½-sieve	1 6– 7 0	
— Nova Scotia, brl.	12 0–25 0	
— Tasmanian, case	15 0–20 0	
Grapes, lb.	2 0– 4 0	
Lemons, per case	12 0–20 0	
Melons, each	... 2 0– 5 0	
Peaches, dozen	... 6 0–20 0	
Pine-apples, St. Michael, each	... 2 0– 6 0	
Strawberries, lb.	... 2 0– 6 0	

Vegetables.—Average Retail Prices.

	s. d.	s. d.
Asparagus, English, per 100	...12 0– ...	
Beans, French, lb.	2 0– ...	
Beet, red, per dozen	1 0– 2 0	
Carrots, per bunch	0 6– ...	
Cauliflowers, each	0 3– ...	
Celery, per bundle	1 6– 2 0	
Cucumbers, each	1 0– 1 6	
Endive, per dozen	2 0– ...	
Herbs, per bunch	0 4– ...	
Leeks, per bunch	0 3– ...	
Lettuces, per dozen	1 6– ...	
Mushrooms, punnet	1 6– ...	
Mustard and Cress, punnet	... 0 4– ...	
Onions, per bunch	0 5– ...	
Parsley, per bunch	0 6– ...	
Rhubarb, per bundle	0 6– ...	
Seakale, punnet	2 0– ...	
Shallots, per lb.	0 6– ...	
Spinach, per bushel	6 0– ...	
Brussel Sprouts, pr lb.	0 3– ...	
Tomatoes, per lb.	1 0– ...	
Turnips, per bunch, new	... 0 4– ...	

Potatos.—Arrivals of New Potatos, both from Malta and the Canary Islands, have been very light during the last eight days, consequently prices advance 1s. to 6s. per cwt. Some 300 tons are now being landed, which will reduce prices again. Jersey outdoors, made a good start on Thursday, over 2000 packages being sold at 24s. to 28s. Foreign from 12s. to 27s. Old Potatos stock has been considerably reduced since last report, prices firm. *J. B. Thomas.*

SEEDS.

London: *May* 14.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market as is usual at this season, inactive. The sowing demand for seeds is now very nearly over, whilst of speculative purchasing scarcely any yet shows itself. In Trefoil, owing to continued bad crop reports, the late advance is well maintained. Clover seeds all round are without quotable alteration. There is likewise this week no change in bird seeds. Fine blue Peas, by reason of their scarcity, are getting dearer. Mustard and Rapeseed keep firm.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending May 10:—Wheat, 31s. 7d.; Barley, 28s. 3d.; Oats, 19s. 2d. For the corresponding period last year:—Wheat, 29s. 10d.; Barley, 23s. 11d.; Oats, 18s. 8d.

FRUIT AND VEGETABLES.

Spitalfields: *May* 14.—Good supplies of green stuffs, Potatos, &c. Scarce supply of fruit. Demand good for fruit, but only moderate for vegetables. Prices were as under:—American Apples, 20s. to 26s. per barrel; forced Rhubarb, 9d. to 1s. 3d. per dozen bundles; natural do., 1s. 6d. to 2s. 6d. do.; Asparagus, 1s. 9d. to 2s. 6d. per bundle of 100 heads; Seakale, 1s. to 1s. 3d. per punnet; Cabbages, 1s. 6d. to 3s. per tally; Radishes, 3s. 6d. to 5s. do.; Cauliflowers, 4s. to 7s. 6d. do.; Spinach, 1s. to 1s. 6d. per bushel; Greens, 1s. 6d. to 2s. 6d. per dozen bunches; Carrots, 1s. 6d. to 3s. do.; Spring Onions, 1s. 6d. to 3s. do.; Parsley, 1s. 6d. to 2s. do.; Mint, 2s. to 3s. do.; Horseradish, 1s. 2d. to 1s. 4d. per bundle; Beetroots, 4d. to 8d. per dozen; frame Cucumbers, 1s. 6d. to 2s. 9d. do.; natural do., 1s. 6d. do.; Endive, 1s. 3d. to 1s. 6d. do.; Cabbage Lettuce, 1s. 3d. to 1s. 9d. do.; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Egyptian Onions, 8s. to 8s. 6d. per cwt.

Stratford: *May* 14.—The supply has been good during the past week, and a fair trade done at the undermentioned prices: Cabbages, 1s. 6d. to 4s. per tally; Greens, 1s. 6d. to 2s. 6d. per sieve; ditto, 2s. 6d. to 4s. per dozen bunches; Cauliflowers, 1s. to 2s. 6d. per dozen. Carrots (household), 28s. to 40s. per ton; do. (cattle feeding), 12s. to 24s. do.; Mangels, 12s. to 17s. do.; Swedes, 15s. to 18s. do.; Onions, English, 2s. to 3s. per bushel; do. Egyptian, 8s. to 9s. 6d. per bag; Watercress, 6d. to 8d. per dozen; Rhubarb, 2s. to 3s. 6d. per dozen bundles; Radishes, 4s. 6d. to 5s. per tally; Lettuce, 7d. to 1s. 3d. per score; do. French, 9d. to 1s. per dozen.

POTATOS.

Borough and Spitalfields: *May* 13.—Quotations:—Regents, 40s. to 60s.; Hebrons, 30s. to 80s.; Maguums, black, 37s. 6d. to 42s. 6d.; Lincolns, 50s. to 55s.; Kent and Essex, 50s. to 60s.; Scotch, 60s. to 100s.; Imperators, 35s. to 70s.; New: Malta and Canary Islands, £10 to £12 per ton.

Spitalfields: *May* 14.—Quotations:—Magnums, 30s. to 70s.; Regents, 45s. to 70s.; Champions, 45s. to 50s.; Imperators, 40s. to 75s.; Hebrons, 30s. to 50s. per ton.

NOTICES TO CORRESPONDENTS.

"*.*" Many communications are unavoidably held over till next week, on account of the pressure on our space.

Cattleya Mendelii: *J. E., Liverpool.* Your No. 1 Cattleya Mendelii is an exceptionally fine variety; the labellum very ample and finely coloured. The other two are distinct forms of average merit. The flowers were bruised, but fresh enough for the purpose.

Cucumbers, Tomatos: *D. K.* The roots are filled with nests of nematoid worms, often figured in the *Gardeners' Chronicle*, invisible to the naked eye. You must clear out the soil, and everything likely to harbour the creatures, charring it all, to make sure that none escape; and then a new start may be made with soil and manure from new sources, and plants also.

Exochorda, &c.: *Thos. D.* Thanks for specimens. As you say, the Exochorda grandiflora makes a fine bush or tree away from a wall. The Clianthus puniceus is good, and the variety of Laurustinus the best we have seen.

Forcing Peaches.—*The Forcing Gardener*, by Samuel Wood (Crosby Lockwood & Co., Stationers' Hall Court, E.C.).

Globules on Vine Leaves: *G. L. S.* A natural exudation of water. No remedy is required.

Hatfield: *D. B. H.* The present gardener is Mr. Norman. He has been there many years.

Hellebores niger Roots Diseased: *N. B.* The roots were rotten, and full of the septate hyphide of some higher Eumycete—Ascomycete, probably, but no fructifications have formed as yet. The soil was full of a large yeast, and this grows in glucose solution. The parasite is certainly not peronospora, but what it is cannot be determined without the spores, &c. It may be a Hypomyces. I should say the Hellebores were in soil too wet and sour for the plants. *H. Marshall Ward.*

Insects: *Kiltarnan.* The object sent is the chrysalis of the small common white Cabbage butterfly, which has been destroyed by a number of minute parasitic Ichneumons, which have made their escape from inside its body, and have spun themselves up in small yellow oval cocoons. The parasites are the gardeners' friends. *I. O. W.*

Ledum palustre: *J. C.* Quite hardy at Wimbledon. It requires a rather moist peaty soil, well drained, and somewhat sandy. The soil should be at least 1½ foot in depth. Pretty, either in a bed by itself, or in groups, with Menziesias, Ericas, around Rhododendron beds.

London Purple: *B.* This may now be obtained from Messrs. Hemingway, and may be applied to Apple trees after the fall of the blossom, not when the flower is open. The Michigan experiments show that if the substance is used not stronger than in the proportion of 1 lb. to 200 gallons of water, there is no danger of pasturing under fruit trees. The liquid should be kept constantly stirred, and be thoroughly applied by a force-pump.

Names of Plants: *Jas. Carter & Co.* Edwardsia grandiflora.—*R. H. P.* Odontoglossum Pescatorei.—*H. F.* 1, Bifrenaria Harrisoniæ; 2, Aerides

Fieldingii; 3, Oncidium sphacelatum.—*Botanist.* Elæocarpus dentatus, Peristrophe angustifolia variegata.—*J. C. T.* Ornithogalum nutans.—*N. S.* Cercis siliquastrum (Judas tree).—*Dr. Morton.* Scilla campanulata.—*G. Hansford.* A good variety of Vanda Dennisoniana.—*H. E. B.* 1, Oncidium Batemannianum; 2, Dendrobium amœnum.—*G. Pressly.* Scilla nutans.—*W. R. L.* A truly magnificent form of Odontoglossum maculatum, the rich golden yellow brighter than any we have seen. Thanks for the photo.—*J. K.* Aërides crispum. *R. B.* Lycopodium Hookerii.—*C. S. C.* Ribes aureum; common in shrubberies.—*Captain.* 1, Alyssum saxatile; 2, Pyrethrum Tchihatchovii; 3, Sedum dasyphyllum; 4, S. album; 5, Saxifraga Wallacei; 6, S. muscoides purpurea; 7, Sedum glaucum.—*S. W. W.* Pyrus malus microcarpa.

RHODODENDRONS: *A Evans.* The species and varieties sent were beautifully flowered, especially R. Dennisoniana, R. Princess Royal, R. Sestersiana, and R. Edgworthi.

ROSE: *A.* The copper-coloured Austrian Briar. There are several varieties, in primrose, orange, &c., but this is the best.

STRAWBERRY: *E. H.* The fruit arrived in a smashed-up state. Want of colour and a slacking of growth are due usually to attacks of mildew.

TOMATO LEAVES DISEASED: *C. G. W.* The leaves are attacked by one of the species of fungi named Cladosporium, so often referred to in our pages. You will see hints as to its treatment in our back numbers.

TOMATOS: *Panacea.* The leaves appeared to be punctured by aphis. If the symptoms become aggravated, send other leaves and shoots to us.

TUBEROSE: *X. Y. Z.* The spots have no fungi in them so as can be discovered. There must be something wrong with the culture. *H. M. W.*

TULIPS FORCING: *P. E.* Tulips which naturally flower early—and most of these are single-flowered varieties—if potted as soon as they can be obtained, say in August and September, and kept underneath a quantity of finely-sifted coal-ash until the roots have permeated all parts of the soil in the pots, may be put in the forcing-house in December and onwards, care being taken to remove all of them from the ashes as soon as it is seen that top-growth has risen to a height of 2 inches, or thereabouts. Hard forcing is not productive of fine flowers, but flowers are flowers at Christmas time, and large size is not looked for. The flowers are finer with slower methods. The same bulbs are no good for forcing another year, and may be ripened off in a cold pit, or a greenhouse, after flowering, and the bulbs planted in the open border in September and October.

VINES: *W. H.* Fine strong foliage injured by sunburning. It is a case either of bad glass or insufficient ventilation. There is no trace of disease on the leaves sent.

CATALOGUES RECEIVED.

CHAS. A. MCBRIDE, Commercial Nurseries, Jacksonville, Flo., U.S.A.—Trees and Shrubs.

J. CARTER & Co., 237 and 238, High Holborn, London, W.C.—Abstract Catalogue of Plants and Seeds.

WOOD & INGRAM, The Nurseries, Huntingdon—Plants.

FRED. BURVENICH, PÈRE, Gendbrugge-lès-Gand, Belgium—Trees and Shrubs.

B. S. WILLIAMS & SONS, Victoria and Paradise Nurseries, Upper Holloway, London, N.—Plants.

UNITED STATES NURSERIES (European Branch), Hextable, Swanley, Kent—Chrysanthemums.

I. A. BOX COMPANY (Limited), 15, Cullum Street, London, E.C.—Adjustable Boxes.

COMMUNICATIONS RECEIVED.—J. H. C.—J. H. M., Melbourne. J. B. (next week).—W. Watson (shall be attended to).—T. D.—W. D.—E. O. G.—R. A. R.—H. Soppett.—F. K. B.—J. G. Baker.—Editor, *Journal of Horticulture.*—J. D. L. C.—A. E.—H. M.—J. O'B.—R. D.—"Caterpillar."—M. R.—A. C. N., South Melbourne.—Andrew Taylor.—W. K.—E. C.—E. J.—R. Smith.—G. P.—A. D.—J. C. T.—Vagabond.—W. Bateson (letter forwarded to address).

DIED, at Balham, S.W., on May 2, Mrs. ROSE, widow of the late Mr. H. Rose, for some years gardener to her Majesty the Queen at Frogmore. Mr. Rose died in 1874.

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SPHAGNUM MOSS, Fresh Picked, 2s. 6d. bush.; 7s. 6d. sack.

COCOA-NUT FIBRE, 10 sks., 8/6; 20 sks., 15s.

LEAF and PEAT MOULD, 1s. bushel.

SUPERIOR (Selected) TOBACCO PAPER, CORK MATS, and all other Sundries.

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NATIVE GUANO: BEST and CHEAPEST MANURE for Garden use, NATIVE GUANO. Price £3 10s. per ton, in bags. Lots under 10 cwt., 4s. per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5s.

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NATIVE GUANO for POTATOS, VEGETABLES, FRUIT, &c.—C. FIDLER, Reading, used it for Potatos, and says:—"I found your Manure gave very satisfactory results."

C. J. WAITE, Gr. to Col. the Hon. W. P. Talbot, says:—"I can strongly recommend your Native Guano as a first-rate Manure for any fruits or kitchen garden crops, also grass. In the 5 years during which I have freely used it, I have gained over 500 prizes."

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AT LAST A Boon to Plant Growers. An entirely New Invention. No more Tobacco Paper, with its dangerous and disagreeable fumes.

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Kills Fly, Thrip, and Spider, in the easiest, cheapest, and most harmless way to Flowers, Fruit, or Foliage, even if treble the necessary quantity is used. The best of all Insecticides for Orchids. Try it. In Rolls for houses of a capacity of

100 cubic feet,	500 feet,	1000 feet,	2000 feet,	post-free.
8d.	1	1 3	2 3	

CLIBRAN, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

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TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 4d. each; 10 sacks, 12s. 6d.; 15 sacks, 17s. 6d., 20 sacks, 20s.; 25 sacks, 24s.; 30 sacks, 27s.; 40 sacks, 35s.; 50 sacks, 40s.; Truck-load, loose, free on rail, 30s.

GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d. BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth, 1s. 3d.; Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, Shell Shingle, Charcoal, Mushroom Spawn, and Russia Mats.

GARDEN NETTING, 2 yards wide, 1½d., or 100 yards, 10s.; 4 yards wide, 3d., or 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3d., 2 yards, 6d. per yard. TIFFANY, 38 in. wide, in 20 yard pieces, 3s. 6d. per piece.

BAMBOO CANES, 3 feet 10 in., 3s. 6d., 5s., and 7s. per 100; extra long, 5s. per dozen.

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Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

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ARTIFICIAL MANURE, without Smell, will produce grand blossoms, unsurpassed for Fruit and Vegetables, 112 lb., 20s.; 56 lb., 11s.; 28 lb., 6s.

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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.: 4-bushel bags, 4d. each.

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BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.

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YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

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QUICK. LASTING. ECONOMICAL.

This is a Plant Food of great excellence, carefully prepared with the view of supplying a manure which shall contain all the elements necessary for the Perfection of Plant Life, and at the same time be QUICK IN ACTION, LASTING, AND ECONOMICAL.

The ingredients have been so arranged that, whilst accelerating luxurious growth, permanent benefit is secured by a continuance of nourishment to the plant.

It is safe in use, and suitable for every purpose where a manure is required.

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7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2s. 6d.	4s. 6d.	7s. 6d.	12s. 6d.	20s.

The above Trade Mark is printed on every Packet and Bag, and also impressed on the Lead Seal attached to the mouth of each Bag.

A SAMPLE PACKET will be sent post-free, on receipt of 1s. by the MANUFACTURER

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HIGHLY CONCENTRATED—MIXES INSTANTLY WITH WATER. For use in the **Conservatory, Greenhouse and Vinery; Flower and Kitchen Garden,** the **Hop-yard,** and the **Orchard.**

Practically Tested by Practical Gardeners. *Acknowledged to be the most Perfect Insecticide yet Invented.*

From Mr R. TURVEY, Head Gardener to Sir Richard Webster, Q.C., M.P., Winterfold Gardens, Cranleigh, Surrey.—"Yours is the best Insecticide that has come under my notice; it not only destroys the 'pests,' but imparts a healthy look to the plants."

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PRICES, Carriage Paid, to any Railway Station on 4 gallons and over:

4	Gallons,	sufficient for 100 gallons of water...	£0	6	6
8	..	.. 200	0	12	0
16	..	.. 400	1	2	0
40	..	.. 1000	2	7	6

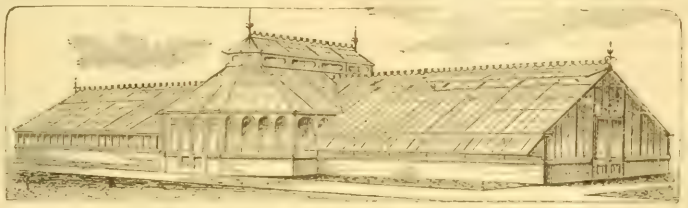
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CRUSHED BONES in all sizes, for **VINE BORDERS, LAWNS, POTTING, GRASS LANDS, &c.**

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Also 10 and 12, Market Street, Manchester.

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Effective, Harmless.



Promptly clears Roses and all plants from greenfly, caterpillars, spiders, and other insect pests. It recommends itself to all who have tried it for its efficiency, pleasant colour, the facility with which it is applied, and its cleanliness in application; so that anyone, however particular, can use it, and it is always ready for use. Price **1 & 1 9** To be had through Chemists & Seedsmen, or direct from the manufacturers,

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TO MARKET GARDENERS, &c. To Grow Fine VEGETABLES and FLOWERS, Gardeners should use SULPHATE of AMMONIA. One trial will prove the great value of this Manure, and ensure its constant use hereafter.

It can be applied either separately or mixed with ordinary Stable or Farm-yard Manure. Rose Trees and Garden Plants are much benefited by being watered with a weak solution once or twice a week. Instructions on application, post free.

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GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

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At the Jubilee Meeting of the R.A.S.E., Windsor, HER MAJESTY THE QUEEN and H.R.H. PRINCESS VICTORIA of PRUSSIA each purchased a RANSOMES' LAWN MOWER.

All Mowers sent on a Month's Trial. *Carriage Paid.*

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"NEW AUTOMATON,"	the Best Gear Machine.
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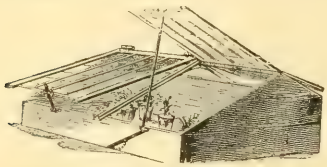
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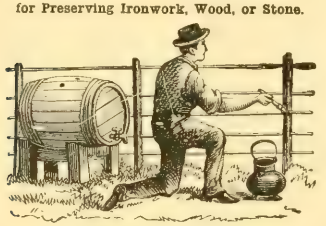
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Unglazed and unpainted ... ... 6s. each.
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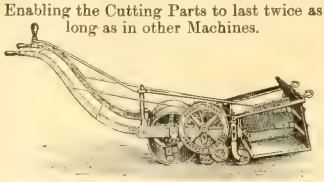
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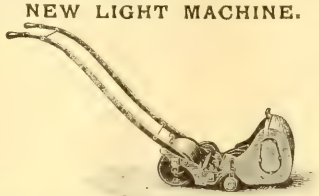
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14×12	20×15
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18×12	22×16
20×12	24×16
16×14	20×18
18×14	22×18
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English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.

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FOR GREENHOUSES and all kinds of HORTICULTURAL BUILDINGS, YARDS, RAILWAY STATIONS, and every description of ROOF COVERING. Saves all Painting and Puttying and Breakage, and is absolutely Watertight and Free from Drip.

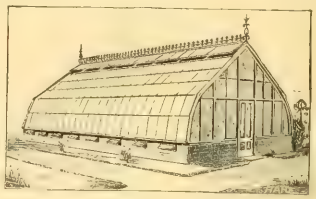
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"SIR,—As you requested my opinion of the houses which you erected for me some 4 years ago, I beg to inform you that I consider them a perfect success, and I have recommended them to many of my neighbours.—Yours truly (signed) MACCLESFIELD."

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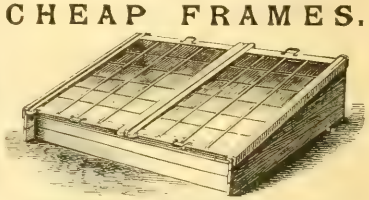
"Major FOSTER has much pleasure in stating that the vineries and forcing houses which were erected by Mr. Helliwell in 1884, continue to give perfect satisfaction, both to himself and his gardener."

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PORTABLE CUCUMBER FRAMES.

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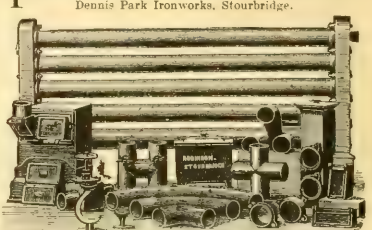
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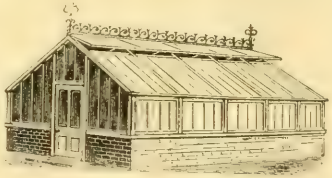
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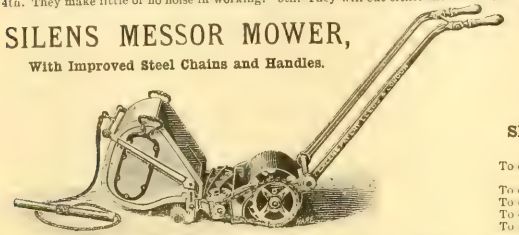
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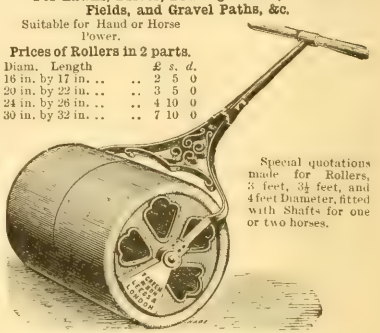
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I remain, dear sirs, yours very truly, THOMAS JONES.

☞ **Mr. J. R. STIRLING,** of the **ROYAL GARDENS, BUCKINGHAM PALACE,** writing under date Feb. 21, 1890, says:—

"As regards the work your 42-inch Horse Machine does (which two years ago took the place of the one you supplied in '63), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your 'Hand Silens Messors' also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

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Messrs. Green & Son. W. H. MOLD.

Kintbury, Hungerford, April 20, 1883.

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Messrs. Green, Leeds. ALFRED T. BAZETT.

Wellingborough, February 4, 1890.

To Messrs. Green & Son, Leeds.

Gentlemen,—I have sent you our Lawn Mower for repairs, which please have done to it. I have used your machines for 25 years, and I find them more durable and do their work better than any other machines I have seen.

I am, gentlemen, yours truly,

DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).

Cottingham, Hull, February 13, 1890.

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I am instructed by Arthur Harrison, Esq., of Northgate House, Cottingham, near Hull, who has had one of your 30-inch Horse Mowers in use over 20 years, and ask whether you think it advisable to send it for repair or have a new one, for it is as you may suppose now getting worse for wear. Kindly say per return, and enclose Price List.

I am, gentlemen, yours truly,

JOHN BAYNTON.

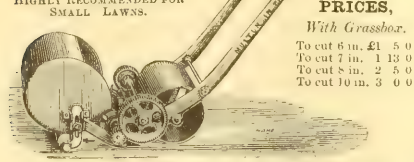
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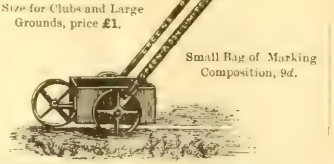
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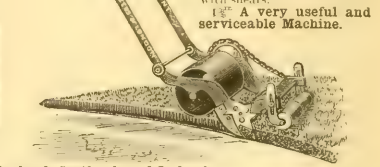
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MESSRS. GREGORY AND EVANS, NURSERYMEN, Sidcup, and 285, 286, 287, 288, Flower Market, Covent Garden, London, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS in any quantity for their Commission Department. Boxes and Labels supplied.
Telegraphic Address—"COMMISSION, Sidcup."

WANTED, a few Thousand of the following ROSES, for pot work: General Jacqueminot, Perles des Jardins, M. Niel, Gloire de Dijon, Niphetos, and other mixed Roses. Also MANETTI STOCKS for grafting.—State price, &c., to G., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, SPERGULA p. AUREA. State quantity and price to
CALDWELL AND SONS, Knutsford.

Osmunda Regalis.

WANTED, 50 large strong Plants, from open ground.—Address, stating price, PINSENT, Selly Wick, Birmingham.

THE BEST PRIMULA.—CARTERS' HOLBORN PRIZE MIXED.—*Vide* Awards. New seed. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post-free.

THE BEST CINERARIA.—CARTERS' BRILLIANT PRIZE MIXED.—*Vide* Awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post-free.

THE BEST CALCEOLARIA.—CARTERS' VICTORIA PRIZE MIXED.—*Vide* Awards. In sealed packets, price 2s. 6d. and 3s. 6d. per packet, post-free.

CARTERS', Seedsmen by Royal Warrant, to H.M. The Queen and H.R.H. the Prince of Wales.
237 and 238, HIGH HOLBORN, LONDON, W.C.

TROPÆOLUM SPECIOSUM.—Hardy scarlet Climber, strong Plants established in pots 1s. 3d. each, 12s. per dozen; free by post or passenger train.
HOWDEN AND CO., The Nurseries, Inverness.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.
J. J. CLARK, Goldstone Farm, Brighton.

DAHLIAS. — DAHLIAS. — DAHLIAS. — Show, Fancy, Cactus, Single, or Pompons.—160 best exhibition varieties, fine plants, correctly named, in 3-inch pots, 2s. 6d. per doz., 18s. per 100. From store pots, 2s. per doz., 12s. 6d. per 100. Our selection. LIST free on application. Sample dozen, 2s. 6d. Packing free for cash with Order.
A. J. AND C. ALLEN, Florists, &c., Heighum, Norwich.

BARR'S Descriptive LIST of VEGETABLE and FLOWER SEEDS, free.—Full of useful information.
SELECTIONS of VEGETABLE SEEDS, 12s. 6d., 21s., 31s. 6d., 42s., 63s. and upwards
SELECTIONS of FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., 21s., and upwards.
GLADIOLI, TUBEROSES, HYACINTHUS CANDICANS, TIGRIDIAS, ANEMONE FULGENS, &c., for Spring Planting. Descriptive LIST free on application.
BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

Many Acres of Lilies of the Valley!

T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

MR. GEORGE RUNDLE'S Grand Seedling Double White Corolla FUCHSIA, sent out by us; two Plants post-free for 1s. Two of the grandest novelties in Zonals yet seen for colour, "JEAN D'ARC" and "SOUVENIR DE MIRANDE," 7s. 6d. the pair, post-free.
HENDER AND SONS, Nursery, Plymouth.

New Fern.

ADIANTUM CAPILLUS-VENERIS var. GRANDE, T. M.—The late Mr. T. MOORE, in his description of the above, says:—"It is the finest and most noble of all the varieties of this species of Maidenhair."
Strong plants, fit for 48's, now sent out at 12s. per dozen. Remittance from unknown correspondents. Packing free, for cash with order.—T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

PRIMULAS—PRIMULAS—PRIMULAS—Twenty-first year of distribution, Williams' Superb Strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, same price; also double white PRIMULAS, 6d. each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

TO THE TRADE.—Cheap offer of "RASPAIL" GERANIUM. Good hardy stuff, with large flower heads, in 32's, at 4s. per dozen, or 30s. per 100; and in 48's at 3s. per dozen, or 22s. per 100.—ALF. E. HIGGOTT, Kempton Park Nursery, Hampton-on-Thames.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Thursday Next.

A fine COLLECTION OF ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 29, at half past 12 o'Clock precisely, a fine COLLECTION of ORCHIDS in Flower and Bud, comprising many fine forms of Cattleya Mendelii, C. Mossiæ, C. Warneri, Lælia purpurata, Oncidium macranthum, Odontoglossum Alexandræ, O. Pescatorei, &c. Also a fine lot of IMPORTED ORCHIDS, comprising Saccolabium curvifolium and S. speciosum, Vanda teres, Dendrobium Jamesiana, D. formosum giganteum, and many other Dendrobes from Burmah, &c., some received direct.

On view morning of Sale, and Catalogues had.

Thursday, June 12.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that he will hold his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 12, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will please SEND LISTS AS SOON AS POSSIBLE.

Thursday, June 12.

MASDEVALLIA HINCKSIANA, Rchb.

MR. J. C. STEVENS will include in his SPECIAL SALE of ORCHIDS in Flower and Bud by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 12, twenty plants of the new MASDEVALLIA HINCKSIANA, a cross between M. Tovarensis and M. ignea, being the whole stock with the exception of ten leaves, retained by the raiser for his private collection.

On view morning of Sale, and Catalogues had.

Wednesday Next.

BEDDING PLANTS, comprising LOBELIAS, CALCEOLARIAS, GERANIUMS, GLOXINIAS, &c., FERNS, STOVE and GREENHOUSE PLANTS in variety. Two very fine PALMS, KENTIA CANTERBURYANA, TUBEROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, May 28, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

SACCOLABIUM BELLINUM, Rchb.
DENDROBIUM LEETEOLUM.
" BOXALLI.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, May 30, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a few imported plants of the very lovely SACCOLABIUM BELLINUM, extremely rare in collections. The species is well figured in vol. iv., Williams' *Orchid Album*, and the plants now offered are superior to any we have hitherto received. Also a grand lot of imported plants of the Primrose-coloured DENDROBIUM PRIMULINUM, in the best possible condition; D. BOXALLI, D. WARDIANUM, and other choice species.

The Sale will also include a large quantity of ORCHIDS in Flower, from various collections, including a fine plant of ODONTOGLOSSUM NÆVIUM MAJUS.

On view morning of Sale, and Catalogues had.

Special Sale. Tuesday, June 3,

Instead of May 30, as announced last week.

ORCHIDS in FLOWER.

MESSRS. PROTHEROE AND MORRIS respectfully announce that their NEXT SPECIAL SALE of ORCHIDS in FLOWER will take place as above, for which they will be GLAD TO RECEIVE NOTICE OF ENTRIES AS EARLY AS POSSIBLE.

Friday, June 6.

Important to Orchid Fanciers and Others.

The unique and singularly beautiful COLLECTION of Life-size WATER-COLOUR DRAWINGS of ORCHIDS, by Durham, comprising 286 Drawings in 22 handsomely bound volumes, formed by the late John Day, Esq., of Tottenham, and painted specially for him at great cost, the whole forming undoubtedly the most valuable Collection of Orchid Paintings extant.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions to SELL the ABOVE VALUABLE COLLECTION by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY, June 6, 1890, at 2 o'Clock precisely, in one lot.

May be viewed at the Auctioneers' Offices two days prior to the Sale, or at any previous time by appointment. Descriptive Catalogues are now ready, and will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Stamford Hill.

40,000 GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Stamford Hill Nursery, Amhurst Park, N., adjoining Stamford Hill Station, G. E. R., on SATURDAY, June 7, at 1 o'Clock, by order of Mr. W. J. Sampson, 40,000 well grown GREENHOUSE and BEDDING PLANTS, including 10,000 Geraniums, 300 Large Tea-Roses in pots, 2000 Chrysanthemums of the best varieties, several valuable specimen Camellias, and other Stock.

May be viewed three days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Cut Flowers, Plants, and Bulbs.

We hold Sales, several each week. Reference to senders of years standing. Particulars on application.

MESSRS. POPE AND SONS, Sale Rooms, 6, Phillip Street, adjoining Market Hall, Birmingham.

To be Sold by Auction, without reserve.

The COLLECTION of ORCHIDS and GREENHOUSE PLANTS of the late George Firth, Esq., J.P., Manningham Thorpe, Toller Lane, Bradford.

No plant of any description will be sold previous to the Sale.

MESSRS. T. S. BEST AND HARRIS respectfully beg to give notice that they have received instructions from the Executors of George Firth, Esq., to SELL by AUCTION, on FRIDAY, June 6, 1890, the COLLECTION of GREENHOUSE PLANTS, amongst which will be found specimen plants of the following:—Rhododendron Veitchii, Duke of Edinburgh, Japonicum, Duchess of Connaught, Countess of Haddington, Amaryllis, Empress of India, Mrs. George Firth, George Firth, John Heal, and Mrs. W. Lee, Imantophyllums in great variety.

On TUESDAY and WEDNESDAY, June 10 and 11, 1890, the extremely valuable COLLECTION of ORCHIDS, which have been bought principally in flower, and which includes the following plants:—

Cattleya Gaskeliana, alba
" Mendelii Firthii
" mossiæ Claptoniensis
" " Reineckiana
" Brymeriana
" Skinneri alba
" Wagneri
Cypripedium Morganæ
" Schroderæ
" Œnanthum superbum
" grande
" bellatulum roseum
Dendrobium nobile nobilius
" splendidissimum grandiflorum
" Waltoni
Phalænopsis Schilleriana alba
" Brymeriana
" Tetraspis
" Marmo
Odontoglossum nebulosum candidulum
Odontoglossum hebriæum
" Andersonianum
" Ruckerianum
" Wilckeanum
" Uro Skinneri
" vexillarium Cobbianum
" " insigne
Lælia anceps Schröderæ
" " alba
" " Dawsoni
" elegans prasiata
" purpurata
Cœlogyne cristata alba
Cymbidium Dayanum
" Philbrickianum
Vanda Sanderiana
" cœrulea
" suavis Veitchii
" planelabris
Sobralia xanthaleuca, 60 growths, together with many other valuable varieties.

Catalogues may be had gratis, on Monday, June 2, at the Auctioneers' Offices, the British Gallery, Bradford, Yorkshire; and the Collection may be viewed at any time by applying to the Head Gardener, Mr. COLLIER.

The Sale to commence each day at 11 o'Clock.

To Florists and Others.

FOR SALE, with immediate possession, Long LEASEHOLD PREMISES and GOODWILL. Capital House, eight rooms, fitted Bath, &c.; three large Span-roof Glass Houses, with improved Heating Apparatus, Cold Frames, Potting Shed, &c., all in excellent order; long frontage to main road. Rapidly increasing suburb, with opportunities for unlimited trade. Present owner retiring. Stock optional.

Terms of Messrs. JOSHUA BAKER AND SON, 106, High Road, Kilburn, N.W., and 13, Poultry, E.C.

London, N.W.

TO BE SOLD or LET (a great sacrifice will be made by the vendor, who has a different business requiring his own attention), a compact LEASEHOLD NURSERY, with nearly an acre of Ground, 13 Greenhouses, and Dwelling House. Price for Tenant's Glass Erections and Lease, £750, or the whole property would be Let at £100 a year.

Apply to PROTHEROE AND MORRIS, Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

TO BE LET or SOLD, a FREEHOLD NURSERY, 6 acres of Land, with House; Seed Business combined, doing good trade; splendid supply of water. Capital investment.

Particulars, apply, BRYANT, Nursery, Chippenham.

Enfield, 6 minutes from the G.N.R. Station.

To Gentlemen fond of Horticulture, combining pleasure with profit.

A MEDIUM-SIZED Detached RESIDENCE, containing 8 Bed-rooms, Bath-room, 3 Reception rooms, Offices, &c. In the Garden are Vinery, 70 by 25 feet; Orchid-house, 70 by 12 feet; Greenhouse, 70 by 12 feet; forming one range Greenhouse, 90 by 22 feet; with Frames adjoining, all economically worked from one boiler, auxiliary boiler; small Kitchen Garden and Orchard, with back entrance. Lease 17 years. Rent £94. Small premium required.

Messrs. H. E. FOSTER AND CRANFIELD, 6, Poultry, E.C., and Enfield.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited.

Have just received large importations of Orchids from Mexico, Brazil, India, and other countries.

The Co. have also an immense stock of Established Orchids, all of which they offer at extremely reasonable prices.

Catalogues, with full particulars, post-free, on application to the Co., The Vineyard and Nurseries, Garston, near Liverpool.

Special Trade Offer.

DOUBLE WHITE PRIMULA. Strong Plants in 60's, £12 10s. per 1000, 3s. per 100.—C. B. MANSFIELD, Llysonen Gardens, near St. Clears.

CLIBRAN'S SPLENDID PALMS and FERNS, &c. Beautiful Palms for growing on, 6s. and 9s. per dozen; larger for immediate effect, 18s., 24s., and 30s. per dozen. Asparagus, splendid for cutting, stands well in rooms—A. plumosus, plumosus nanus, tenuissimus, and virgatus, 2s. 6d., 3s. 6d., and 5s. each. Maidenhair Ferns, small pots, 6s. per dozen; large, 9s., 12s., and 18s. per dozen. The lovely Adiantum Farleyense, splendid fronds from 2s. each. 12 fine distinct Ferns for greenhouse, 9s. and 12s.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under from Store-pots, all well-rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter.

VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100, 50s. per 1000; 12 choice named varieties, 8s. per 100.
LOBELIA Bluestone, pumila magnifica, true, from Cuttings, 3s. per 100, 21s. per 1000; Brighton Blue, fine, 3s. per 100, 21s. per 1000.
CALCEOLARIA Golden Gem, 6s. per 100, 50s. per 1000
Camden Hero, fine dark, 10s. per 100.
HELIOTROPE Jaun d'Amour, Miss Nightingale, dark, 6s. per 100, 50s. per 1000.
AGERATUM Imperial Dwarf, blue, 5s. per 100, 40s. per 1000.
COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100, 75s. per 1000.
IRESINE LINDENI, dark crimson, good bedder, 6s. per 100, 50s. per 1000.
PELARGONIUM Vesuvius, finest bedding scarlet, 8s. per 100, 75s. per 1000; Master Christine, 12s. per 100; Mrs. Levers and Jenny Dodds, fine pink, 10s. per 100; Henry Jacoby, best crimson, 12s. per 100; Madame Vaucher, white, 12s. per 100; Queen of Belgians, finest white, 3s. per dozen, 20s. per 100; Niphetos, bedding white, 12s. per 100; Waltham Seedling, Lucius, Jean Sisley, and White Vesuvius, 10s. per 100.
SILVER VARIEGATED May Queen (Turner's), Princess Alexandra, Flower of Spring, 12s. per 100; Little Trot, dwarf, 12s. per 100; Prince Silverwings, 12s. per 100; Lady Plymouth, 10s. per 100.
GOLD LEAF Crystal Palace Gem, 12s. per 100; Happy Thought, 12s. per 100.
BRONZE McMahon, Black Douglas, The Czar, the best bedders, 15s. per 100.
TRICOLOR Mrs. Pollock, 15s. per 100; Sophie Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100.
DOUBLES, F. V. Raspail, fine scarlet; M. Thibaut, pink; M. Baltet, best white, 12s. per 100.
TROPÆOLUM Vesuvius, 10s. per 100; Mrs. Ellis, best dwarf scarlet. 10s. per 100.
FUCHSIAS, in twelve good named sorts, 8s. per 100.
PELARGONIUMS, Show and Decorative, from single pots, good, 2s. per 100, 20s. per dozen.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms, cash.

Cemetery Nurseries, Gravesend, S.E.

CLIBRAN'S GEMS of the GREENHOUSE and STOVE. Splendid collection of really finest kinds for bloom and foliage. Pancratiums, beautiful spider-like flowers, 2s. 6d., 3s. 6d., and 5s. each. Oxera pulchella, lovely stove climber, dense clusters of pure white funnel-shaped flowers, 3s. 6d. and 5s. each. Ochna multiflora, beautiful yellow perfumed flowers, succeeded by charming fruit, 2s. 6d. and 3s. 6d. each. Lovely Greenhouse Rhododendrons in variety, 3s. 6d. each; 6 vars., 12s. 6d. 6 splendid flowering stove Climbers, 10s. 6d. and 15s. Mephitenuts, hardiest and freest flowering variety known, from small plants 9d., to large 1s. 6d., 2s. 6d., and 3s. 6d., up to large specimens 5 guineas. Hibiscus in variety, all varied and gorgeous colours, and splendid forms, 4 sorts, 6s. Crotons, 12 beautiful sorts, 6s., 9s., 12s., and 18s. Gloxinias, 12 vars., 6s. Achimenes, 12 sorts, 2s. 6d. Caladiums, 12 sorts, 9s. 12s., and 18s. Rondoletia speciosa major, one of the best plants for cutting from, 1s. and 2s. 6d. each. Dracænas, small, fine growing on, 6d. each, 1s. and 2s. each, all our own working, much superior to foreign plants, 2s. each. Passifloras, in variety, 1s. and 1s. 6d. each; 6 beautiful sorts, 7s. 6d.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

NEW CYPRIPEDS.

CYPRIPEDIUM HORNIANUM, described in *Gardeners' Chronicle*, 1885, page 428.

CYPRIPEDIUM CHLOROPS, described in *Gardeners' Chronicle*, 1888, page 484.

CYPRIPEDIUM ROBUSTIUM, described in *Gardeners' Chronicle*, 1889, page 394.

May be had from the raiser at low figures.

FERD. HORN, Nurseryman, Lockwitz, near Dresden.

CLIBRAN'S LOVELY TEA ROSES, best sorts in pots, 18s. per dozen; stronger for forcing, 2s. 6d. and 3s. 6d. each. For new and beautiful sorts, see List, free.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."

First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each; ready in May. Post and package free for Cash with Order only. Sent out by the raiser,

G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

NOTICE to CREDITORS and DEBTORS.—All parties having claims against the late Mr. WILLIAM LEARMONT, NURSERYMAN, Larchfield, Dumfries, are hereby required to lodge them with JAMES H. MCGOWAN, Solicitor, Dumfries, Agent for his Trustees and Executors, within 14 days, in order that arrangements may be made for payment; and all parties indebted to Mr. Learmont are requested to make Payment of their Accounts to Mr. MCGOWAN.

The Business of NURSERYMAN so long carried on by Mr. LEARMONT will be continued as formerly in the name of his TRUSTEES for behoof of his Widow and Family under a suitable Manager.

Dumfries, May 5, 1890.

CLIBRAN'S PRETTY FLOWERS. If you want a unique array of blooms try our Collection of Herbaceous Plants. No botanical weeds, but each plant distinct and beautiful, 12 vars., 3s., 4s., and 6s.; 50 in 50 vars., 15s. and 20s.; 100 in 100, 30s. and 42s. The "Iris Queen," Iris ochroleuca var. gigantea—finest by far of all the Iris family—robust habit, 6 feet high, enormous lovely white blooms, will grow in any ordinary soil, 2s. each, 18s. per dozen. Foxgloves, white and spotted; Lupinus, blue and white, each var. 3s. per doz. See Catalogue.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

THE

Gardeners' Royal Benevolent INSTITUTION.

FIFTY-FIRST ANNIVERSARY FESTIVAL,

JUNE 12, 1890, *on which occasion*

Mr. HARRY J. VEITCH, the Treasurer, will preside.

DONATIONS and SUBSCRIPTIONS paid or promised :—

HARRY J. VEITCH, Esq., Chairman ..	...	£105	0 0
The Baron SCHROEDER	...	52	10 0
The Right Hon. Lord ROTHSCHILD	...	26	5 0
ALFRED DE ROTHSCHILD, Esq.	...	26	5 0
LEOPOLD DE ROTHSCHILD, Esq.	...	26	5 0
Messrs. ROTHSCHILD AND SONS	...	105	0 0
Mr. JAS. HERBERT VEITCH, Chelsea	...	26	5 0
Mr. ARTHUR J. VEITCH, Chelsea	...	26	5 0
Messrs. JAS VEITCH AND SONS, Chelsea	...	52	10 0
Lord CREWE, Hill Street	...	2	2 0
The Right Hon. Lady BEAUMONT, annual	...	1	1 0
Messrs. HALL AND SON, Sheffield	...	10	10 0
Mr. GEORGE MONRO, Covent Garden	...	10	10 0
Miss BILLETT, Winfold ..	...	1	1 0
Mr. DAY, Winfold ..	...	0	10 6
Mr. TOBY, St. Mark's Grove (A.)	...	1	1 0
Mr. A. SMITH, Warren Hill Gardens (A.)	...	1	1 0
Messrs. NUTTING AND SONS, Southwark Street	...	5	5 0
E. FOX, Esq., Falmouth	...	5	0 0
Mr. JAS. BECK, Orchid Gardens (A.)	...	1	1 0
Mr. J. WILLS, Hollowmead Gardens	...	4	5 0
Mr. G. BLOXHAM, Beach Hill Gardens	...	0	15 0
Mr. DOMINY, Gowser Gardens (A.)	...	1	1 0
Mr. C. F. BAUSE, Nursery, South Norwood (A.)	...	1	1 0
Mr. JAS. HOPKINS, High Cross Gardens	...	1	1 0
Mr. R. JORDAN, Llanvaay Gardens	...	2	10 6
Mr. E. SHERSTONE, Charlton House Gardens	...	0	15 0
Mr. R. SANDERS, Halton Gardens (A.)	...	1	1 0
Mr. THOMAS KING, Chelsea	...	5	0 0
Messrs. LANE AND SON, Berkhampsted	...	5	5 0
Mr. H. E. SMALE, Nurseries, Torquay, annual	...	1	1 0
Mr. CROKER, Bunsted Gardens	...	0	17 6
Mr. DRAPER, Senham Hall Gardens	...	0	5 0
Mr. F. SHEPHERD, High Elm Gardens	...	2	2 0
Mr. A. BAXTER, Foots Cray Gardens	...	10	10 0
Mr. J. BUTTON, Bilton House Gardens	...	1	1 0
Mr. R. STRAND, Deane Hall Gardens	...	0	5 0
Mr. SHIRLEY HIBBERD, Kew	...	5	0 0
Mr. ICETON, Grainard Nurseries, Putney	...	5	5 0
Messrs. THOMSON AND SONS, Clovenfords, Galashiels	...	5	5 0
Mr. DALTON, Halton Gardens	...	10	10 0
Mr. BENNETT and Under Gardeners, Rangemore Gardens	...	6	2 6
Mr. BAKER, Moreland Gardens	...	1	1 0
Mr. DAVIDSON, Royal Exotic Nursery	...	3	3 0
Mr. RUSSELL, Portwood Gardens	...	12	0 0
Mr. WHITTAKER, Crowe Hall Gardens	...	1	1 0
Messrs. HURST AND SON, Roundshotch	...	26	5 0
Messrs. WRENCH AND SON, London Bridge	...	5	5 0
The THAMES BANK IRON COMPANY, Upper Ground Street	...	10	10 0
Mr. GEORGE JOBSON, Fir Cottage, Godalming	...	10	10 0
Per Mr. GEO. MONRO, Covent Garden Market :—			
Mr. R. CROSS	...	10	10 0
Mr. W. G. ELLIOTT, annual	...	1	1 0
Mr. W. BILLEY, annual	...	1	1 0
Mr. J. RATCLIFFE	...	1	1 0
Mr. C. BAIGH	...	0	4 0
Mr. A. HOLDER	...	0	2 6
Mr. J. SULLIVAN	...	1	1 0
Mr. W. J. TWIGG	...	2	2 0
The LONDON and COUNTY BANK, Covent Garden	...	3	3 0
Mr. R. CLARKE	...	1	1 0
Mr. G. SIMPSON	...	0	10 0
Mr. W. A. BILLINGHURST	...	0	10 0
JOHN G. SYMONDS, Esq., New Court	...	5	5 0
Messrs. CUTBUSH AND SON, Highgate	...	5	5 0
CHAS. WALL, Esq., Chelsea	...	3	3 0
Mr. JOHN SMITH, Fairlawn Gardens, annual	...	1	1 0
M. N. CASSELL, Esq., Carrington Villas	...	2	2 0
THOS. HARCASTLE SYKES, Esq., Cheadle	...	1	0 0
F. Q. HILLS, Esq., Redleaf	...	5	0 0
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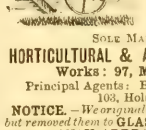
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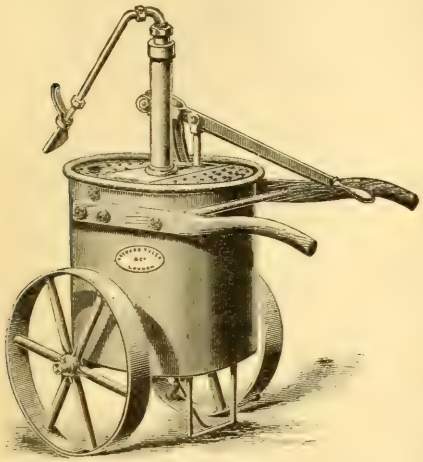
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15, PRINCES STREET, EDINBURGH, *July* 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95°, I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 60°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray.—I remain, dear sirs, yours truly. (Signed) A. MACKENZIE."

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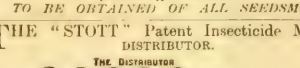
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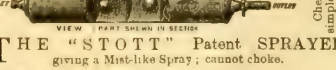
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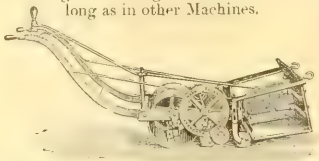
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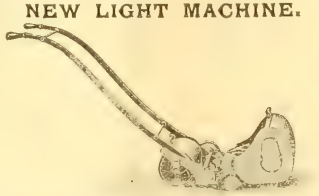
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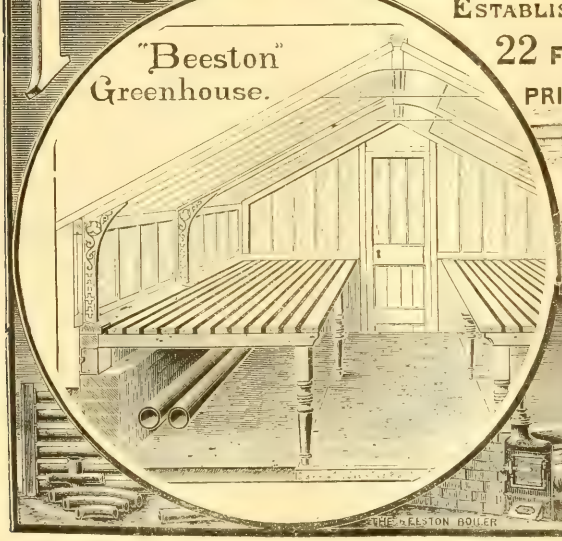
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VERBENAS, purple, striped, pink, crimson, scarlet, white, 1s. 9d. per doz., 12s. per 100.
CALCEOLARIAS, Golden Gem, 2s. per doz., 15s. per 100; Amplexicaulis, handsome lemon, 3s. per doz., 20s. per 100.
LOBELIAS, Emperor William (the best blue), from cuttings, 2s. 6d. per 100, 20s. per 1000.
AGERATUM, dwarf blue, 5s. per 100, 35s. per 1000.
MARGUERITES, yellow, large white, small white, 10s. per 100.
MIMULUS, Queen's Prize, splendid mixed colours, 2s. per doz., 10s. per 100.
PYRETHRUM, Selageuoides (new Golden Feather), 2s. per 100, 20s. per 1000.
PETUNIAS, splendid striped and fringed, single, 5s. per 100, 40s. per 1000.
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HELIOTROPE, Miss Nightingale (dark), 3s. per doz., 20s. per 100.
PINK, Mrs. Sinkins, large plants, from single pots, 3s. per doz.
,, Dianthus Delecata, ,, ,, ,, 3s. per doz.
CLOVE, old crimson ,, ,, ,, 3s. per doz.
CARNATION, finest, Doubles, mixed ,, ,, 3s. per doz.
DAHLIAS, Single, named, all shades of brilliant colours, from single pots, 2s. 6d. per doz., 18s. per 100.
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CACTUS DAHLIAS, Juarezii, Constance, Fire King, and others, 4s. per doz.
PANSIES, Show and Fancy, splendid mixed, "from cuttings," 8s. per 100.
PYRETHRUM (Herbaceous), Double and Single to name, from single pots, 4s. per doz.
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CHRYSANTHEMUM, selection of finest named Show varieties, from single pots, 2s. 6d. per doz., 18s. per 100.
PAPAVIA, Nudicaule (beautiful Iceland Poppy), white and orange, 4s. per 100, 30s. per 1000.
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CATALOGUE Gratis.

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THE "BEESTON BOILER

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Lights easily removed for exposing contents of house.

STRONG, DURABLE, AND ECONOMICAL.

A Model Amateur's House.

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DANIELS BROS., Town Close Nurseries, Norwich.

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NEW ZONAL PELARGONIUMS.— Single and Double-flowered. Fine young autumn struck Plants, from our magnificent Collection, including the newest and most splendid varieties in cultivation. Superb for pot culture, 3s. 6d. per dozen, 6 for 2s., 25 for 6s. 6d., or 24s. per 100. All correctly named and carriage free for cash.
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HARDY FLOWERING PLANTS.— Splendid Summer and Autumn-blooming Perennial Varieties for the permanent decoration of the garden. Good strong Plants, from single pots, for immediate planting out, including Anthemis tinctoria, Helenium pumilum, Phloxes, &c. 12 choice varieties, 1s. 6d., 6 for 2s. 9d., 25 for 8s., or 100 for 30s., carriage free for cash with order.
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CHRYSANTHEMUMS.—Clearance Sale.— A splendid Collection, including all the most beautiful and popular of the Japanese, Incurved, and Pompone varieties. Strong well-rooted Cuttings, correctly named, 1s. 6d. per dozen, 100 for 10s. 6d. Extra choice sorts, 2s. 6d. per dozen, 100 for 15s., post free.
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SINGLE-FLOWERED DAHLIAS planted out now will produce a charming display of beautiful flowers, splendid for the garden. Strong mixed Seedlings, from our fine collection of choice named sorts, 2s. per dozen, 25 for 3s. 6d., or 100 for 12s. 6d., carriage free for cash.
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Always Bright and Tidy.

Made by planting ALTERNANTHERAS, beautiful foliaged sorts, golden yellow, bronze red, magenta rose, &c., at 2s. 6d. per dozen; Rooted Cuttings, 1s. per 100. ECHEVERIA METALLICA, E. AGAVOIDES, each, 9d. and 1s. per dozen; E. FARINOSA, 6d. per dozen. three splendid sorts, very scarce. PACHYPHYTUM BRACTEOSUM, splendid light glaucous green, 1s. per dozen. SEMPERVIVUM TABULÆFORME, distinct, 6d. per dozen. HERNIARIA GLABRA AUREA, beautiful golden yellow, growing close to soil, 2s. 6d. per doz.

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BEGONIA, Single, 1s. and 2s. 6d. per packet; Double, 2s. 6d. per packet; CALCEOLARIA, 1s. and 2s. 6d. per pkt. CYCLAMEN PERSICUM, 1s. and 2s. 6d. per packet. *TRY THEM.* FERN SPORES (Seeds), Greenhouse and Stove varieties, 1s. and 2s. 6d. per packet. EUCALYPTUS, five packets, in five named sorts, 2s. LIST post-free.

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BLACK VESUVIUS
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The most remarkable Zonal Pelargonium, and very much the most distinct since the introduction of Mrs. Pollock. Foliage intensely dark, and the flower even brighter than its parent.

Plants 3s. 6d. each, post-free, 1s.

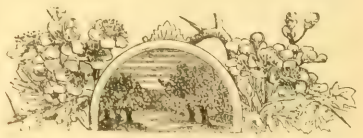
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TO THE
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W. RICHARDS, 41, Wellington Street, Strand, W.C.



THE
Gardeners' Chronicle.
SATURDAY, MAY 24, 1890.

LINTON PARK.

LINTON PARK has been a seat of several successive families of knights and baronets, including the grandfather of Sir Horace Mann, who built the house early in the last century. Sir Horace himself—the great army clothier and friend of Sir Robert Walpole—was buried in the church at the little village in 1786.

In Brayley's *Beauties of England and Wales*, 1807, Linton is spoken of as famous for its Hops, and the adjacent tract of Coxheath is described as an elevated and pleasant spot, where a large part of our army was encamped a hundred years ago, so that the Heath was then a busy place—much visited by the public as Aldershot is now. In these days it is quiet enough, being solely devoted to rural industry.

The rag-stone of Coxheath is excellent for fruit, and as the rags of Kent are riches, it does not pay to leave the land in Heath. It is a delightful walk, or drive, of 4 miles from Maidstone to Linton, across an open country of cornfields, with a wide view bounded by the chalk range north of Maidstone. The Medway, with the famous Hop and fruit-producing parishes of Farleigh and Wateringbury, lies 2 miles on the right, and Yalding—another Hop-producing parish—is a little higher up the stream. From its source to its outfall, Hops are always found on the banks of the Medway. A novelty of the road before reaching Linton is the village of Loose, lying 100 feet below the highway, in the gorge of a small stream which flows into the Medway within a short 3 miles. This deep lying sheltered village has been called the Spa of Kent, and a more picturesque and cosy spot could hardly be desired, if it were not a little too low—too much like an oven in summer, and too much addicted to diphtheria and fever from the want of proper drainage.

Houses should neither lie too high nor too low. The site of Linton Park is perfect in regard

to health and aspect, both for man and shrub. Entering the carriage drive from the main road, you soon find yourself between the lines of a fine avenue of English Elms, and the house stands at the end of these on lower grounds. But it stands high, nevertheless, commanding a noble view of the lower country. The present owner of the property is Mr. F. S. W. Cornwallis, M.P., and the good people of Maidstone enjoy ample opportunities, on several days in the week, of appreciating the gardens and grounds of their member's residence. The beauty of the stately homes of England, and the kindness of the clever men who rule over the gardening department, have rendered my visits to these cultured scenes exceedingly agreeable, and Mr. McKenzie is so overflowing with knowledge and anecdote that he made my visit to the gardens he presides over a day to be remembered.

The numerous specimen trees in the pleasure grounds shall be named in order as we reached them, and first on the list is a Cork tree—Quercus suber—planted by Sir Horace Mann, September 20, 1778. The ground here is very productive, and the aspect and shelter are as good as the ground, the Cork tree accordingly has reached a circumference of 10 feet at several feet from the base, and its height is in due proportion to the size of its trunk. It is a very handsome tree, full of foliage, with a plentiful yield of cork. Near it is a Copper Beech, remarkable for size and symmetry, and for abundance of branches, well clothed with leaves. A beautiful and well-furnished Araucaria imbricata near this spot, declared decisively by its appearance that the soil and climate of this part of Mid-Kent are suitable to it. The Wellingtonias assured us of the same fact as we passed them in different parts of the grounds. They are handsome trees under favourable conditions, though very poverty-stricken otherwise, and they grow here with a vigour which speaks for itself. While admiring the Conifers in this part of the grounds, Mr. McKenzie informed me that the shrubbery had been enlarged, and that several men working on the place can remember when the ground now covered with several sorts of large and handsome Conifers, including Cedars of Lebanon, 80 feet high, was cultivated as a Hop garden. No doubt the Hops, well cultivated with plenty of manures, proved a good preparation for shrub and ornamental timber, though it seems probable that the effect of deep cultivation may wear out after the lapse of a few years. Mr. Selby found that trees grew more rapidly for a few years on trenched land than on that which was merely dug 6 inches deep; but after thirty years the difference in size was not perceptible. The Hops must have grown here at the time when Lindon Place, as it is called in the guide books, was occupied by Viscount Holmesdale, M.P., whom I remember as the leader of those Hop-growers who agitated for the repeal of the duty on Hops, which their successors are just now as eager to restore, so as once more to protect their industry against foreign competition.

An exceedingly handsome specimen of the Golden Yew has spread itself over the ground within the limits of the former Hop garden. It forms a clump 40 feet in diameter. The deciduous Cypress, Taxodium distichum, is here a little too high up, one would suppose, for a semi-aquatic tree. The banks of the Medway would suit it better. Abies orientalis, on the contrary, is quite at home, and the fine specimen growing here bears out the remark in Veitch's *Manual of the Coniferæ*, that this is one of the most ornamental of the Firs. It finds here, in the midstof other shrubs, the sheltered site which it loves, and its pyramidal growth is relieved of formality by the great number of its slender b anchlets, by the delicate green colour of its foliage, and by the habit of the lower mass of branches in hugging the ground. A noble specimen of Libocedrus decurrens (Thuja gigantea), exceeding 60 feet high, has won much admiration from those best able to estimate its merits, and the authors of the work just named introduced an illustration of this particular specimen in their book. The Tulip trees are greatly admired here by that excellent judge of things worth looking at—the British public residing at Maidstone and the neighbouring district, and coming to Linton Park for an outing. Two specimens of Magnolia conspicua standing on the lawn on May 10 in full blossom, were beautiful beyond description, and had been so for some time, though the shedding of the petals on the grass gave warning that the gorgeous spectacle would soon be over. One of these neighbouring shrubs had produced this year about 8000 blossoms, whose all-pervading and exquisite fragrance was shed far and wide. The best of the two shrubs covers a space nearly 120 feet in circumference. It is well sheltered from north winds, standing in the pleasure garden south of the house, which is situated under the crest of the high ground on which it stands, and on the south side. The west and east are shut out by timber and shrubbery, and garden walls. I should say, by all means plant Magnolia conspicua, but remember the liability of such bold flowers as it bears to be torn by wind in exposed situations. Towering above these handsome shrubs is an English Elm, 120 feet high and 18 feet in circumference at 5 feet above the ground. Such a tree could only grow in land of good depth and fertility. A variegated Lime caught the eye next, so it was entered in my note-book as a particularly picturesque object.

Our walk had now brought us immediately in front of the house—a handsome building, well covered with creepers, with a fine specimen of Magnolia grandiflora among them. A standard Bay, planted at a little distance from the wall, and growing nearly as high as the mansion itself, was as full as heart could desire of bloom and beauty, and fragrant foliage—a delight to all passers by. The Banksian Rose is, of course, at home here, and the Pomegranate. Under the terrace of the house several specimens of the Palm, Chamærops excelsa, grow to a height of 18 feet, flourishing here unsheltered at all seasons. Aralias and Myrtles, too, stand out the battle and the breeze, and, as yet, have taken no harm. The balcony of the house is a point of vantage from which one can see how good the site, and how wide the prospect are.

The whole country of the weald forms its garden. Immediately below the windows is the richly planted pleasure garden, and in the centre a space devoted to bedding plants flanked on either side with banks of tall Cypresses and other shrubs. Beyond the garden and park is the wide weald, with villages half hidden by timber and orchards, and through this peaceful scene a train, having just left Paddock Wood, is hurrying away to Dover, leaving the trail of its engine behind it. The high ground of Goudhurst and Cranbrook lies due south. Hawkhurst is beyond, but out of sight. Tenterden is on the left, Tunbridge Wells and Eridge Castle on the right, and scores of other places in this rich district might be named as lying within view of these windows.

We now marched straight for a celebrated group of Japanese Conifers, passing on the way an exceedingly well-furnished specimen of Cupressus Lawsoniana, which bids fair to reach the typical 100 feet, which it attains in California, a handsome clump of Cotoneaster, and Acacias bearing Mistleto. Then we reached the beautiful "group of Japanese Conifers in Linton Park," which forms one of the illustrations in Messrs. Veitch's *Manual*. They consist of the Japanese Cypresses, Retinosporas, the Thuiopsis dolobrata, and Cryptomeria. Other interesting specimens which we met with are a male Araucaria imbricata in full catkin; a Cork tree from an acorn of the one before mentioned; and Cryptomeria elegans, looking healthy and happy, and no doubt feeling proud of having been for its beauty, selected for illustration in the *Manual of the Coniferæ*. Another, and the last single specimen I can mention, is Abies concolor, making its way up fast towards the "80 to 150 feet high," which it reaches in California, or eastwards thence to the Rocky Mountains.

A beautiful avenue of English Elms, forming a walk or alley, runs from this western side of the shrubbery to the north front of the house, where it meets the wider avenue of the approach road. All these Elms are of the same age, and may, perhaps, have been planted about the same time as the Cork tree. Parallel with the charming Elm tree walk, which Mr. McKenzie decorates every year with Crocuses and other early flowers, is an avenue of Wellingtonias, handsome, large, not too close together, and with rich foliage. One of these trees, though healthy in appearance, is only about half the height of the others, and a tall Scotchman, of great eminence in science, asked Mr. McKenzie to explain this. The shrewd reply was, "May I venture to ask how it came to pass that you are several inches taller than I am?" So one Scotchman may "bang" another on the principle of "diamond cut diamond."

In the conservatory there are some fine specimens of the Tree Fern, Dicksonia antarctica, standing in a pleasing ground-work of Selaginellas, with a belt of bright flowers on the shelves round the house by way of contrast; Azaleas, Deutzias, Spiræas, and Arums, and many others, illuminating very pleasantly, with simple and effective artifice, the prevailing green of the central bed. There are six vineries, and in the Muscat-house is a fine specimen of the Creeping Fern, Lygodium scandens, trained to strings, so that a string at a time of this most useful decorative plant may be cut off for twining round the stems of vases and table ornaments. The Lapageria alba grows and blossoms here on a wall, with glass above, in the fashion of a verandah open in front.

I must not forget the long ribbons of exquisite blue Gentiana in full blossom, and as the Apples from these gardens have won many prizes, a discourse on Apple culture might be looked for. But I have preached my sermon, and may not start off on a new text just now. *H. E.*

New or Noteworthy Plants.

TULIPA CILIATULA, *Baker, n. sp.**

This new Tulip inhabits the Anti-Taurus Range in Asia Minor, and has been distributed freely by Mr. Whitall. It belongs to the same group as Gesneriana, but has a large black blotch with a yellow border at the base of the segments. It is nearly allied to T. undulatifolia, Boiss., figured *Bot. Mag.*, t. 6308, but the perianth-segments are shorter and obtuse. From T. Julia and the dwarf forms of præcox it differs by its subglabrous bulb scales. My description has been made from specimens flowered at Kew, and others sent by Mr. Barr.

Eucharis Stevensi ×.

Under the name of Eucharis Stevensi ×, Mr. W. Stevens, of Walton, Stone, Staffordshire, has for-

* *Tulipa ciliatula*, Baker, n. sp.—Bulbo parvo ovoideo; tunicis brunneis intus glabris vel subglabris; foliis 4 lanceolatis, undulatis glaucescentibus obscure ciliatulis; pedunculo glabro; perianthio campanulati unciali splendide coccinei segmentis omnibus obovatis obtusis basi conspicue nigro-maculatis, interioribus angustioribus; staminibus perianthio subduplo brevioribus; filamentis nigris; ovario acute trigono, stigmatibus parvis.

Bulb small, ovoid, ½—¾ inch in diameter; outer tunics brown, nearly or quite glabrous inside. Stem, including the peduncle, not much over half a foot long, glabrous. Leaves four, lanceolate, ascending, undulated, 4 to 5 inches long, glaucous green on both sides, obscurely ciliated in the margin. Peduncle glabrous, 2 inches long. Perianth bright crimson, campanulate, 1 inch long, the segments all obtuse, with a large black blotch bordered with yellow on the claw, the three inner narrower than the outer. Stamens half an inch long; filaments black, twice as long as the black ovary, green, acutely trigonous; stigmas small. *J. G. Baker.*

warded to Kew a specimen of a hybrid that was raised by his son from seeds of E. candida, fertilised by the pollen of E. Sanderi. It is somewhat intermediate between its parents, having the perianth segments broader, and the tube longer and more slender than in E. candida, and the corona about half the length of that of E. candida, but similar in character, with, however, much more slender and longer filaments. The corona is six-lobed to about half-way down, and in some flowers the lobes have a distinct tooth on each side of the filament, in others the sides of the lobe more or less taper into the filament, or have rounded shoulders instead of distinct teeth. The flower measures from 3 to 3½ inches in diameter, and is pure white, with a yellow tint on the inside of the corona. The petiole is flat on the face, and the blade of the leaf similar to that of E. Sanderi, being 12—14 inches long, and 5—6 inches broad. It promises to be a good acquisition, since Mr. Stevens informs me that it is "a wonderfully free-flowering plant," in consequence of which he has "discarded E. amazonica entirely." In the specimens sent, there were seven flowers to each umbel. It appears that the plants were raised in 1883, and flowered for the first time in September, 1885, and were sent to the Royal Horticultural Society about two years later, but were there taken to be E. Mastersi, to which it no doubt bears some resemblance; but, so far as the material at my disposal will permit me to judge, E. Stevensi appears to differ from E. Mastersi in having the perianth segments longer in proportion to their breadth, and coronal lobes about twice as long, and distinctly narrower. Mr. Stevens remarks of it that mealy-bug will not live upon it, although scale will do so. *N. E. Brown, Herbarium, Kew.*

A NEW BAMBOO.

(BAMBUSA PALMATA, HORT.)

One of the most noble and distinct of all the Bamboos, so far as its foliage is concerned, is one sent to us under the above name by M. Marliac, the well-known specialist of Temple-sur-Lot (Lot-et-Garonne), France. Without flowering material, Bamboos are exceedingly difficult to make out specifically; but so far as leafage goes, the plant resembles Guadua or Dendrocalamus latifolia, as illustrated at plate vi. of General Monro's *Monograph of the Bambusaceæ*.

So far, B. Ragamouski has been our largest-leaved species, but B. palmata has much finer leaves, and is more erect in habit. As sent by Mr. Marliac, the stems are 5 feet in height, with from five to seven leaves at their apices only; the largest of these leaves are 12 to 13 inches in length by 4 to 5 inches in breadth at their widest part. The figure (106), shows the stems and the leaves about one-third of their natural size. Above, the leaves are of a rich yellowish-green tint, finely lined or veined, and below they are of a soft blue or glaucous hue. The plant is said to be hardy, but even if it should not be so under all circumstances, the plant is so noble and distinct in habit and leafage that it is well worth pot or tub culture in the greenhouse or conservatory.



Fig. 106.—BAMBUSA PALMATA.

It would be very interesting if the growers of Bamboos in continental gardens would tell us something as to the species and varieties they cultivate. Again, how many species are there hardy in Great Britain and Ireland? My own experience with about a dozen kinds is, that they will withstand a good deal of cold weather and actual frost, but that they will not endure drought or dry scathing winds. In moist rich soils and sheltered positions they grow rampant, and add a grace to ordinary shrubs that no other hardy exotics can do.

Again, I should like to ask whence and from whom may seeds of Bamboo be obtained? The seeds germinate so readily, and, as General Munro pointed out in 1866 (*Trans. Linn. Soc. Lond.*), the young plants grow so rapidly that it seems a pity the hardier kinds of North China, Japan, the Himalayas, and the Andes cannot be reared in quantity.

Where is Arundinaria macrosperma of the Southern States of America now cultivated in Europe? One of the most distinct of all the dwarf kinds is one from Japan growing 2 feet high. Its leaves are about 3 to 5 inches in length by 1½ inch in breadth, and it acquires a variegated aspect from the withering and bleaching of the margins of its leaves. Can anyone tell us the name of this peculiar species? *F. W. Burbidge.* [Bambusa tassellata, hort., see p. 578.]

FLORISTS' FLOWERS.

THE TULIP.

The Tulip is a May flower, and a very handsome one, too; although, during the last few years the seasons have been so late, that the managers of the National Tulip Exhibition have been obliged to push that interesting floral display into June. It is good news to the old fanciers to hear that the taste for Tulips has spread in the south, and that many fanciers are inquiring for the old favourite varieties. As in the north, so in the south, a cumbrous frame-work has to be erected over the beds in the form of a span-roof about 10 feet wide. This admits of two beds, with a narrow path in the centre, the bulbs being planted in rows across the beds, seven bulbs in a row. The framework over the beds is used to hold in position a canvas screen, which is run up and let down as required by pulleys and cords. The whole arrangement is very unsightly in a garden, and the Tulip beds are sometimes planted in an out-of-the-way corner, where the protective materials required for the beds in winter and at blooming time is kept out of sight. If Tulip bulbs should ever again be valued so highly as they have been in years gone by, it will be found much cheaper and better in the long run to erect cheap glasshouses over them. Years ago I stated in the pages of the *Gardeners' Chronicle*, how well we managed to protect the Tulip beds with glass lights from frames which are not in use for other purposes in May. The lights are merely placed over a light framework, the sides of which are covered with light shading material, to protect the flowers from high winds or driving rains. This simple arrangement answers very well to protect the blossoms, but is not so elegant or complete as the light glass structure erected by the Rev. F. D. Horner for his Tulips. It is wide enough to cover the usual two beds, with an alley in the centre. The bulbs, seven in a row, are planted across the beds, the path in the centre of the house being wide enough, and the roof sufficiently high, to afford a pleasant promenade. Of course, in the early years of the Tulip, fancy glass was dear, owing to the heavy tax upon it, and cultivators had to do the best they could under the circumstances. It is certain that blooms must be protected, as they cannot stand heavy rains, and hailstones sometimes make sad havoc of the beautiful flowers. *J. D. E.*

THE AURICULA.

Some remarks on the show Auricula were published in these columns, p. 326, giving an account of the state of the plants about the end of the month of February. At that time Auriculas were in a very forward state; and growers were complaining that their flowers would be too early for the exhibitions. Our own were at that time in a more forward state than I have ever known them to be. I recommended, and also put in practice, free ventilation; removing

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the lights altogether in mild weather. So that "they would be able to withstand the low degree of cold we may yet experience." My prediction was verified, even before the paragraph was published, as we registered early in March a lower degree of cold than I ever knew in that month, the thermometer fell to 9° Fahr., or 23° of frost. A cold period followed this sudden change, and the result was a much later bloom than some people expected, but where the plants were protected from the cold east winds, and the frost kept out by a little artificial heat, the quality of the flowers was quite up to the average. The result of the National Auricula exhibition in the Drill Hall, has also gone to prove that we are doing much more than merely marking the time in the raising of seedlings. Mr. Turner, of the Royal Nurseries, Slough, has taken the lead in raising new alpines; and an excellent amateur cultivator, Mr. Thomas Henwood, of Reading, has also produced some good seedling alpines. The Rev. F. D. Horner is a long way ahead of any other cultivator in seedling show Auriculas of high class quality. He has produced green, grey, white, and self-edged flowers superior to anything that has ever been raised.

I am constantly asked "when is the best time to repot Auriculas?" My reply is, now; if the plants were not required to produce seeds, I would repot everything before the end of May, in order that the plants may be well established before the heat of June and July. How repotting is done is an important question. In the first place it may be said that generally growers have given up the use of special composts, not believing them to be necessary. Mr. Horner takes his loam from that part of his garden where the Potatos are growing, and employs no turfy loam. This soil is mixed with decayed manure, and leaf-mould, and charcoal broken up finely is preferred to sand of any kind. It may be said that large pots should not be made use of. I have gradually come to the conclusion that 5-inch pots are sufficiently large for the largest plants, and the main part of our collection is grown in 4-inch and 4½-inch pots; and indeed some of the best ones flowered in 60's. The pots are well drained, and over the drainage some rough turfy stuff is placed to prevent clogging of the water outlets. Worms should be excluded from the soil, and searched for in the pots if there are worm pests on the surface, as these creatures soon choke up the drainage. Before repotting, the roots should be carefully examined, and decayed parts cut clean away if found on the tap-roots, and if the Auricula aphis should be discovered on them, it will be prudent to wash the roots with soft soap and water before repotting them. Press the soil moderately firm around and amongst the roots, afterwards removing the plants to a frame on the shady side of a wall or fence, the lights being kept nearly closed for a few days until new roots have formed. We repotted all the offsets in the first week in May. Some of these will grow freely, and will be better for a shift into one size larger pots in June or July. With care the offsets of last year will grow into flowering plants by the end of this season; but they should not be overpotted at this period, for the sake of saving a repotting in the summer, or early in the autumn. Plants raised from seeds sown in July, 1889, are now freely growing, and require frequent re-potting, unless they are intended for the open border. Auriculas do not require much attention when planted out, and if the soil in which they are grown is suitable, large flowering specimens will be produced by the end of the summer.

The cultural requirements of alpine Auriculas under glass are similar to those of the show varieties, but they are hardier and not so readily injured by cold winds. Planted in the rock garden here, they are beautiful masses of crimson and gold. We have a clump of Gorton's Diadem in the rock garden, which produces at least a dozen trusses of flowers, and forms a picture of its kind not surpassed by any other alpine plant. They are also good subjects for the front rows of herbaceous borders. *J. Douglas.*

Double Polyanthuses.

I observe that the old double black Polyanthus is being advertised as "extremely rare." I have not seen it for a long time round London, but it may, and doubtless does, still abound in the cooler and moister parts of the country. The difficulty appears to be to keep it alive in the hotter and drier parts of the south. I began last summer with some strong plants in pots, and they were plunged in a bed of cocoa-fibre in the coolest and shadiest part of my garden, but died ere the summer was over. Evidently they could not stand the dryness and the heat. It is known in some parts of the country as Rex Theodore. This and a double reddish-brown variety laced with gold, known as Tortoiseshell, are the only two double Polyanthuses I am acquainted with. I have a strong plant of the latter in a pot, and it threw up strong trusses of bloom; but the flowers never became fully expanded. I had some trusses of bloom sent me a few days ago from Cork, the flowers very double, but only half expanded, and it appeared as if they would not get beyond this stage. It may be peculiar to the variety. I shall make an effort to keep the plant through the summer, and hope to succeed. I have seen a double Polyanthus come among some gold-laced seedlings, but not, to my knowledge, among a bed of the Giant or Fancy type. It is the same with the Primrose. Occasionally a variety will show a tendency to become double by throwing out petals from the tube, but the flowers are double only in a rudimentary form. Perhaps if the plants were isolated and seed sown, a race of semi-double varieties might ensue, as is observed in the case of the Chinese varieties. *R. D.*

CHEMICAL CONSTITUENTS OF APPLES.

In the recently issued *Bulletin of the Missouri (Columbia), Department of Horticulture*, an interesting article is given by Professor J. W. Clark on the chemical analysis of Apples of the variety Ben Davis, in order, as stated, to place before fruit growers in a concise and practical manner the ash analysis of Apples in its different stages of development, that the importance of thinning the fruit early and letting only the perfect specimens ripen might be made plain to all.

Three samples of the fruit were taken as follows:—

1. Made up of green immature Apples picked from the tree July 9, and averaging 1½ inch in diameter.

2. Taken October 23, and composed of large and perfect fruit, averaging 3½ inches in diameter.

3. Also taken October 23, and made up of small and imperfectly formed Apples, which averaged 2½ inches in diameter.

Analysis of Ben Davis Apples in Three Stages of Growth. Actual Quantities and Proportions per Cent.

	Unripe Apples.	Ripe Apples.	Small Apples.
	July 9.	Oct. 23.	Oct. 23.
Average weight of whole fruit	Grains. 47·7	Grains. 215·0	Grains. 70·4
Weight of flesh in fruit	...	201·0	63·7
Weight of core in fruit	...	11·0	8·7
Weight of ash in fruit	5·51	4·03	1·81
	Per cent	Per cent.	Per cent.
Amount of flesh in fruit	...	93·4	87·6
Amount of core in fruit	...	6·6	12·4
Ash in whole Apples	0·29	0·27	0·34
Carbon in same	2·35	0·91	0·52

From the foregoing data we learn that a large proportion of the mineral matter (ash) contained in the Apple is stored up during the early part of its growth, for, comparing the percentage of ash in the Apples collected July 9 with those of the ripe fruit collected October 23, we find the largest amount in those earliest gathered.

The ripe Apples are seen to contain two-and-a-half times as much carbon as the unripe ones; the small, imperfectly-formed fruit containing quite an immaterial amount of carbon, scarcely more than a half per cent.

The following Table shows the analysis of the ashes of Apples at different stages of growth, the quantities of the various ingredients being given in parts per 100, and calculated in ounces in 10 bushels or 500 lb. of Apples:—

Mineral Constituents in Ben Davis Apples in three different Stages of Growth. Percentage Quantities and actual Quantities in ten bushels of Fruit.

	Unripe Apples.		Ripe Apples.		Small Apples.	
	July 9.		Oct. 23.		Oct. 23.	
	Per cent.	oz.	Per cent.	oz.	Per cent.	oz.
Silica	0·58	0·13	1·23	0·26	2·16	0·59
Ferric oxide ...	0·47	0·11	0·46	0·11	0·66	0·18
Phosphoric acid ...	8·96	2·07	8·20	2·23	8·73	2·39
Lime...	6·85	1·58	5·66	1·21	8·85	2·42
Magnesia	1·80	1·11	4·30	0·92	4·76	1·30
Potash	54·02	12·49	56·74	12·12	52·44	14·35
Soda	2·10	0·49	1·94	0·41	2·08	0·57
Undetermined ...	22·22	5·14	21·47	4·50	20·32	5·56
Total ...	100·00	23·12	100·00	21·76	100·00	27·36

The only ingredients contained in the ash which there is any need of noting, are the phosphoric acid, potash, and lime; for these are the only ones in which the soil is likely to become deficient, and therefore that need to be returned to the land to keep up its fertility.

From the above analysis we find there would be taken from an acre of land set with Apple trees, 30 feet apart, and yielding 10 bushels of fruit to the tree, by sample No. 1, 6 lb. of phosphoric acid, 37½ lb. of potash, and 4¾ lb. of lime; by sample No. 2, 7 lb. of phosphoric acid, 37 lb. of potash, and 3½ lb. of lime; by sample No. 3, 7½ lb. of phosphoric acid, 43 lb. of potash, and 7½ lb. of lime.

From these facts we learn the importance of thinning fruit as soon as it is of sufficient size to show the wormy and imperfect specimens, and also that it costs less to grow a bushel of large and perfect Apples than it does to grow a bushel of small and inferior fruit.

It is further evident that to produce good crops of Apples for any number of years, the ground, when the trees are planted, must have phosphoric acid, potash, and lime, returned to it, if we wish to keep up production and fertility of the soil.

The cheapest and most available source of obtaining these substances, and applying them to the land, would in most cases be from ground-bones, muriate of potash, kainit salts, superphosphate, or wood-ashes. *J. J. Willis, Harpenden.*

RHODODENDRONS AT CASTLE KENNEDY.

The following remarks on Rhododendron growing were written by the late Mr. Fowler for Mr. C. A. M. Carmichael, who kindly sends them to us for publication:—

Rhododendrons are grown at Castle Kennedy in a great variety of soils and situations, for they are not, as many suppose, fastidious as to the former. A mellow turfy peat with a mixture of sand is perhaps the best, and a slightly damp subsoil; but as this soil cannot always be had, much may generally be done by taking advantage of the best substitutes for soil which the neighbourhood produces. Any loam, if not too heavy, mixed with peat, leaf-mould, and sand, may readily be formed into a compost fit for growing the Rhododendron. Ground which has been long occupied with American plants is apt to become exhausted, but a top-dressing of well-rotted manure or leaf-mould is a ready and cheap way of

rendering it again fit to grow the plants with beauty and vigour.

Somewhere over forty years ago, it was arranged that a low-lying piece of wet black moss from 2 to 3 acres in extent, surrounded on three sides with hanging ground composed of light loam on a gravel subsoil should be planted, and about 1 acre in the centre of the moss was formed into a circular basin, or pond, the peat soil being removed to and mixed with the loamy soil of the higher ground. The moss was thoroughly drained, and covered to the depth of about 12 inches with gravel and sand taken from the higher surrounding ground; the whole was well worked into the peat below and mixed with it. The ground was afterwards laid out according to a plan, and planted with Rhododendrons, Azaleas, Kalmias, Andromedas, Ledums, &c.; New Zealand Flax, Pampas-grass, Arunda conspicua have since been added, the whole forming now what is known as the "American ground." As years rolled on the moss consolidated, and, as a consequence, the beds sunk to some extent in the higher, and much more so in the lower parts.

A few years ago it was necessary to raise all the beds from 9 to 18 inches. About the same time we were carrying out some improvements in an old kitchen garden, originally a light loam, and had a large quantity of spare soil, which had been removed from the borders and breaks, which was full of manure. This was utilised to raise the level of the beds in the American ground, which involved a turn over of nearly all the plants, so as to raise the roots to suit the new levels, and admit of the old garden soil being thoroughly incorporated with the moss and gravel in the beds. The result has been all that could be desired.

In other parts of the grounds, in shrubberies, and along the sides of drives, Rhododendrons, &c., are planted in the ordinary soil. Where the finer-named varieties of the former have been planted, the ground in most cases has been trenched, but where the commoner are planted, as a rule but little preparation was made. The ordinary soil varies from a light to a hardy loam, resting on a subsoil of sand or gravel. I observe that where the subsoil is dry, they do best where there is partial shade, or are planted in a north or west aspect; but where the subsoil is moist, this is less important. Early varieties which flower before May 1 should be planted, when at all convenient, so as to be sheltered from the morning sunshine, except in the best localities.

Planters of the finer hybrid Rhododendrons should consider the climate of the localities where they propose planting. In inland and elevated situations, where they suffer from late spring frosts, only the late-flowering varieties should be grown. In more fortunate districts, particularly those near the seashore, or well to the southward, early varieties may be expected to succeed; and only in the best localities should the Sikkim species be introduced. Some of these are well worthy of cultivation, on account of their fine foliage alone, they being very effective when planted amongst other shrubs; and in particular is this the case with some of the many beautiful varieties of Rhododendron cinnamomeum. Some of the varieties and hybrids have open and upright habits, the long pointed leaves of which, slightly curved from the midrib to the edge, show the rich cinnamon colour of the back, and when the plants reach the height of 6 or 8 feet, admit the play of the sun's rays, which in certain lights become slightly charged with the cinnamon colour of the leaves. The effect produced by the play of the rays must be seen to be duly appreciated.

The following Sikkim varieties are comparatively hardy here, and, with the exception of the R. cinnamomeum, which flowers freely after being well established, the others only occasionally; niveum, cinnamomeum, Aclandii, barbatum, Thomsoni, and hybrids, nobilis, robustum, campanulatum, fulgens, argenteum. Thousands of hybrid seedlings of Sikkim have been raised and planted all over the place; many of them are now a few feet in height, and show great variety of foliage, particularly the cinnaminum strain, but few of them have yet flowered.

The following are among the best varieties grown here of the finer hybrid Rhododendrons:—Sir Isaac Newton, Broughtonianum, Altaclarense, Alarm, Earl of Rosslyn, Lady Eleanor Cathcart, Mrs. Williams, Lord Eversley, Caractacus, Perfection, Auguste van Geert, Sir John More. The above have large foliage and large trusses, and form grand specimens. Madame Carvalho, The Queen, Tippoo Sahib, Johnsonianum, Duchess of Sutherland, John Waterer, Kate Waterer, Earl of Shannon, Sir Robert Peel, W. E. Gladstone, Madame van de Weyer, Hendersonii, Mrs. John Penn, Prince Eugène, Elfrida, Hector, George Cunningham, Paxtoni, Raphael, The Princess Mary of Cambridge, Sir William Armstrong, Duc de Brabant, Sir Joseph Whitworth, Iago, Sun of Austerlitz, Eloise, Nero, Cato, Lord Stamford, Queen Victoria, Lucy Neal, Sultana, Titian, Star of England, Mirabile, The Autocrat, Nelsonii, The Warrior, Sir Thomas Sebright, Londonense, Alarm, Lady A. D. Stafford, Alma, Mrs. John Clutton, Parity, Rachael, Rouge et Noir, Bouquet de Flora, Austin Layard, Baroness Lionel Rothschild, Chancellor, Countess of Normanton. Although not the newest varieties, the above have all been tested, and are worthy of the best nooks that can be given them wherever Rhododendrons are appreciated.

THE LILY OF THE VALLEY FUNGUS.

In the *Gardeners' Chronicle*, July 5, 1884, pp. 12, 13, Mr. W. G. Smith records and describes for the first time as British Æcidium convallariæ, Schum., from specimens which had been found by Mr. T. Hebden infesting Lilies of the Valley in the Lake district; the fungus had also been observed on the same host near Scarborough. Apparently this species is rare, for beyond the localities mentioned, it has not, I believe, been noticed elsewhere in Britain. In Plowright's *Monograph of the British Uredineæ*, 1889, it is placed in the Appendix, amongst imperfectly known forms, and evidently very little is known concerning this particular Æcidium.

During the past twelve months I have paid some attention to Æ. convallariæ, and by a series of experiments and observations have been able to trace out its uredo and teleutospores. In the first place, it is clear that the Æcidium, cannot reproduce itself without the intervention of some other host. On June 13, actively germinating spores of the Æcidium were applied to the leaves of healthy plants of Convallaria majalis, which for three months were almost daily under notice. Not the slightest result followed. On the same date several strong rooted plants of Convallaria—the leaves of which were badly infested with Æcidium—were planted in my garden, but kept apart from the healthy plants. With the exception of the Æcidium clusters dropping out and forming irregular holes in the leaves, not the least result ensued.

To test how far these and other observations accorded with the fungus in a state of Nature, I visited in September, Bowness, a locality where the parasite had been abundant during the previous spring; a large number of leaves were collected and examined, which proved to be free from either uredo or teleutospores. How then does the Æcidium reproduce itself? Without now going into detail, I may say that after infecting several species of plants last June, with actively germinating spores of the Æcidium, a result followed in the form of uredo being produced on Phalaris arundinacea. When ripe, these uredo spores were again applied to other plants of Phalaris, and uredo again followed, which in each case was succeeded in July and August by teleutospores.

Moreover, Phalaris arundinacea was badly attacked—in proximity to the Lilies at Bowness—with uredo and teleutospores identical with those artificially produced. On April 30, 1890, I applied germinating teleutospores from Phalaris to leaves of Lily of the Valley, which produced spermogonia on May 8. The experiment is being continued.

Specimens of the teleutospores were sent to Mr. C. B. Plowright, of King's Lynn, last year. He informs me that he infected Convallaria on April 27, 1890, and saw indications of spermogonia on May 5, which were abundant on May 9. "I have grown," he says, "Lily of the Valley for eleven years in my garden, every year without any Æcidium, but eight days after sowing the teleutospores the Æcidium begins to appear." So that it is beyond doubt that Æcidium convallariæ, Schum., furnishes another illustration of that remarkable phenomena known as "heteroecism." *H. T. Soppitt, Bolton, Bradford.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT CAMBRIDGE LODGE, CAMBERWELL.

The houses full of magnificent specimens of all the species and hybrids of Cypripedium in cultivation, as well as a large number of home-raised varieties peculiar to the place, are always the chief attraction in R. J. Measures, Esq.'s garden. Under the care of his gardener, Mr. H. Simpkins, the entire collection steadily progresses; but it is in the perfection of health exhibited in the foliage and flowers of the Cypripediums that the improvement is most marked. At the present time the varieties of C. barbatum—some of them rare—are of much interest. Among them the two most distinct is a quaint dwarf variety, with light-coloured flowers; and a narrow-leaved one with peculiarly bright and attractive flowers named C. barbatum Backhousei, it having been received from the York firm. C. Burbidgei, as seen here, is a fine and handsome species, with something of the outline of C. Dayanum, but with the dorsal sepal heavily striped with bright green, and the quaint-looking petals tinged with rose. C. Cooksonii×, a Lawrenceanum cross, is, when well grown, a noble variety, and the best form of the typical Lawrenceanum, with two dozen large flowers, is indeed a fine object. C. marmorophyllum is beautiful both in leaf and flower, and among others are strong specimens of C. Curtisii, C. ciliolare, C. vernixium×, C. Swanianum×, C. bellatulum, C. Druryii, C. superciliare×, C. Dayanum, C. conchiferum×, and C. hirsutissimum, in bloom. Noteworthy was the vigorous condition of the Selenipedium section—the broad handsome foliage of C. Lindleyanum equalling that of C. grande and C. Ainsworthii×, and C. Schroderæ approaching it in strength.

Among plants of this section in bloom were noted many of the Sedeni group, the prettiest being perhaps C. S. candidulum, although the richly-coloured flowers of C. purpurascens and C. albo-purpureum render them very desirable varieties. A large specimen of C. Dauthieri marmoratum was observed, which exhibited the danger of moving plants to other houses when really doing well. It may be noted that the specimens of C. Spicerianum grow luxuriantly in a corner allotted to them, and have always resented removal to other houses. So also with large pots full of C. Druryii, with their vigorous trailing growths. Convenience suggested their removal to the next division some time ago, but they had to be brought back, or they would have gone into ill-health beyond recovery, although no difference in the temperature, &c., could be remarked.

Next in importance to the Cypripedia is the large and complete collection of all the species and varieties of Masdevallia and Pleurothallis obtainable. Among the former a charming little new species of the M. simula class is in bloom, with flowers far surpassing those of M. simula in beauty, their markings being like those in Restrepia antennifera. Also in bloom, and well advanced in bud, are M. pachyantha, M. leontoglossa, M. demissa, M. Chestertonii, M. punctata, M. civilis, M. Peristeria, M. Houtteana,

M. cupularis, M. Fraseri ×, M. ignea Eckhartii, and a great variety of the M. Harryana and M. chimæra section. Continuing the course he adopted with his Cypripediums, Mr. Measures has in the course of printing a neat little list of his Masdevallias and Pleurothallis, with references for identification which will be of service. Among the most curious now in flower are two of the section Scaphocephala, viz., M. pulvinaris and M. antennifera, both with rugose scapes, and flowers a little resembling a hawk's beak. A curious new Stelis, with flowers unusually large for that genus, was in bloom.

Time admitted but of a glance through the house of fine Vandas, which contained some rare forms of V. suavis in bloom; also Aërides rubrum, and a plant of A. Fieldingii with seven spikes; the Cattleya-houses with their quota of C. Mendelii and C. Lawrenceana, and their sturdy specimens of the C. aurea and C. gigas type, two of which are white forms of C. gigas.

The house of Miltonias, with scores of fine spikes on the healthy specimens of M. vexillaria; the house of Phalænopsis in vigorous health, and that containing the specimens of Cymbidium Lowianum and other Cymbidiums were visited, all of which contained some good plants in bloom, as the white form of Trichopilia suavis, Dr. Paterson's fine variety of T. coccinea, T. crispa, and T. marginata.

In one cool house was a pretty group of the lovely little Oncidium cucullatum, O. Phalænopsis, and O. concolor. In another shady cool house Utricularia montana had assumed unusual proportions, and was blooming profusely. Warscewiczella cochleata and Kefersteinia graminea were in bloom; also Ornithocephalus grandiflorus; and among the Cœlogynes the charmingly tinted C. tomentosa had seven fine sprays of its salmon-pink flowers. The unheated house of Todea superba is also another success which may be added to Mr. Simpkins' cultural achievements.

"Lindenia."

The last number of this periodical is devoted exclusively to the illustration and description of certain forms of Cattleya Trianæ, viz., C. Trianæ var. purpurata, t. 229; C. T. var. Madame R. Martin-Cahuzac, t. 230; C. T. var. pallida, t. 231; C. T. var. striata, t. 232. Descriptions of these are given by Mr. Rolfe. Among the numerous forms of this species, which is, botanically, itself only a subspecies of C. labiata, are C. T. Leeana, which is the largest; C. T. chocoensis, the most strongly perfumed; C. T. virginalis, the purest white; C. T. Russelliana, the most remarkable for the rich colouring of the medium lobe of the lip; but, as Mr. Rolfe remarks, there are so many fine forms that comparison is difficult, and the names represent individuals rather than varieties.

Cattleya Ballantiniana ×.

A splendid hybrid raised in Messrs. Sander & Co.'s establishment out of C. Trianæ by C. Warscewiczii. The sepals and petals are of a beautiful deep rose colour, and the elegantly frilled lip is washed with the same colour on each side. The disc is pure white with a bright yellow stain at the base, where there are a few radiating dark purple lines, while the anterior spreading portion of the lip is of the deepest mauve-purple, shading off into a paler conspicuous border, which is at once characteristic and attractive. *Reichenbachia*, t. 91.

Cypripedium vittatum breve,

Also known in gardens as C. Binoti, is a pretty form, figured in the last number of the *Orchidophile*. It belongs to the subgenus Selenipedium. The flower is between 3 and 4 inches in the longest diameter, with an oblong-acute upper sepal marked with fine purple lines on a greenish ground; the two lower conjoined sepals have a similar ground colour destitute of lines, but with a few scattered small purplish spots. The lateral petals are 3 inches long, deflexed, linear, strap-shaped, twisted, undulate, and hairy at the margins, and of a purplish-red colour. The lip is of like colour, the side lobes streaked horizontally with irregular bars of purple. According to Mr. Binot, as quoted in the *Orchidophile*, the plant grows in marshy places, exposed to the full sun; its roots are almost constantly in stagnant water, overlying a compact clayey soil. It is a native of Southern Brazil, whence it is likely soon to disappear from the devastations of collectors. M. Godefroy says it should be grown in a stove with a constantly very moist atmosphere.

Dendrobium Brymerianum.

A brief and interesting story is told in connection with the introduction of this species. It is a native of Burmah, and Orchid collecting in that country some years ago was by no means an agreeable occupation. The collectors had a warm time of it in more ways than one, owing to the rivalry of the missionaries established there, and who knew the value of Orchids to some extent. They did not accord a genial welcome to a stranger in search of them. Indeed, they forbade him to leave the town of Bhamo, and he was, therefore, obliged to hire natives to procure plants. It may be readily imagined that the collector was not always in the best humour, having nothing to do all day long but flying from one to the other of the four gates by which the town of Bhamo was entered, in the hope of seeing one of his agents approaching with the much-wished-for plants. The proceedings were occasionally enlivened when one of the said agents was intercepted just outside the gate, and had all his plants taken away from him. These little incidents often led to anything but edifying scenes between the collector and the missionaries or their agents. However, some Orchids, among them D. Brymerianum, were sent to England, probably by the missionaries. No descriptions being given, the plants were consequently sold cheap, nobody suspecting for a moment that anything remarkable was amongst them. Mr. Brymer was fortunate to obtain some of these, and we can understand his feelings when he saw the plant which has immortalised his name in Orchid circles open its extraordinary flowers. *Reichenbachia*, t. 92.

Cypripedium delicatulum ×.

This pretty variety raised by Drewett O. Drewett, Esq., Riding Mill-on-Tyne, by crossing C. Dayanum with C. barbatum Warnerii, is now in flower with Messrs. Seeger & Tropp. It much resembles C. Dayanum, but the dorsal sepal has more white in it, and the whole flower is of a more delicate tint.

Masdevallia Harryana, Kentish Fire.

This gorgeously tinted form of our showiest Masdevallia is now in flower in Messrs. Seeger & Tropp's Orchid Nursery, Lordship Lane, East Dulwich. It is rather a tall grower, and its large handsome flowers have that rich glow which comes of the crimson surface colour being over the yellow tint of the body of the flower.

Auricula (Self) Buttercup. — This is a fine and smooth deep yellow-coloured self, and having a marked individuality of character, standing among the varieties in this section as their equal for its obvious good qualities. It was the only show variety at the recent exhibition of the National Auricula Society that obtained a First-class Certificate of Merit. There was at one time in cultivation a yellow self named Gorton's Stadtholder, and, indeed, until recently; but I doubt if it be now possible to get a plant of it. I saw it on one or two occasions long ago, good in colour, but thin in the paste and substance. Until Buttercup appeared the best yellow self was Hetty Dean, a seedling of the Rev. F. D. Horner's, which he gave away. This is a good grower, flowers early, tube and paste good, and it lasts a good time when in bloom. Mr. Horner raised and named a pale yellow self named Sunshine, but it lacks the depth of colour, and the density of paste, and the stoutness of Hetty Dean. Buttercup came among a batch of selfs, and it illustrates the fact of variation in the Auricula, that a yellow self should be produced from parents essentially distinct in character. *R. Dean.*

Trees and Shrubs.

[*See illustrations in this and the preceding number.*

Berberis dulcis.

For freedom to flower and gracefulness of habit, Berberis dulcis is a gem for the shrubbery, and especially when planting at the back part of the border. The growth is more upright than spreading, and the plant is just the one for such positions. When young, and about 3 feet high, half a dozen may be planted together, thus obtaining good effects without loss of time; and this is better than dotting the plants about amongst other shrubs. When the bushes have outgrown their bounds at the front part of the shrubbery, a permanent site should be selected for them at the back. *E. M.*

Early Flowering Shrubs.

If I had to give an opinion as to which is the best early-flowering hardy shrub, I think I should decide in favour of Ribes, for what can be more effective than the flowering Currant, with its long graceful racemes of rich-coloured flowers? These vary in shade from deep crimson to white. I have often thought, when admiring these beautiful Ribes, what a high value would be attached to them if they were tender, or required stove treatment. Here we have been applying the flowers for table decoration, in combination with long shoots of Deutzia gracilis, and the two together, in tall epergnes, associate well. As pot plants, the Ribes are very serviceable for furnishing, and the wonder is that they are not grown in that way and sent to market to brighten town windows, as they could be got up quite large enough in one season. All one has to do by way of propagation is to make cuttings, or pull off slips of the young ripened wood, any time in the autumn, and stick the pieces in the ground, and in spring they will root and grow, and make nice little plants.

Berberis.

I should place these second in my selection, because they are later in flowering; but when they do come in, they made a fine show. Not only is this so, but the old well-known B. aquifolia is so valuable for planting under trees, as it will thrive where hardly anything else will live, and its branches, with their handsomely cut foliage, that colours up so beautifully, is of great value for cutting for vases. B. Darwini is simply splendid; a mass of bloom all aglow with warm-coloured flowers, that hang in abundance, and quite light up dark places. This Berberis is well adapted for planting at the back of shrubbery borders, or in Rose borders which have a backing of evergreens, as it does not root far about, and may be kept to any size by pruning it in. B. stenophylla × is in no way inferior to the above, and should be in every garden, it being very distinct in habit, and well adapted for planting on rockwork or elevated positions, the long pendulous branches making a good show. The best time to plant Berberis is just before they begin to grow, as they are difficult to move successfully before that time.

May Flowering Trees and Shrubs.

The early flowering Rhododendrons have been repeatedly injured by frosts in this neighbourhood, so much so, that at their best they have made but a poor display; but as Rhododendrons comprise so many sections, which bloom in long succession, those now opening and those to follow will soon impart a different aspect to the shrubberies and pleasure-grounds.

The wild Cherry, covered profusely with its snowy-white flowers, is a good subject for the back parts of shrubberies, and looks well on the skirts of plantations of Firs and other trees. The double variety, Cerasus pseudo-cerasus, *alias* Watereri, with its large, double, rose-coloured flowers, is very handsome. (See fig. 99.) Magnolia purpurea has this year escaped the frosts, and is at the present time a mass of bloom. This species, when grown in the shrubberies and backed up with the foliage of green

Hollies or other shrubs, shows itself to perfection. Lilacs are opening, and are always welcome. Daphne mezereum is all but out of flower, and is seen only in old gardens. Berberis Darwini has been covered with bloom for some time past, and on this, a light sandy soil, they grow very luxuriantly, and is a very desirable object to plant.

to the above, which should occupy a position in every large garden with grounds; for besides embellishing the grounds themselves, their flowers are extensively employed for decorating the rooms, where they are ever welcome. Gardeners would all do well to note and plant more flowering trees and shrubs. The increased taste and demand for flowers by employers

plenty of space to develop, its lower branches will in time sweep the turf. The height of the tree mentioned is 30 feet, and the breadth as much in the widest part. The Crab flourishes in stiff soil, and flowers freely almost every year if the bullfinches are driven away, these birds being partial to the buds in the early spring. When laden with its bright



Fig. 107.—Choisya ternata: spring flowering shrub: flowers white. (see p. 644)

Camellias have flowered better than usual, the opening of the bloom having been retarded by the continued cold weather. There are still many varieties of flowering subjects to keep up a succession of bloom, such as Deutzia crenata, and its double variety; Laburnums, Choisya ternata (fig. 107), Almonds, Broom, white and yellow; Syringa, Weigelas, Spireas (woody varieties), Azaleas, Gueldres Rose, Cratægus, &c. There are many others in addition

often elicits the question, Why don't you plant more flowering shrubs? *D. C. Powell, Powderham.*

Siberian Crab (Pyrus prunifolia var.).

We have here growing on the lawn a good specimen of this species of Crab, which is now coming into flower. As a lawn plant it is a particularly good subject, and should always be included amongst a collection of deciduous shrubs. When given

golden coloured fruit this species of Crab is ornamental, and useful as well. *E. M.*

Chlorophyll in Buried Leaves.—At a distance of 20 feet below the surface, a bed of leaves has been discovered while digging the Manchester Ship Canal. The green colour was still preserved, and has been found by Dr. Schunck to be due to modified chlorophyll

Colonial Notes.

SEASIDE PLANTS NEAR MELBOURNE.

About five miles from the General Post Office is a favourite marine suburb, St. Kilda, where reside many well-to-do citizens, who, as also visitors, find relief and relaxation in leisure hours after the rush and turmoil of business in the city. Here, free from dust, raised by the hot (generally north) summer wind, they, as well as numerous visitors can, if they will, visit the Esplanade, lounge on the pier, watch the movements of the various yachts, or, as the Public Baths and boats are near by, may take a "header," or arrange for a sail in Hobson's Bay, whichever way inclined.

Very little indeed has been done by way of planting trees and shrubs, either for shelter or to stay the drift sand; the latter, by the way, is not so troublesome as at some other portions of our bay shores. However, as it may interest some of the readers of the *Gardeners' Chronicle*, I quote the names of various plants growing in positions, either in the public streets or on private properties near by the sea, and in many instances in the sand almost close to the water's edge. These, as will be observed, are not all natives of our country, but in the main introduced species, as per following list of plants, growing not only near St. Kilda, but also in other places not far from Melbourne on our bay shores:—

1. Acacia pycnantha
2. Agave americana
3. Aloe arborescens
4. Araucaria excelsa
5. Arundo conspicua
6. Banksia integrifolia, and others
7. Casuarina quadrivalvis
8. Coprosma Baueriana, and others
9. Corynocarpus laevigatus
10. Cupressus Lambertiana
11. Cynodon dactylon
12. Echium candicans
13. Eugenia myrtifolia, and others
14. Ficus lucida
15. ,, macrophylla
16. Livistona arborea
17. Leptospermum laevigatum
18. Ligustrum vulgare
19. Melaleuca parvifolora
20. Nerium oleander
21. Olea europea
22. Paspalum distichum
23. Phormium tenax
24. Pinus halepensis
25. ,, insignis
26. ,, pinea
27. ,, pinaster
28. Pittosporum eugenioides
29. ,, undulatum (others, such as Tobira, crassifolium, would suit well also)
30. Ricinus communis
31. Salix babylonica
32. Schinus molle
33. Spinifex hirsutus
34. Tamarix gallica and dioica
35. Ulmus europea

Those most suitable for exposed positions near the sea shore are Nos. 1, 2, 3, 4, 5, 6, 7, 8, 11, 16, 17, 18, 19, 24, 25, 26, 27, 33, and 34. To these may be added many of the others not growing so near the sea, but which stand exposure very well indeed; but which, however, need some protection. No. 17 is unquestionably one of the very best hedge plants for a seaside position, and as it bears clipping very well, is very largely used by residents on our shores, both as a sand stay plant and for shelter, under the cover of which other and more delicate plants may be freely grown. This can be raised freely from seed, but the usual plan of securing sufficient for hedge purposes is to dig up young specimens out of the sand hummocks and replant them. The common name for this myrtaceous plant is the broad-leaved coast Tea Tree. It succeeds very well also in ordinary light or loamy garden ground more inland.

A. C. N., South Yarra, Melbourne, February 26, 1890.

Foreign Correspondence.

RARE FLOWERS IN C. G. VAN TUBERGEN'S GARDEN.

Among interesting plants now in flower in my garden may be mentioned the recently figured Eremurus himalaicus (*Bot. Mag.*, t. 7076), a choice member of this fine genus of Liliaceous plants; the strong spike, rising to a height of about 4 feet, bears a raceme of hundreds of pure white flowers, and measures nearly 2 feet in length; it is quite the stateliest plant now in bloom with me. E. Bungei and its fine variety perfectus are also sending up very stout spikes; these promise to be grand in the course of June. My plants appear to have derived especial vigour from the very warm and dry early summer of last year. On heavy, sticky soils, difficulty is often experienced in keeping their tubers and long fleshy roots in sound condition during the winter; but planted in a well worked soil, where water cannot long be stagnant, and their tubers slightly covered with reeds or a thin layer of leaves, to guard them against too sudden fluctuations in temperature, they will thrive in any garden, provided the situation be a sunny one. I also expect the flowering of E. tauricus, not the plant which has been pronounced by Hooker as synonymous with E. spectabilis, but of the original species, as first described by the botanist Steven. *C. G. van Tubergen, jun., Swanenburg, Haarlem.*

IRIS IBERICA.

Recently walking across the nurseries of Messrs. Ant. Roozen & Sons, at Overveen, I saw the Iris above-mentioned in full flower, which, whilst looking most singular, is yet very handsome. The flowers are very large; the standards white, spotted with pale violet; in contrast with this the drooping falls, which are yellowish, veined with dark purple; a beautiful dark blotch is in the centre. This species of Iris is easier to cultivate than most persons imagine, and it is perfectly hardy in England. It grows very well on rich sandy loam in a warm aspect, and the rhizome should not be planted deeply, and in winter time it should be kept dry. *T. K. Budde, Haarlem, Holland.*

The Apiary.

Bees appear to be very strong this year, and if we only have propitious weather, a great deal of honey must be expected. Many swarms have issued already from skeps in this neighbourhood, and such swarms ought to do well. The best way to treat them is to put them into the hive where you intend them to remain, and then put the swarm on the old stand, removing the parent hive some distance off; by this means the swarm receives the whole of the flying bees from the parent hive, while the latter is so weakened down, that it will probably not swarm again, which is much to be desired. If it happens that the hive has been supered before the swarm issues, the super would be deserted, and it would be useless to keep it on the parent hive. The best thing is to remove the super, and put it on the swarm at the same time the swarm is hived. It will, no doubt, happen that the supers are taken to at once, and brood-rearing will go on down below, while honey-storing is going on above. I have occasionally had bees which will neither swarm nor work well. In most cases bees are industrious, but that is not always the case.

Sometimes bees get their hives filled with honey quite early in the season, and then refuse either to work or swarm. In such a case, I have before now made an artificial swarm, and thus cured them. This is easily done. The elements of success are, two hives full of bees, and the presence of drones in the apiary. We have mentioned this before, but it is so useful, that it will bear repetition. About the middle of a fine day go to one of these lazy hives, and remove the frame containing the queen, and put it into an empty hive, filling up the hives with frames of foundation. Put the hive thus treated on the old stand. Now take the hive which has been robbed of its queen, and put it on the stand of another lazy hive, if you have it (or some other), and remove that hive somewhere else. All will now be complete. Hive No. 1 will contain a queen, a little brood, plenty of bees, and enough room to keep them employed; No. 2 will have the bees of another hive, and plenty of brood, but no queen. This they will supply by building queen cells at once; the other hive will contain queen, plenty of brood, and a lot of young and hatching bees; thus, all will have something to do, and no doubt all will do it, or they would run short of winter stores. The same system can easily be adopted with skeps, only in that case the first hive operated upon would have to be driven. Everything else would be the same. *Agnes.*

Plants and Their Culture.

Greenhouse and Miscellaneous Plants.—During the next few weeks much of the work will be found in producing plants for autumn and winter display. A sowing of Primulas should be made to form a succession to earlier sown plants, and time should not be lost in getting the early seedlings shifted into pots and placed in light position to keep them sturdy. Most seedlings should be pricked off as soon as they are large enough to handle. The double white Primulas should be making good progress if they were taken off as advised a short time back, but if propagation is not yet begun it should be undertaken now. The young plants need a little warmth in a close pit for a short time, and to be watered very sparingly. The old double white P. sinensis is the best for cut flowers, and the flowers resist the evils of fog better than any other.

A large sowing of Cinerarias should now be made to supply the mid-winter flowering plants. The seedlings must have every care, but beyond saying that no check to health must be allowed, any further directions as to culture would be superfluous. A cold frame will be the best place for them at this date. A later sowing should be made in July for spring blooming, putting the seed-pans in a frame facing north. Cuttings from named plants should be potted off when rooted, and kept clean by weak fumigation with tobacco. The same remarks apply to the herbaceous Calceolarias. A pinch of Calceolaria seed may be sown in a short time, if very early or large plants are required; but it is best to defer sowing till July for the main supply of plants. We usually sow a small quantity as soon as the seed ripens. When sowing the seed, the soil should be thoroughly moistened before sowing, and so avoid after-waterings during germination. The seed-pans should be stood on pots, to prevent slugs reaching them, and covered with a piece of glass. A trial of the new winter decorative plant introduced recently, Kalanchœ carnea, should be made by sowing seeds at once, if not already done. This is a dwarf Daphne-like plant, easily raised from seed, valuable as a winter bloomer, and, what is better, it suits many who have not a stove, as it will do well in a warm greenhouse. It is very fragrant, and its charming pink flowers are sure to be appreciated.

Now is time to sow seeds of Impatiens Sultani. Cuttings from this species of Impatiens do not make so good plants for winter work as seeds. The seeds require great care to be taken, and not to be excessively watered, as this would cause them to rot or the plants damp off. Sow in heat in a light compost, and prick the seedlings off into 60's when large enough to handle, potting them on, into 7 or 8-inch pots, and using good loam. Frequent stopping, and manure-water as they fill their pots with roots, are essential. In winter the best place for the plants is an intermediate-house.

Berried Solanums may be sown, if good-sized plants are wanted, or may be propagated by cuttings. Much time is saved by raising plants, and when large enough, hardening them off before planting them on a warm border. If the plants are mulched in the summer months, they will be much benefited.

Salvias may be potted on as required, using turfy loam with a sprinkling of ½-inch bones—a light compost causes the plants to grow weakly. Cuttings struck at this time will make nice plants in 6 or 7-inch pots, that may be made use of where larger plants would be out of place. These plants will do well in a cold frame when they are well established, finally plunging them in the open ground early in June. Cuttings of Abutilons, if grown for winter work may now be struck—Boule de Neige and Darwinii are good for this purpose. The treatment accorded to Salvias during the summer months suits these plants. Strong cuttings of Carnations may be struck on a slight warmth.

Daphnes should now be growing freely in an intermediate house, and when their growth is finished they should be placed where the shoots may get ripened off, that is, in a cooler house. Chrysanthemums should be potted on as they require it; they will now do in the open, giving plenty of space. Care should be taken to repot them before getting pot-bound, employing a rather strong loam, soot, and bone-dust. Give the plants support with stakes, and watch them carefully for appearance of mildew or green-fly. *Geo. Wythes, Syon House, Brentford.*

THE ORCHID HOUSES.

INTERMEDIATE HOUSE.—Dendrochilum filiforme now sending up its flower spikes, grows freely when potted in sphagnum moss and peat, with a liberal addition of potsherds broken small. Dendrochilums need much water at the root, and should never be allowed to become dry for any length of time, and the plants may be thoroughly syringed every morning, thereby effectually keeping down red-spider, to which they are very subject in a dry atmosphere.

Odontoglossum grande now pushing its growths will need great care lest it get overwatered at this season, and should this mischance occur, the young growths will certainly "spot." The plant should never be watered unless the surface of the potting materials is quite dry. Cœlogyne barbata should receive copious supplies of water at the root, but none should be allowed to settle in the hearts of the new growths, or the flower spikes will quickly decay; C. Gardneriana is rather a miffy subject, which I have tried in vain in nearly all my houses, but at last I have got it to grow by hanging it up in the intermediate-house. Cypripedium Sedeni and its varieties, C. Harrisianum, C. villosum, and C. insigne Maulei, now growing vigorously, should be thoroughly drenched with the syringe every morning; and no one need be afraid of doing this, if the plants receive the necessary amount of air, as rotting from overhead syringing will then never ensue. The syringe should be freely used among plants of Vanda tricolor and V. suavis, a dry atmosphere being inimical to these plants at any season, and more especially during warm weather. These Vandas should be so arranged in the house that the shading may readily be run over them without covering the whole roof in doing so.

Vanda cœrulea should be placed in a very light part of the house, and close to the ventilators, as nothing prevents "spot" so well as a good circulation of air around them. Look out for thrips on plants of Miltonia vexillaria in flower if in a dry house. A camel's-hair pencil and an insecticide are the best remedies until the plants are out of flower, when dipping in tobacco and soft-soap water may be practised. Keep a minimum temperature at night of 62°, with a rise of 10° to 15° by sunheat. By some inadvertence the word *not* was left out of the first line of the end paragraph in the last Calendar, thereby entirely altering the meaning of the sentence, which should have read Cattleya Sanderiana not showing or sending up flower-spikes. *A. G. Catt, Packfield, Worcester.*

FRUITS UNDER GLASS.

THE PINERY.—The earliest started Queens, if well prepared, now near the ripening stage, may gradually have the water supply at the root reduced, and a freer ventilation adopted. Such of the plants as may be still swelling, should have liquid manure alternately with guano-water of medium strength afforded them, the roots being kept fairly moist—any overwatering, it should be remembered, being detrimental to good flavour. Syringing overhead should not be so heavy as to fill the axils of the leaves with water. The surface of the hotbed, walls, floor, and other surfaces may be frequently damped on sunny days, and occasionally liquid manure may be employed for this damping down, pines revelling in an atmosphere charged with ammonia. Any other varieties of Pine-apple which may have been pushed forward with a view of slightly resting them during the present month, in order to induce them to start early into fruit in the winter, or earlier if that be desired, should have the bottom-heat gradually reduced to 70° or 75°, and be kept unexcited, but the roots not to be kept so dry as those that were rested at an earlier part of the year. In most pine-stoves a slight shading of the glass will be necessary during the brightest portion of the day, and but very little fire-heat, unless the nights are cool. Of course the necessary bottom-heat must be maintained.

Where Pine-apples are wanted the year round, pot-grown plants are best, in that fruits coming in about the same time may be retarded or hastened, as requirements may demand. On the other hand, should a large number of fruits be required, say, in the autumn, 1891, if good rooted suckers be planted out within the next two months, and well handled, they will give good results. Successions potted in February should now have their roots in contact with the sides of the pots, and will require more water than formerly, liquid manure being afforded them occasionally. Suckers may be put in as they become large enough. Keep the bottom-heat at 85°, and the atmosphere at night at 70°, and by day at 80°, running it up to 100°, with abundance of moisture, at closing time, and giving a small amount of front air at 9 P.M.

Melons.—Plants with fruit commencing to colour should not be watered at the roots, and all syringing should cease, the bottom-heat being kept at 80°. Cut the fruits when the foot-stalk is cracked all round, and put them, as soon as they are ripe, into the dessert, but if they must be kept for a few days, cut them before they are quite ripe, and keep in a cool dry room. The finest fruits are grown in soil and manure made as firm as possible, and over hot-water pipes, with but little water afforded them at the roots. Still richly flavoured Melons may be grown in turfy loam and bone-meal firmly rammed together, but without the dung, and when thus treated the growth is wiry and firm, and, therefore, less liable to canker or damp off. Under this latter method of growing the Melon, a little more time is required than by the former. Pay constant attention to the stopping, training of the shoots, and the fertilisation of the blossoms on young plants; and make fortnightly sowings. Thoroughly syringe the plants on fine days at closing time, open the front ventilators a little at night, and maintain a temperature at night of 70°.

Cucumbers.—Sow seed and plant out successions, keep the bine in order, and give ample space for the growth of the foliage which is retained. Cucumbers require less ventilation than Melons, and more atmospheric moisture and liquid manure. If any Cucumber plants have been overcropped, and are free from insects, thin out the shoots, allow the plants a short rest, and a mulching of spent Mushroom bed manure and turfy loam to restore their vigour. *W. Crump, Madresfield Court.*

THE HARDY FRUIT GARDEN.

THE FIG.—If the trees have been allowed time for doubtful shoots to show their fruitfulness or the reverse, an examination should now be made, and dead points shortened back to good buds, so as to ensure bearing shoots for next year, and those which are left should be fastened to the wall. The roots may have a light mulching of fresh stable-manure, to be followed, if the weather demand it, by a good watering with warm water, which will have a stimulating effect at this stage. Figs on walls or the open quarter do not require extensive borders for their roots, but the drainage of the soil should be good, and their nutriment should not be stinted, but sufficient for the maturation of the fruit without producing gross shoots. In places where the Fig has fruited freely for some years, the let-alone system has been followed with the results that the trees made much weak useless sprays that exclude warm fresh air, and on which fruit could not reasonably be expected to form.

The Raspberry and the Strawberry.—These two moisture-loving plants should not be overlooked now that the blooming time is approaching, and dryness of the soil permitted, which is one of the direct causes of failure, especially with the Raspberry; and in their case, and if the land be sandy or resting on a porous subsoil, a good mulching of manure should be given, and a thorough soaking of water afforded the plantations, and again when in fruit. Strawberries in some localities are subject to mildew, more especially the Black Prince. When mildew is observed, a dusting with sulphur is the best remedy, and where slugs are troublesome, soot is a good remedy.

Currants.—The fruits of the red and white varieties are sometimes spoiled by aphis excretæ, which, when exuded, is clear and sticky, the stickiness causing dust and dirt to lodge, which, after a short time, forms a thick coating on the fruit. To prevent this, the tips of the shoots should be cut away, as it is in these that the aphides are to be found, but these should not be shortened very much, or the loss of foliage will check the growth of the fruits. In dry soils these fruit bushes and those of Gooseberries should be mulched with clean materials, to prevent the rain from splashing the soil on to the fruit. The fruit on the under-branches of the bushes should be thinned, or, better, cleared for tarts, for which there is generally a great demand; it greatly assists the trees to produce fine well-ripened fruits. *A. Evans, Lythe Hill, Haslemere.*

THE KITCHEN GARDEN.

TOMATOS ON WALLS, &c.—The plants intended for fruiting outside, and which up to this date have been housed in some of the forcing-houses, should be removed to cool pits or frames for a course of hardening them off before planting outside. If the plants have been shaded by the foliage of Vines, Peaches, &c., they should, until the leaves become hardened, be slightly shaded for a few hours; and supplied with plenty of tepid-water at the roots, and occasionally of manure-water if at all pot bound. In warm localities they may, by the end of the month, be planted out; but in cold parts the first and second week in June will be time enough to plant with safety. Against a south wall is the favourite place for Tomatos; but a sunny border will also do if attention be given to stopping and training the shoots. I usually plant them on a sheltered border in two's and three's, according to the size of the pots, in which they have grown, and allow a distance of 4 feet between the clumps. A selection of the "old red" is the best for the open border, and the large smooth fruited varieties for the south wall. On the wall the plants may stand at 1 foot apart, and be trained with a single stem, either upright or obliquely. Much manure should be avoided, and the soil made firm, so as to prevent as much as possible rank and unfruitful growth.

Cabbage Savoys, and Chou de Burghley.—For succession, a sowing of the above should now be made, and in many instances the produce will be found more serviceable than the larger heads of earlier raised plants, which, if not cut when ready for use, split and rot. The seed should be sown rather thinly, and the seedlings, when large enough, planted where they are to remain. Some of the dwarf hardy varieties will be found best for this sowing. Plant out Red Cabbages raised in heat at once, or they will not make hearts.

Carrots.—For drawing during the summer months, make another sowing of the Early Nantes, choosing a cool position for the bed, and well covering the seed with wood-ash or burnt garden refuse.

Parsley.—To prolong the supply from the old roots, and obviate a scarcity before the new crop comes into use, give the soil a drenching with manure-water, or apply a dressing of guano, and remove all the flower spikes as fast as they appear, plying the hoe between the rows of plants. Thin out the young crop of plants, when large enough, to 8 inches apart. The thinnings may be pricked out if required.

Onions.—The varieties of Tripoli, when full grown, should have their tops bent down, and the flower-heads cut off, or good bulbs will not form. *H. Markham, Merewonth Castle.*

"INSECTS INJURIOUS TO FRUITS."—We desire to call attention to the second edition of a work published under this title, and prepared by Mr. SAUNDERS, the Director of the Experimental Farms of the Dominion of Canada. It is published by J. LIPPINCOTT, 10, Henrietta Street, Covent Garden, and, though specially designed for use on the other side of the Atlantic, is likely to be very useful also on this. Four hundred and forty woodcuts illustrate the foes and friends—for many insects are friends—of the Apple, Pear, Plum, Peach, Apricot, Nectarine, Cherry, Quince, Grape, Raspberry, Blackberry, Strawberry, black, white, and red Currants, Gooseberry, Melon, Cranberry, Orange, Olive, and Fig. The means of combatting these pests are also enumerated.

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

WEDNESDAY, MAY 28 { Nursery and Seed Trade Association: Annual Dinner at the Guildhall Tavern, Gresham Street.

SHOWS.

WEDNESDAY, MAY 28 { Royal Horticultural Society's Summer Show in the Inner Temple Gardens (two days); also Committees meet. York Florists'.

SALES.

WEDNESDAY, MAY 28 { Greenhouse and Bedding Plants, at Protheroe & Morris' Rooms.

THURSDAY, MAY 29 { Orchids in Flower, and Imported Orchids, from Burmah, &c., at Stevens' Rooms.

FRIDAY, MAY 30 { Imported Orchids, also Orchids in Flower, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—57°.3.

Orchid Nomenclature.

LAST autumn, the Council of the Royal Horticultural Society, recognising the inconvenience of the haphazard system, or rather of the total want of system, followed in too many cases in the naming of Orchids, appointed a committee to draw up a code of rules applicable to the special purpose, and which it was hoped might be applied to other plants as well. The committee was thoroughly representative, comprising Orchid importers, Orchid growers, botanists, and journalists. The first step was to procure suggestions. To this end communications were made to a large number of Orchid lovers in this country, and to several on the Continent. The suggestions thus obtained were collated and codified and formed the basis of discussion at some five or six meetings. The general result is now before us in the shape of a document adopted and issued officially by the Council. The suggestions and the code were extensively pruned in their passage through the Committee, so that the document may be looked at as a compromise effected to secure the least amount of disagreement.

One marked feature in the proceedings was the disinclination to employ any other than Latin designations, even for unimportant variations. Unlike the members of the Daffodil Committee, who are content to use the specific names for the larger and more sharply defined groups, and to adopt informal ones for the variations, the orchidists contended for the use of Latin names for all cases except artificially raised crosses between varieties. There is thus a danger of perpetuating the present confusion between botanical names conferred according to a recognised system by authority, and duly recorded, and garden names applied haphazard without any of the guarantees against confusion that botanical names have. Possibly, if the directions in paragraphs 2 and 6 are acted up to, this danger may be diminished, but our experience does not lead us to hope much in this direction. Growers, and especially sellers, will, with some prominent exceptions, continue to name their plants, irrespective of the Orchid or any other Committee, even supposing those bodies act up to their duties. Were vernacular or informal names adopted for all plants not described, figured, and registered in the way customary among botanists, no confusion would occur; the botanists would have their names suitable for their purposes, the horticulturists—tied by no such limitations—would have theirs, and the two would not clash, but this view di not commend itself to the Committee.

The Council have adopted the following rules, as laid down by the Committee:—

SECT. I. GENERA, SPECIES, WELL-MARKED VARIETIES, AND NATURAL HYBRIDS.

1. The names of natural genera, species, and well-marked varieties, as well as of presumed wild hybrids, shall be written so as to accord with botanical language and usage, and to conform with the laws of botanical nomenclature (*Lois de la Nomenclature Botanique*) as adopted at the International Botanical Congress at Paris in 1867.

2. Exhibitors showing, for the first time, a plant under a Latin name, shall be required to furnish the name of the botanist who has described the plant.

SECT. II. ARTIFICIAL HYBRIDS BETWEEN GENERA.

3. Every bigener shall receive a generic name in Latin formed by combining the names of the parent genera, and a specific name also in Latin, the sign of hybridity × being always added.

SECT. III. ARTIFICIAL HYBRIDS BETWEEN SPECIES.

4. Hybrids between species *raised artificially* shall be named in Latin, with the addition of the word *hybrida*, or of the sign of hybridity, ×. (See par. 1).

SECT. IV. ARTIFICIAL CROSSES BETWEEN VARIETIES.

5. Crosses between varieties *raised artificially* should receive suitable vernacular names.

SECT. V. GENERAL RECOMMENDATIONS.

6. The Orchid Committee shall decline to recognise any unauthorised name, or any name that is deemed unsuitable, or is not applied in conformity with the preceding rules.

7. A name once authoritatively adopted shall not be altered, unless in case of material error.

8. An award may be made to any plant that is considered by the committee worthy of such distinction, even though it be unnamed, or not named in accordance with the preceding regulations, *provided that*, within a reasonable time, to be determined by the Committee, a proper name be given. Any award made under the circumstances shall be suspended until the plant has been properly named.

9. The operation of these rules shall be prospective, not retrospective.

10. The Council wishes to impress upon Orchid growers the desirability of obtaining drawings or photographs of all new and certificated Orchids, and of depositing such drawings in the Library of the Society for reference.

11. The Council also desires to remind cultivators of the great importance of preserving specimens for future reference and comparison, and suggests that, wherever practicable, specimens should be sent for this purpose to the "Director of the Royal Gardens, Kew."

THE TEMPLE SHOW.—We understand that the entries are so numerous and so important, that a very fine show may be anticipated. If fine weather be granted, we trust the result will be such as to encourage the Council who, in face of great difficulties, have strenuously and successfully exerted themselves in reinstating the old Society. The show will be opened by H. R. H. the Prince of Wales on Wednesday next, and will be continued on the following day.

PROFESSOR OLIVER.—It is with much concern that we have to announce that Professor OLIVER resigns his post as keeper of the Herbarium of the Royal Gardens, Kew, at the end of this month. Professor OLIVER has been connected with the Herbarium for about thirty years, and it is quite impossible to overrate the services he has rendered to botany, and, incidentally, to horticulture, during that period. The Professor's modesty and retiring habits have prevented him from becoming so widely known to the general public as his merits warrant, but among botanists there is but one feeling of the highest respect for his perfectly unique knowledge, and of gratitude for the readiness with which he has always used it for the benefit of science and the public. We are glad to learn that the Professor will continue to reside at Kew, and to lend his invaluable assistance as Editor of the *Icones Plantarum* and in other ways.

LINNEAN SOCIETY.—At the anniversary meeting, held this day, Mr. CARRUTHERS resigns the Presidency of the Linnean Society. Mr. CARRUTHERS has been so excellent a President that it is impossible not to regret his retirement. Prof. STEWART, of the Royal College of Surgeons, is likely to be elected in his place.

LONDON PURPLE.—A correspondent in Kent who has damaged his Apple trees by using the above substance with water in the proportion of one to twenty, thereby following the instructions given him by the firm which supplied it gratuitously, is much to be pitied. The safer proportion would be one tablespoonful of London Purple to one gallon of water, for use on trees in leaf.

THE EFFECT OF FOG ON PLANTS.—We are pleased to be able to announce that the Government Grant Committee of the Royal Society, has allotted the sum of £100 to the Scientific Committee of the Royal Horticultural Society, for the prosecution of research as to the causes of the injurious effects of London fog on plants. We note this with the more pleasure, as this is the first instance in which the claims of scientific horticulture have been recognised in this manner, and a proof that the Royal Horticultural Society, in the opinion of the most competent and exacting judges, is doing good work in science.

MR. F. SANDER.—On the occasion of the QUEEN'S visit to Baron FERDINAND ROTHSCHILD, at Waddesdon, on Wednesday, the 14th inst., Mr. F. SANDER, the head of the firm of Orchid growers and importers at St. Albans, had the honour of being presented to Her MAJESTY. This should augur well for the adoption of Orchid growing as an ordinary



Fig. 108.—CASTILLOA ELASTICA. (SEE P. 652.)

branch of horticulture. The St. Albans' establishment is not yet ten years old, but so rapid has been its progress under Mr. F. SANDER'S management, that it may fairly be classed amongst the largest of its kind in the world.

SIR JOHN PENDER'S DINNER TO MR. STANLEY.—Sir JOHN and Lady PENDER entertained a distinguished company at dinner at their house on Monday evening, the 19th inst., at 18, Arlington Street, in honour of Mr. H. M. STANLEY. The house was beautifully decorated for the occasion by Messrs. WILLS & SEGAR, South Kensington, and NELL GWYNNE'S famous retreat looked like a veritable fairy palace. The courtyard and hall held a wealth of Azaleas, Lilies, Ferns, and Palms, the latter being very fine. A pleasing effect was gained by the use of parti-coloured lamps hidden away among the masses of foliage, while over all the electric light spread its mellow rays. The courtyard of the house was transformed into a tropical grove, Palms forming a green canopy over the approach to the mansion, whilst from the centre of the large tent mirrored baskets of novel design were hung with electric lights shining through them. The sides of the large tent were treated in a similar way, and the boundary walls brilliantly lighted with various-coloured lights. The mansion itself was superbly decorated with costly exotics.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* took place on Tuesday evening at the rooms, Hotel Windsor, Mr. JOHN LEE in the chair. There were present besides, Sir JOHN D. T. LLEWELLYN, the Rev. W. WILKS, Messrs. PEARSON, DICKEY, SHIRLEY HIBBERD, BUNYARD, G. PAUL, &c. Mons. MAURICE DE VILMORIN was the guest of the evening. An interesting paper was read by Mr. SHIRLEY HIBBERD on "Common Sense and Common Nonsense in the Naming of Plants." A very animated discussion followed, in which most of the members present joined. We understand that at the committee meeting held previously, it was determined to subscribe £50 to Baron SCHRODER'S scheme for a hall of horticulture.

AN HISTORICAL PALM TREE. — Visitors to Rome in past years who remember the gardens of the British Embassy, will be interested, says the *Times*, to learn that the Palm which stood in them, and which was not only the tallest in Rome but was historical, as having been pierced by a cannon ball during the attack on the city in September, 1870, has been blown down during a gale. It was strapped with iron where the ball had pierced it, and was the only object in the vicinity which showed the traces of the attack which opened Rome to the Italian army.

THE GARDENERS' ORPHAN FÊTE.—All honour to the market men! Once again they provided for the public enjoyment, on Wednesday evening, what, in the words of an advertisement, may fairly be called "a vision of loveliness, baffling description, and defying exaggeration." All the trouble, all the labour—and we had specially good means of estimating both—were expended in the noble purpose of contributing to the aid of the hapless orphans. A really magnificent show was got together of market plants and cut flowers, just as grown by the florists, or received by the salesmen in the ordinary way of business. The "cultivation," as usual, was so excellent as to make a gardener in a private place despair; but he has a hundred things to look to, while the grower for market confines his attention to ten or fewer subjects. After a hard day's work, the market was swept as well as garnished, ready for the reception of my Lord MAYOR and the Lady MAYORESS, who were received by Mr. BOURNE, Mr. STUTFIELD, Mr. ASSBEE, Mr. BARRON, and other members of the committee. The Lady Mayoress made a charming little speech, the Lord Mayor sympathised with the objects of the display, as satisfactory to eye and to the heart, and Miss L. V. BARRON gracefully presented a bouquet to the Lady Mayoress. Sir JULIAN GOLDSMID, the President, acted as *cicerone*, the band of the Horse Guards discoursed sweet music, the public flocked in, and we trust and believe the orphans' treasury is substantially the better for this delightful means of raising the wind. The Council of the Royal Horticultural Society was represented by its President, Sir TREVOR LAWRENCE, and by Mr. HEYWOOD; the Duchess of BEDFORD was also present. The absence, from ill health, of the genial chairman of the com-

mittee, Mr. GEORGE DEAL, was much commented on, and the utmost sympathy expressed; and so the *fête* went on till near upon midnight, and an hour or two later business was once more in full swing. Among the many ways of celebrating the anniversary of the QUEEN'S birth, could there be one better than this?

MANY-HEADED BROCCOLI.—We have again received from Messrs. SUTTON & SONS, Reading, a specimen of Broccoli with seven heads, a central one of large size, and the others much smaller. It would appear that this type of Broccoli is on the way to become fixed. The senders remark that none of the variety had suffered from frost this past winter.

THE NURSERY AND SEED TRADE ASSOCIATION.—The annual dinner of this valuable Association of Nurserymen and Seedsmen, is announced to take place at the Guildhall Tavern, Gresham Street, E.C., on Wednesday, May 28, at 7 o'clock, P.M.

PARIS HORTICULTURAL EXHIBITION. — Mr. SANDER, of St. Albans, has been awarded the Gold Medal of the Minister of Agriculture for his exhibition of Orchids.

HORTICULTURAL ARCHÆOLOGY. — The *Pall Mall Gazette* takes some exception to Mr. ALMA TADEMA'S Archæology. It asks: "How comes it that a vigorous plant of Clematis Jackmanni adorns one of the Roman scenes in the New Gallery?" and it further enquires, "If this plant was introduced by Mr. JACKMAN within the last twenty-five years, how can it have appeared in Italy 1800 years ago?" Presuming the fact is correctly set forth, the horticultural knowledge of the great painter appears to have been at fault for once.

CERASUS PSEUDO-CERASUS.—In our notice of this fine tree we omitted to make mention of the plate and description given in M. LAVALLÉE'S *Arboretum Segrezianum*, tab. XXXVI. LAVALLÉE cites the following synonyms: Prunus paniculata, *Bot. Reg.*, 800; Cerasus Sieboldi Carr., *Rev. Hort.*, 1866, p. 371, tab.; C. Lannesiana Carr., *Rev. Hort.*, 1872, 198; C. serratifolia, Lindl. ex Carr., *Rev. Hort.*, 1877, p. 389; c. tab. C. Capronia, fl. roseo pleno, *Flore des Serres*, XXI., p. 141, t. 2238; Cerasus Watereri, Hort.; C. Moda, Hort., &c. It is a common Japanese tree, which has developed numerous varieties. It was first introduced by FORTUNE in 1864. C. Lannesiana is the single form as figured by us last week, p. 609.

PHALÆNOPSIS "CYNTHIA" ×.—Messrs. VEITCH forward us from Lord ROTHSCHILD'S collection flowers of this beautiful hybrid between Schilleriana and amabilis. The flowers have the general form of those of the latter plant. The segments are flushed with pale lilac, the two lateral ones marked with purplish-brown spots, the upturned lobes of the lip are rather thick whitish, streaked with purplish streaks at the base, the central two-lobed callus yellow, with purplish spots, the anterior lobe white, flushed with yellow at the base, obcordate-deltoid, the apex dividing into two linear curved thread-like processes, each almost as long as the anterior lobe itself.

BIBLIOGRAPHY OF AMERICAN ECONOMIC ENTOMOLOGY.—The United States Department of Agriculture has published a volume, containing a list of the more important contributions to economic entomology, made by B. D. WALSH and C. V. RILEY. To give some idea of the amount of work done, it may suffice to say that this record of titles, with brief indications of the subjects treated, occupies nearly 500 octavo pages, including a full index of species. The whole has been compiled by Mr. SAMUEL HENSHAW, and will be of immense service to those interested in insects, and the injuries they inflict on plants.

SOME ADJECTIVES.—Reporters of flower shows in this country show a paucity of resource in their selection of epithets. One exhibit is "fine," another is "grand," the next "fine" again, and so on. On the other side of the Channel, the reporters have a greater choice of language. We cite the following series from a recent report verbatim: *superbes, beaux, extraordinaire, très remarquable, délicieux, gracieux, merveilleux, magnifique, intéressant, excellent, très distincte, toujours très admirés, jolis, très bel, charmantes, très jolie, nouveau et splendide.*

STOCK-TAKING: APRIL.—The Trade Returns for the month were not issued until the 8th inst.—rather late in the month for such an important document. The figures are still unsatisfactory, the balance continuing on the wrong side. The difference on the four month's trade is also on the wrong side. The exports for the month and four months show a balance the proper way, so far as articles of home produce are concerned, but a heavy decrease in foreign and colonial produce. The "why" for this is not for us to seek out—possibly syndicates, corners, rings, strikes may have for a time paralysed the efforts of the great middlemen who help to make this country the world's mart. The whole matter is well worth the consideration of statesmen and chambers of commerce. "Corners," &c., are signs of commercial ill-health, requiring the immediate attention of the "doctor." The following is extracted from the monthly summary of the Returns:—

	1889.	1890.	Difference.
	£.	£.	£.
Total value of imports	37,255,785	35,680,242	−1,575,543
§II.—(A.) Articles of food and drink—duty free	11,847,368	10,791,844	−1,055,524
(B.) — do., dutiable	2,098,907	1,962,928	−135,979
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	9,384,676	9,507,071	+122,418
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	2,887,633	3,033,320	+145,687
§IX. Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	1,006,114	945,163	−60,951
(B.)—Parcel Post ...	30,236	32,735	+2,499

The following figures more particularly concern home growers:—

	1889.	1890.	Difference
§ II. Fruit:—			
Apples, raw ... ... bush.	272,258	40,059	−232,199
Unenumerated, raw ... ,,	9,854	17,838	+7,984
Onions ... ... ,,	235,929	297,649	+61,720
Potatos ... ... cwt.	79,728	36,187	−43,541
Vegetables, raw, unenumerated ... ... Value	£15,918	£26,496	+£10,578

TIMBER IMPORTATION.—The length of time the timber takes to come to a paying maturity, the brief record of a month's import, may throw light upon. The figures are from the Trade Returns for last month, and are as follow:—Wood and timber, hewn, 194,893 loads, against 172,076 loads in April, 1889; sawn or split, planed or dressed, 205,292 loads in April, 1890, against 195,981 loads last April. Staves of all dimensions show an import for April of 10,932 loads, against, for April, 1889, 8,708 loads. Mahogany shows 6058 tons, against 5845 tons in April, 1889.

L'ORCHIDEENE.—The nineteenth meeting was held in Brussels on the 11th inst., when a fine display of Cattleyas, Vandas, Odontoglossum, Cypripedium, &c., was made. Among the novelties was a new variety of Cattleya dedicated to M. G. WAROCQUÉ, and a new Dendrobium, D. Galliceanum, flowering in dense clusters, like D. thyrsiflorum, but with the lip much larger and more spreading, of a pale yellow; the perianth segments are also larger, toothed, and pure white. Diplomas of honour of the first-class were awarded to Cattleya Warocqueana, Dendrobium Galliceanum, Odontoglossum amabile, and Cypripedium Miteauanum; whilst some forty other specimens were premiated in some way or other, so that the Society is not niggardly in its distribution of awards.

AGRICULTURAL AND HORTICULTURAL ASSOCIATION.—The National Co-operative Flower Show has again been arranged to be held at the Crystal Palace. The date fixed is Saturday, August 16. Last year the Show attained great dimensions, filling the great nave of the Crystal Palace from end to end. The number of exhibits were over 4000, and visitors exceeded 32,000. This year the Agricultural and Horticultural Association of London contributes nearly £200 in prizes, and the Crystal Palace Company £150. It is expected that Special Prizes will also be offered by numerous London and Provincial Co-operative Societies, as was done last year. The schedule just issued embraces offers of 825 money prizes, besides Silver and Bronze Medals, and—for the first time—a Champion Gold Medal. One new feature is the division of exhibitors into geographical districts. For the more important prizes the country is mapped out into five districts, so that exhibitors from the North will not have to compete against the South, the West, the Midlands, &c., or *vice versâ*. The Secretary is Mr. EDWARD OWEN GREENING, of 3, Agar Street, Strand, London, W.C.

WILLOWS AND POPLARS. — For ornament, windbreaks, and timber, the Russian Willows and Poplars are receiving much attention in the North-west. The best Russian Poplars appear to be Populus Certinensis—of which P. Petrouski seems to be a synonym; P. laurifolia, P. Sibirica pyramidalis, P. Wobsky, P. betulifolia, P. balsamifera, of Asia, and P. Bolleana. The last is considered particularly valuable for ornament. A number of good Russian Willows are characterised. These are Salix acutifolia, S. fragilis, S. laurifolia, S. aurea, S. Napoleonis, and S. rosmarinifolia. Salix laurifolia "without doubt, has the handsomest foliage of any Willow in cultivation." "Take cuttings from healthy, vigorous trees; cuttings from such trees root easiest. It is generally best to make cuttings in the fall, after the growth stops, and winter them over, buried in well-drained soil, or plant out at once. Cuttings of Willows and Poplars may also be successfully rooted if made early in the spring before growth starts. Select clean two-year-old wood, or strong, well-ripened one-year-old wood for cuttings. Make cuttings from 8 to 10 inches long, and as near to one half-inch in diameter as economical cutting will allow. Larger cuttings root nearly as well, but are more bulky to handle. See that the cuts are made smooth with a sharp knife. Have the land for cuttings thoroughly cultivated, and the ground mellow. Plant at least 8 inches deep, in rows 3 feet apart, and press the soil close around the base of the cuttings. Do not tramp them in hard if the ground is wet. If the land is dry they cannot be too firmly placed in the soil. Keep well ahead of the weeds by running a horse-cultivator between the rows very often." *Bulletin No. 9, Minnesota Experiment Station.*

APPLE SCALE.—The last Bulletin of the State Agricultural College of Michigan contains an interesting account of some experiments made to prevent and palliate the attacks of scale (a fungus named Fusicladium dendriticum), various substances were employed. Sulphur was least effectual, then Sodium hypophosphite, then Potassium sulphide with which 25 per cent. only were free from scab; then copper carbonate and ammonia, which protected over 50 per

cent.; while best of all was Eau celeste, by the use of which over 70 per cent. of unaffected fruits were secured. The copper solution is made by mixing 3 oz. of copper carbonate with one quart of liquid ammonia, and as soon as all action has ceased, diluting to 30 gall. Eau celeste (modified) is prepared by dissolving 2 lb. of copper sulphate (blue vitriol), in hot water in one vessel, and 2½ lb. of carbonate of soda in another vessel. Mix, and before using add 1½ pint of ammonia, and dilute to 22 gall. These solutions may be used with a spray pump; 25 to 50 per cent. will be added to the value of the crop at a cost of 25 to 30 cents per tree. In the experiments recorded, the trees were first of all sprayed with London Purple, 1 lb. to 200 galls. of water, at the end of May to kill the Codlin moth. Two days later, the fungicide experiments above narrated were commenced, and the applications were repeated on five separate occasions at intervals of a week or a fortnight.

Girdling Trees.—It is known that there is considerable difference in the effects of girdling on trees. These differences are explained by Dr. Hartig as dependent upon the circumstance whether the conduction of water is through the sap wood only, or whether the heart-wood takes part in the process. In the latter case the effect of the pressure of the girdle would not be so much felt as were the soft-growing wood alone compressed, and no other channel open for the passage of fluids.

American Association of Nurserymen.—The annual meeting of this Association will be held in New York early in June.

The Royal Society.—The Council have recommended for election into the Society, Walter Gardiner, M.A. (Cantab), Clare College, Cambridge. F.L.S. Fellow of Clare College, Cambridge. University Lecturer in Botany. Rolleston Prize, 1888. Author of numerous papers containing original observations and discoveries in Vegetable Physiology, of which the following are the more important:—"The Development of the Water-glands in the Leaf of Saxifraga crustata" (Quart. Journ. Micros. Sci., 1881); "On the Continuity of Protoplasm through the Walls of Vegetable Cells" (Phil. Trans., 1883, and Sachs, Arbeit. d. Bot. Inst. in Würzburg, Bd. iii.); "On the General Occurrence of Tannin in the Vegetable Cell, and a possible View of its Physiological Significance" (Camb. Phil. Soc. Proc., 1883); "On the Changes in the Gland-cells of Dionæa muscipula during Secretion" (Royal Soc. Proc., 1885); "On the Phenomena accompanying Stimulation in the Gland-cells of Dionæa dichotoma (*ibid.*, 1886); "On the power of Contractibility exhibited by the Protoplasm of certain Plant Cells" (*ibid.*, 1887); "On the Structure of the Mucilage Secreting Cells of Blechnum occidentale and Osmunda regalis" (Ann. of Bot., 1887).

Moutan Pæonies.—Of these showy plants Mr. R. Dean remarks:—In the remarkable collection of varieties of Tree Pæonies exhibited at the meeting of the Royal Horticultural Society on Tuesday 13 inst., appeared some fine blooms under the simple name of Moutan. Possibly these flowers were intended to intimate as near an approach to the original species as can be ascertained. On seeing these showy flowers, one can quite understand the applicability of Moutan—king of flowers, and no one can be surprised to learn it is the favourite garden flower of China and Japan. Some of the varieties shown by Messrs. Kelway & Son, of Langport, who have taken a decided lead in developing the Tree Pæony, were surpassingly fine, large, and very double, and of quite a regal beauty. Double varieties largely preponderate in a collection. They last longer, and are more imposing, though well formed single varieties have a peculiar beauty of their own. Who was not impressed with the singular chasteness of Beatrice Kelway, a new large-fringed single white variety, so well formed as to resemble a huge shapely Tulip, and awarded a Certificate of Merit? A few of the most striking double varieties were Fascinatus, rose and white; Hero, pale lavender, with a purple base—very fine; Lumen, purple and blush; Edwardsii, rosy-peach, with violet base; Elizabeth, bright puce, very double; Louise Mouchelet, salmon-pink, a charming shade of colour; Madame Stuart Low, reddish-salmon, very distinct, and extra fine; Madoire, salmon-rose; Ocelater, soft rosy, passing to white; and Triomphe de Vandermael, bright rose, extra fine. A stock of any one variety is obtained by grafting on the roots of P. edulis, which is done in autumn, and by means of cuttings made of the flowering shoots. These are placed in sandy soil about the end of April and early in May, and root readily. In all their stages of growth they have a cold treatment. New varieties are obtained by seeding; the seeds are sown as soon as ripe in a cold frame, and they germinate in the summer and autumn following. They germinate slowly, and patience is required on the part of the raiser. When the plants are large enough they are transplanted to the open ground to flower, which they do about the second year. The Moutan Pæony does well in a good garden soil; but it should be deeply trenched and enriched with manure, and the plants answer to liberal treatment. They flower in May and June, and unless occupying sheltered positions, the flower-buds are liable to be injured by early spring frosts.

Azalea indica.—In looking at the Azaleas shown at the Crystal Palace on 10 inst., one could not but regret that our nurserymen and gardeners do not take a leaf out of the continental growers' book, and train their plants with short stems, and Mushroom or globular-shaped heads. The bulk of the flowers would then be seen to advantage above the other plants, flowering or foliage that might be placed beneath them. It might even be permissible to tip the Mushroom-topped head towards one side, the better to show off the flowers—an arrangement of no little moment when plants are employed in rooms, and often in a corner, or close to the wall of the same. Formal training is now carried to an extreme, and it would be a good feature at shows, if framers of schedules would award prizes for *négligé* specimens on short and long stems. The pyramid is about played out as a method of training, its worst feature being the great amount of flower at the base of the plant—a part that is least seen, and the most likely to be interfered with by neighbouring plants, to say nothing of the time spent in forcing a naturally handsome plant to take an unnatural form. Amongst the Azaleas indica shown at the Crystal Palace there were a few that were novel, viz., Baronne de Vrière, a beautiful pure white, with here and there a streak of crimson; Model is an excellent crimson-coloured variety. Both were shown by Mr. Waeren's gardener.

Presentation.—On Monday evening, May 19, Mr. Richard Cairns, who is leaving Bonjedward House, near Jedburgh, after eleven years' successful service as gardener there, was presented by the Jedburgh Horticultural and Apiarian Societies, and a number of friends, with an address, a purse of gold, and a silver tea-pot, with inscription (for Mrs. Cairns), as tokens of admiration of his high qualities as a friend, and abilities as a gardener. The presentation took place in the Royal Hotel, Jedburgh, and was attended by a company of thirty gentlemen.

Loss of the Michigan Agricultural College.—The Botanical Laboratory of the Michigan Agricultural College burned on the night of March 21, the fire originating in the top story by a defective flue. This was the first building erected for the express and sole purpose of a botanical laboratory. It was built in 1880, at a cost of 6000 dol. It was one of the handsomest buildings among the many at this famous institution, and its equipment was large and invaluable. The lower floor was devoted to a large class and microscope room, office, and herbarium cases. The second and third floors contained a very large and unique museum, especially rich in instructive features of the native flora and general agriculture. Very large collections of native woods, in novel shapes and arrangement, were particularly prominent. This department was more than the ordinary exhibit of woods, for it comprised manufactured articles, samples of lumber, and many things of direct economic value. The museum also contained one of the best collections of Indian-corn in existence. This museum had been a life work with Dr. Beal, the Professor of Botany. It was partially saved, however, and all the microscopes and most of the collections upon the first floor were saved. One of the most lamentable features of the loss was the burning of the entire Wheeler Herbarium, an immense collection of Michigan plants. This herbarium represented twenty-five years of unremitting toil by Mr. C. F. Wheeler, of Hubbardstown, Michigan, the senior author of Wheeler and Smith's *Flora of Michigan*.

INDIA-RUBBER.

In these days, when local horticultural societies are formed in almost every provincial town, and when botanical and horticultural novelties attract so much attention from scientists on the one hand and cultivators on the other, the practical value of the combined efforts of both seem likely to be lost sight of. The interest attached to the successful growth, or to the flowering of a rare plant like the Amorphophallus at Kew last year, is equally divided between the scientific botanist and the practical horticulturist, but the introduction and successful cultivation of some valuable economic plant in countries very far distant from its native home, does not secure half so much popular attention, though the benefits accruing from it to the world at large are infinitely greater and of a more lasting character. What is the production of a double flower where a single one was known before only to exist, or even the introduction to our stoves of such plants as the Victoria regia and the Amorphophallus titanum, or, if possible, the Rafflesia and Welwitschia, to the establishment in India of the Cinchona plants which has been the means of bringing that most important medicine, quinine, within the reach of all.

The result of this successful enterprise will always stand as a monument of the union of science with practice, and one of the benefits to the world in which Kew has played so large a part.

Next to this achievement, the introduction of rubber-producing plants into the various possessions of the British Empire is undoubtedly of the greatest importance. Though the whole history of these experiments has been given in the Reports of the Royal Gardens, Kew, ranging between the years 1873 and 1882, it may be of some interest to point out that whereas some twenty years ago indiarubber, or caoutchouc, was known to be produced only from Hevea braziliensis, then known as Siphonia elastica, from Para, and from Ficus elastica, from Assam, the researches of the authorities at Kew have since shown that the rubber of commerce is drawn from several different plants, belonging to the natural orders Euphorbiaceæ, Urticaceæ, and Apocyneæ. The first-named family, including the Para sort, or Hevea rubber, which is still imported in large quantities, and holds its own as the best quality, though in its native forests the trees are said to be more and more difficult to get at, as the collectors have to penetrate further each year into the more inaccessible parts. The natural consequence of this is, that more attention has been given to other sources, and another Euphorbiaceous plant, the growth of which has become considerably developed of late, and which yields the rubber known in commerce as Ceara scrap (Manihot Glaziovii), has been introduced into Ceylon and other countries, where it has grown rapidly. This, as its name implies, is a Brazilian species, and though the rubber has been known in

trade for a long time, the plant yielding it was not known till about fourteen years ago, when a consignment of plants was received at Kew, propagated, and widely distributed to India and Ceylon. The success of the plants in these countries has been recorded and fully detailed in the Kew reports before referred to; as also that of another well-known source, namely, the Castilloa elastica (fig. 108), which furnishes the bulk of the rubber from Central America, such as that known in trade as Guatemalo rubber.

Mr. Morris, in his little book on *The Colony of British Honduras*, gives some interesting notes on this tree, and details as to the cultivation and the extraction and preparation of rubber from it. He says:—"The tree is very abundant in some places, although daily becoming scarcer in the immediate neighbourhood of settlements. It grows to the height of about 40 or 50 feet, has a thick clean stem about 2 feet in diameter at the base, and in habit of growth much resembles a Bread-fruit Tree, to which, indeed, it is closely allied. . . . The Castilloa Rubber-tree is fit to be tapped for caoutchouc, or the elastic gummy substance produced by its milk, when about seven to ten years old. The milk is obtained at present from trees growing wild by men called rubber gatherers, who are well acquainted with all the localities inhabited by the Toonu (under which name the plant is known in Honduras). The proper season for tapping the trees is after the autumn rains, which occur some months after the trees have ripened their fruit, and before they put forth buds for the next season. The flow of milk is most copious during the months of October, November, December, and January. The rubber gatherers commence operations on an untapped tree by reaching with a ladder or by means of lianes, or tic-tics, the upper portions of its trunk, and scoring the bark the whole length with deep cuts which extend all round. The cuts are sometimes made so as to form a series of spirals all round the tree; at other times they are shaped simply like the letter V, with a small piece of hoop-iron, the blade of a cutlass, or the leaf of a Palm placed in the lower angle to form a spout to lead the milk into a receptacle below. A number of trees are treated in this manner, and left to bleed for several hours. At the close of the day the rubber gatherer collects all the milk, washes it by means of water, and leaves it standing till the next morning. He now procures a quantity of the stem of the moon plant (Calonyctyon speciosum), pounds it into a mass, and throws it into a bucket of water. After this decoction has been strained, it is added to the rubber milk in the proportion of one pint to a gallon, or until after brisk stirring, the whole of the milk is coagulated. The masses of rubber floating on the surface are now strained from the liquid, kneaded into cakes, and placed under heavy weights, so get rid of all watery particles. When perfectly drained and dry, the rubber cakes are fit for the market, and exported generally in casks."

"A large tree of Castilloa, say 2 feet in diameter, will yield 8 gallons of milk when first cut; each gallon of milk, in the proper season, will make about 2 lb. of rubber. Hence, a tree of this size will give a return of 16 lb. of rubber, of the value of 10 dols."

Mr. Morris further refers to the use of the Castilloa as a shade-giving tree in connection with the cultivation of Bananas, Cacao, Liberian Coffee, Oranges, &c., and records the fact that at the time he wrote in 1883, the Cacao planters in Trinidad were gradually discarding their recognised shade-tree, the Erythrina umbrosa, and adopting others more suitable and more profitable, none of which, however, could compare with the Castilloa, "either in quickness of growth, in shade-giving properties, or in the return which it is likely to give the planter year after year, if properly treated." Our engraving on p. 649, taken from a photograph kindly sent us by Mr. Hart, represents a Castilloa tree growing in Trinidad.

It will be sufficient to say that the plants already referred to are the principal sources of the American rubbers of commerce. Quantities, however, come from India, and from other parts of the East, the former from Ficus elastica, and the latter from various plants belonging to the Apocynaceæ, being species of Willoughbeia, Leuconotis, and Chilocarpus; while on the East and West Coasts of Africa, several species of Landolphia yield rubber of excellent quality. A detailed account of these species, and of their distribution into various parts of the world, is given in the Kew Reports before alluded to, and it forms one of the most valuable and interesting records of work done at Kew. *J. R. J.*

Useful Invention.

In Oetzmann's patent flower boxes (fig. 109), we have an arrangement which is likely to prove of use to many who desire to decorate their windows by plants in boxes. The article in question consists of a number of pots (made in various colours) with junctions, by the aid of which any number of pots may be joined into one piece; and, moreover, the existence of the joints allows the box so made to be bent round to any window, bay or circular. Thus, no measuring or fixing is necessary, and any pot or joint which may be broken can be replaced at a small cost. The patentees and vendors are Messrs. Oetzmann & Co., Hampstead Road, London.



Fig. 109.—Flower-pots.

Home Correspondence.

Magnolia stellata.—It should have been stated that I procured the specimen figured in the last issue of the *Gardeners' Chronicle* from Mr. J. W. Odell, gardener to Mrs. Brightwen, The Grove, Stanmore. It was taken from a specimen nearly 4 feet across, grown as a pot plant, and protected for early spring flowering. It bore hundreds of flowers and buds, and its beauty may easily be imagined. *James O'Brien.*

What has come to the Columbines?—A well-ordered Columbine inclines its head, and its sepals are as purple as the spurred petals themselves. Now, some of my Columbines this year, for no reason that I can discover, have chosen to produce green sepals and erect flowers. "Reversion to a primitive state of things!" Perhaps; but why revert just now, when its neighbours in the same bed show no such tendency? and why revert this season, when they have been orderly inhabitants of the same bed for these twenty years? *Jack Tomlt.*

Broccoli Veitch's Model.—This variety of Broccoli may be considered one of the best of the late ones, and is, moreover, very distinct. If seeds be sown at different dates, the supply may be got to last till Cauliflowers come in. I was pleased to see that this variety of Broccoli was certificated at the meeting of the Royal Horticultural Society on 13th inst., when it was shown in good condition by Mr. Leach. It has a pure white close curd, and is not at all coarse or strong in flavour. The plant is short-legged, hardy; the leaves folding closely over the head. It has been grown for some years, and I am surprised that it has not received a Certificate sooner. Where few varieties of Broccoli are grown, seeds may be sown from the end of February to the end of April. The seeds of Broccoli may be sown thinly broadcast, or in drills, or a little thicker, and pricking out the seedlings before crowding has taken place in the bed. Heeling the plants over as a protection during winter is not necessary, if no drawing in crowded beds has been permitted, as the leaves will be close to the ground, and the stems short and well matured. Model has so far not succumbed in the worst of our winters, but only lost a few of its outer leaves. *G. Wythes, Syon House, Brentford.*

The Cuckoo.—A writer in *Land and Water* states that he saw the cuckoo in Dumfriesshire as early as April 3, but its special note was not heard until the end of the month, and states it is a matter of thought with him what the bird was doing in the interval. He hazards the opinion, although he may thereby display an ignorance of ornithological knowledge, that the special cuckoo cry with which all are so familiar with, "may be a note of achieved or expected success in laying its egg in some other bird's nest; somewhat of the nature of the cackle of a hen when she has laid an egg." He thinks something is necessary to explain the apparent discrepancy between the arrival of the bird—after which fine weather prevailed—and the delay in making its arrival known to the world at large; and then puts forward the theory given above. What do naturalists say? *R. D.*

Peaches and Nectarines on open walls at Kenward.—The shoots sent herewith fairly represent our set of outdoor Peaches and Nectarines. The trees have borne well for the past twelve years, not one single failure in any of them in that time. They have no protection in spring other than that afforded by an 11-inch coping board. This board is taken down at the end of the month of May or in June, according to the weather. I find that this spring our wall trees are more subject to curl and blister than usual, but by strict attention we have got them pretty clean again by removing the blistered leaves and applying Tobacco-powder nearly every day. It is perseverance during spring that is required to master the Peach tree cultivation; for if neglected, then the cultivator has to wait for the midsummer shoots, which never get sufficiently ripe on open walls to depend upon for the following year. *Robert Smith, Yalding, Kent.* [The branches sent were thickly studded with young fruits. Ed.]

Growing Daffodils from seed.—Hitherto the raising of Daffodils from seed have been chiefly confined to a few enthusiasts, to whose untiring efforts we are to-day indebted for so many of our choicest varieties. But the time is not far distant when they will be grown as freely as many other things. I would advise all who love this beautiful king of spring flowers to commence at once. It is true that four or five years of patient waiting will be required ere the result will be manifest, and if a sowing is made every year, a succession of new blooms yearly will follow, and the interest will be intensified by the possibility of adding something new to the already long list of Daffodils. The method of growing from seed is very simple: the seed is best sown as soon as it is ripe; the soil should be light and porous. On no account should manure be added to it, as it would be certain death to the young seedlings. The seed should be allowed to remain in the boxes or pans for two years, and then planted in a nursery bed. They do not require heat at any time, but may be grown in any cool-house. I have a batch of Corbularia conspicua now in bloom from seed saved by myself. This is the fifth season since they were sown; but I believe that, with good treatment, they would bloom in four years. I have several other batches of seedlings coming on. *J. C. Tonkins, St. Mary's, Isles of Scilly.*

Advice gratis.—It is curious why bulb-growing is not taken up more in Lincolnshire. There is much sandy soil behind the sea-banks that, if well-manured with cow-dung, would grow as good bulbs as the soil of Holland does. At least there seems no valid reason why this should not be so. If protection from the wind is needed, Reed-screens might be used with success as they are in the Scilly Isles, where the wind is more violent. Some fields near the Lighthouse, at Donna Nook, seemed to me particularly suited for bulb culture. Encouragement to try is given by the marvellous way in which Snowdrops and other bulbs increase in the cottage and farmhouse flower gardens. There is a good opening just now for producing bulbs of the finer sorts of

Daffodil, such as Exquisite, Grandee, Mrs. Camm, Glory of Leyden, Madame de Graaff, Katherine Spurrell, and Duchess of Westminster. Although the initial expenses of growing such sorts would be great, nevertheless, there is sure to be a constant demand at a remunerative price for such beautiful and graceful flowers. *Vagabond.*



FIG. 110.—DOUBLE CRIMSON RIBES: HARDY FLOWERING-SHRUB. (SEE P. 644.)

THE GINGER-BEER PLANT (SO-CALLED). — My attention was first called to this fungus a few years since by an old man, who said that, through its help, he was enabled to make a plentiful supply of ginger-beer for home consumption. His materials, so far as I can remember, were water, sugar, and ground-ginger. These were placed into a large jar, and the fungus put in with them. In, I think, about a week, the fungus, which is of a yeasty nature, and of the character of German yeast, produced acetous fermentation, and the sugar being converted into a mild acid, the liquid was ready for use. It cannot be said that it was altogether a pleasing drink, indeed, a long way less acceptable than pure water, or lemonade made from syrup. I do not understand that this fungus differs in any way from that which is popularly known as the Vinegar Plant. That is, I believe, naturally produced by placing water and sugar in a jar, and standing in a warm place, where acetous fermentation will be promoted, and the fungus called the Vinegar Plant produced. The product is, however, but a poor substitute for vinegar. Possibly some one may be able to obtain for Professor Marshall Ward a piece of the fungus; and although it has been, on high authority, said to be nothing but German yeast, yet I incline to the opinion that it is but the Vinegar Plant, a thing as old as the hills, but by some enterprising mind applied to the manufacture of ginger-beer. In any case, the Professor can soon put the German yeast theory to a practical test. *A. Dean.*

TOMATO HORSFORD'S PRELUDE.—Now that there is a great number of varieties to choose from, suitable for indoor and outdoor cultivation, no difficulty need be experienced in getting the best for the purpose. All varieties do not set their fruit freely in the early spring-time, but I saw some plants of the above-named kind at Syon, Brentford, that were growing and fruiting admirably. Planted alternately with Tomato Perfection in a low warm house, they occupied the back wall, the front being occupied by Melons. Horsford's Prelude had fruit the size of Walnuts from the base of the stem for some height, whilst Perfection had scarcely a fruit set. Mr. Wythes spoke highly of the variety. *E. M.*

VITALITY OF SEEDS.—I wish to place on record one instance more, illustrating this point. Twelve months ago I sowed a seed of Abrus precatorius, or the Liquorice tree. This was one of several others of the same kind which I know to be twenty-five years of age. I have had the seeds since the beginning of 1879; and the gentleman who gave them to me grew them in the West Indies, and he left there in 1855. The seed sown, as mentioned above, has vegetated this spring, and is growing vigorously. *G. Paul, Knaresborough.*

STRAWBERRIES.—Auguste Nicaise is a variety which is spoken well of by many gardeners, and I should be glad if some kind friend would send me a few plants from which I may get a stock, as I should like to try it as a forcer. Vicomtesse H. de Thury generally serves us well, but to have the best results the plants must be strong. British Queen is our best variety for late work, and it is still without a rival for flavour, size of berry, and as a traveller. Keens' Seedling is a wonderful cropper, but it is soft, which does not matter much for consumption at home; and the flavour is good. We have tried Sir Charles Napier and President, but when once the British Queen comes into use, no other variety is eaten. *J. Sheppard.*

STRAWBERRY-NOBLE IN IRELAND.—I quite agree with those who say that Noble is deficient in flavour, and but for this, I consider it a most useful variety for pot culture. I have been sending to table for some time dishes of Noble, fine in colour and of good size, some fruits weighing 1¼ oz., others 1 oz., and some less. It is a good bearer in 6-inch pots, having from twelve to eighteen fruits fit for table on a plant; nevertheless I do not intend to force it another season. I have British Queen coming on, which never disappoints one in flavour or size, and I shall be happy to send you a few fruits for your opinion. [By all means, do so. ED.] *W. Cairns, Stedall Gardens, co. Meath, May 15.*

PANSIES AT THE DRILL HALL.—There was singular pleasure and charm found in turning out of the noisy street into the James Street Drill Hall to find such a beautiful show of Pansies and Violas within on the 13th inst. Beautiful Orchids and giant Pæonies may have their several admirers, but Pansies are the favourites of the million. It may, indeed, be doubted whether there are any more popular hardy flowers grown, or more of any kind of flower, for Pansies are turned out annually by the million, and are found on the coster's barrow at 6*d.* per dozen, or in the nursery at 10*s.* per hundred. Perhaps the most popular are the massing Pansies, those, be they white, yellow, blue, or purple, indeed of any striking self colour, which in beds or borders produce in the spring and early summer such delightful effects. But the wondrously coloured fancy or Belgian varieties, if less suited for massing, are yet in great request; indeed, these have practically been instrumental in bringing Pansies as show flowers once more into popular favour. The older strain of

English show Pansies, belted and self, medium in size, and, except in colour of ground, almost as like as two Peas, had palled somewhat upon the public taste. They were not only indifferent growers, but they tended to deterioration. The bold and brilliant fancies being of stout constitution and free blooming habit, with very large flowers took hold on popular favour. Messrs. Hooper & Co., of Bath, famous western Pansy growers, had no fewer than 200 flowers set up in boxes, and on paper discs—not the most artistic methods of showing them, certainly, but still enabling the spectator to note the merits of each individual flower, and they were presented as examples of the firm's fine strains. Here were white, yellow, orange, claret, maroon, cream, red, violet, and divers other ground tints, all the flowers having the large dense blotch without which no flower is ranked as a fancy. From Manchester came a beautiful collection of fancies, set up as young plants in moss, and charmingly disposed, with a background of Primula Sieboldi varieties, by Messrs. Ryder & Sons, of Sale, whose enterprise in bringing plants so far to help decorate the too lugubrious Drill Hall cannot be too highly praised, and reflects something upon florists nearer home, who send little or nothing of their flowers. All the varieties set up by this firm were named, and in propagated plants. Of these, best, perhaps, though all were beautiful, were Niel McHay, Champion, Princess Beatrice, Prince Silverwing, William Dean, Mrs. W. P. France, Prizetaker, E. W. Dollish, E. Bruce, A. Ashcroft, Agnes Mitchell, Captain Thompson, and J. Fleming. Here is a baker's dozen of beauties, and as seen in their mossy beds, literally all a-growing and a-blowing, it is not a matter for surprise that they found many ardent admirers. *A. D.*

HARDY FLOWERING SHRUBS.—Mr. Goldring's dictum that no advance has been made in the cultivation of these since the days of Loudon, rings very true. Leaving out the shrubberies of Devonshire and Cornwall, there is a great uniformity in the trees and shrubs grown, and very little originality in the grouping, for too many gardeners are content to excel, or to be successful, in their houses and flower and kitchen gardens. The flowering shrubs and trees you figure in your last issue ought, one and all, to be planted in our shrubberries, and to these might be added the old Yellow Wood (Cladrastis tinctoria), which bears showy white panicled blossoms, Cercis siliquastrum (the Judas Tree), and the Bladder Senna (Colutea), which carries on into the summer a like effect to the Laburnums. A beautiful flowering shrub, Escallonia macrantha rubra, is far hardier than is generally supposed, and many others could be mentioned with which it would be interesting to experiment in sheltered places. Information could be best obtained as to hardiness from nurserymen, for they, as you truly say, have not neglected so much this branch of horticulture, and visitors to nurseries very often betray surprise at seeing shrubs, of whose beauty and elegance they had no previous idea. What can be done in Cornwall is best realised by seeing such shrubberies as those Mr. Rashleigh has planted near Fowey, or by visiting Tregothnan, Lord Falmouth's, when the Camellias and Rhododendrons (including some of the Sikkim varieties) are in flower in the open air. A pilgrimage to this latter *paradisus in sole* is worth the while, if only to see the silvery Fal, its leafy banks among. *C. A. M. Carmichael.*

CATERPILLARS IN FRUIT HOUSES. — In our fruit house we have been troubled for the last three years with very active caterpillars of a minute size, coupled to a voracious appetite for fruit and leaves. Their activity is so great that when more than three lines long, immediately on your touching the curled-up or glued together leaves, they dart along a web and very often escape being killed. Thinning out of the shoots and constant hand-picking, together with occasional dusting of the surface with fresh slacked lime and very dry soot has been steadily followed up daily since the leaves formed, but no sooner have we destroyed all the live ones, and sooted, limed, and cleaned up the house, than fresh ones appear. Where from? we ask; do they fly in the air? The ground is not rich, no manure, mulching, or rank material having been introduced into it for three years, and the only liquid manure afforded the trees is guano water. They are not to be found in any of the vineries, Melon house, or any where except in this fruit house and on a distant Pear wall in the garden. In this fruit house are Pears, Peaches, Apricots, Plums and Cherries. Cherries suffer most. What is the remedy? How do you account for it? *Caterpillar.* [Please send specimens carefully packed. Ed.]

BRUANT'S NEW ZONAL PELARGONIUMS. — In the *Gardeners' Chronicle* last autumn, I referred to a large collection of these new French varieties at Messrs. Pope & Son's nurseries, King's Norton, Birmingham, naming some of the most striking then in flower, and mentioning that many of the new varieties would not be in flower until the spring. I visited the nurseries recently in order to see if any of these new Continental kinds would turn out to be acquisitions. The type of almost all of Bruant's raising is to be found in Gloire Lyonnaise, strong growers, large foliage, and very large trusses, with large ill-shaped flowers, but some of them fine decorative varieties, and useful for market work. In doubles, Le Bruant stands prominently out as a grand market variety, and Messrs. Pope & Sons think so highly of it that this variety is grown extensively, and hundreds of flowering plants have been sold all through the winter. Amongst other varieties of Bruant's, two are really fine doubles, and of very pleasing shades of colour. One is Dr. Thouvenel, bright salmon-pink, and large truss, which retains its centre pips. The other is Beauté Poitevin, light salmon-pink, with cerise centre. Both of these are good. Amongst the numerous new single varieties from France, the best are Alfred Mane, pale salmon-scarlet, and immense flower and very large truss, habits of Gloire Lyonnaise, but not so coarse in the foliage, and which promises to be a good market variety; Madame Poinsigmen, pale lilac-pink tinted with salmon; Barbiget, bright soft pale-pink with light centre and fine compact truss; Del Rossa, veined light salmon-pink with white eye, very fine truss; and Mdlle. Emilie Barre, bright scarlet, very large truss. All these varieties are evidently good market sorts. For quality, that is perfection in form and substance, our grand English-raised varieties are a long way ahead; and so very fine are many of these varieties, that it seems almost impossible to beat the newer ones, and yet we still get new shades of colours and exquisite form. For indoor decorative work no plant is of greater value for winter and spring-flowering than the zonal Geraniums when well done, and King's Norton is one of the homes of the zonal Geranium, especially for winter-blooming. *W. D.*

HOME-GROWN LILY OF THE VALLEY.—I send you a few Lilies of the Valley from out-of-doors, gathered from my fields this morning, and should like to know what you think of them. I think you will agree with me that they are equal if not superior to any that are imported, and not far short, in quality, of the much-talked-of Convallaria majalis grandiflora var. Fortii. *T. Jannoch.* [We have never seen finer spikes or larger bells. Ed]

LARGE-FLOWERING PELARGONIUMS. — When looking over the collections of large-flowered Pelargoniums shown at the Crystal Palace on the 10th inst, one could but notice how large a part of what are known as the decorative, spotted, and semi-double varieties were to be seen. Doubtless this is owing to the freedom with which they flower, and the large and bold trusses of bloom they produce; but then the trusses have quite a confused and even rough appearance. Now, I possess so much of the old floricultural liking for outline and smoothness of pip in the large-flowered Pelargoniums, that, in my opinion, it is regrettable that they are less grown for exhibition purposes than formerly. Perhaps we see more of the decorative varieties at May exhibitions because they are quicker to get into bloom—a fact to which growers bear testimony. That they yield striking masses of bloom there can be no doubt, but I like the refinement of the smoother and more finely formed flowers of the show varieties, so called, and it is for this reason I regret they are not more grown for exhibition specimens. There was a time when a charge of spareness of habit could have been brought against some of the show Pelargoniums. That no longer can be pressed against them; of late years the newer varieties have shown considerable robustness of character and freedom of habit, as well as of bloom; pips are large and well-formed, bold, and striking, and in all respects they are well adapted for the exhibition stage; in fact, the advance in the new varieties raised by Mr. E. B. Foster and others has been so marked that some have said there is little room or capacity for further improvement. This is far from correct. Raisers of seedlings always find their ideals advancing, and if they raise a flower that shows a marked advance upon any contemporary variety, they instantly and naturally conceive of something better to be obtained. Progress in floriculture is illimitable; the possibilities of Nature are illimitable; and the *ultima thule* is not yet reached. The following list represents a dozen fine and varied show Pelargoniums: Ambassador (Foster), Amethyst (Brebant), the best purple variety, and remarkably free; Crusader (Turner), Despot (Foster), rich deep crimson; Fortitude (Foster), Illuminator (Foster), bright vermilion-scarlet; Maid of Honour (Foster), Martial (Brebant), Magnate (Foster), Prince Leopold (Foster), very bright; Ritualist (Foster), and Virgin Queen (Smith), white. Twelve fine, distinct, and very free decorative varieties will be found in Decorator (Hayes), Duchess of Edinburgh, Edward Perkins, of a bright hue of crimson scarlet; Fairy Queen (Hayes), pale pink, very pretty; Lady Isabel (Hayes), bright deep lilac, which makes a charming specimen; Magpie (Turner), white, with distinct dark purple spots, a new and very pleasing variety; Mrs. Potten, Rosetta, rosy-purple, very distinct; Spotted Beauty (Turner), soft rose, with rosy-crimson spots; Triomphe de St. Maude, old, but very free, and bearing very fine trusses of deep crimson flowers; and Triumphans, rich purplish-crimson. Not less valuable are the foregoing for the decoration of the greenhouse and conservatory. As a general rule, large-flowering Pelargoniums are scarcely so well-treated as they deserve to be; they are frequently grown with mixed collections of plants, inconveniently crowded, drawn, and not so closely attended to in the matter of cleanliness as they deserve to be. There is scarcely another plant that answers so generously to proper attention as does the large-flowered Pelargonium. *R. D.*

MONTBRETIA POTTSII.—My experience of this plant for the last seven years is, that it should be left alone when once it is established in good soil and a suitable position, and then it will, I think, not fail to flower freely annually—our clumps do so. Once only have they been removed, and that was when an alteration was made in the border; and then the roots were not very much disturbed, the clumps being lifted with the soil attached and replanted just as they were. We have also growing in the same border—a southern one—roots of M. crocosmiflora, which throw up strong spikes of flower that last a long time in good condition. Both varieties are capital border plants. *E. M.*

CATERPILLARS OF THE LACKEY MOTH.—As this is the month when these troublesome pests attack the Apple, Oak, Elm, and Birch, I think it right to state that one of the most effectual means to destroy them, as soon as they are hatched from the ring of eggs which the moth fastens round the smaller branches, is carbolic acid at the rate of one quarter pint to 2 gal. of water. I have employed some workmen who, furnished with a piece of rag tied to a long pole, touched the small bunches of the caterpillars enclosed in a fine web which they spin around them as soon as hatched out. The least drop of the mixture is instant death to the caterpillars at this stage. *J. F.*

SOCIETIES.

ROYAL HORTICULTURAL.

At the meeting of the Fruit and Floral Committees, held on May 13, and referred to in detail in our last issue, awards were made as follows:—

By the Floral Committee.

First-class Certificates.

To Cytisus scoparius Andreanus, from Sir Trevor Lawrence, Messrs. J. Veitch & Sons, and Messrs. Paul & Son.

To Cydonia japonica Moerloosei, from Messrs. J. Veitch & Sons.

To Acer Prince Hendjery, from Messrs. Paul & Son.

To Blandfordia nobilis imperialis, from Messrs. F. Sander & Co.

To Syringa Madame Kreuter, from Messrs. Paul & Son.

Awards of Merit.

To Juniperus canadensis aurea, from Messrs. Paul & Son and Messrs. J. Veitch & Sons.

To Lunaria biennis variegata, from Messrs. W. Cutbush & Son.

To Pansy Eynsford Yellow, from Messrs. H. Cannell & Sons.

To Primula alba magnifica, from Messrs. Ryder & Son.

To Enkianthus campanulatus, from Messrs. J. Veitch & Sons.

To Pæony (Tree) Beatrice Kelway, from Messrs. Kelway & Son.

By the Orchid Committee.

First-class Certificate.

To Odontoglossum maculatum anceps, from Mr. Atkinson.

Award of Merit.

To Cœlogyne tomentosa, from Mr. R. J. Measures.

By the Fruit Committee.

First-class Certificate.

To Broccoli Veitch's Model, from Mr. W. C. Leach.

Medals.

Silver Banksian, to Messrs. Paul & Son, for a group of plants, &c.

Bronze Banksian, to Messrs. Ryder & Son, for a group of Primula Sieboldi and Pansies.

Bronze Banksian, to Mr. J. Forbes, for a collection of Pansies.

Bronze Banksian, to Messrs. Barr & Son, for a collection of cut flowers.

Bronze Banksian, to Messrs. J. Veitch & Son, for a group of plants.

Bronze Banksian, to Mr. F. Hooper, for a collection of Pansies and Pinks.

Scientific Committee.

Tuesday, *May* 13.—Present: Mr. Morris in the chair; Mr. McLachlan, Mr. Michael, Rev. W. Wilks, Dr. Scott, Mr. Wilson, Dr. Müller, and Rev. G. Henslow, Hon. Secretary.

Plant Bug.—Mr. McLachlan exhibited specimens of a small green bug, which has become very troublesome in the temperate-house at Kew. It attacks Fuchsias, Rhododendrons, Camellias, &c. It has been observed for the last ten years. Paris green or London purple (arsenical preparations) were suggested as the best remedies, fumigating being difficult in so large a place.

Ceratitis citriperda (McLeay, 1829).—Mr. Henslow gave some account of the Orange-fly, which has become very troublesome in Malta. He also exhibited specimens of the grubs, pupæ, and insects. It first appeared about fifteen years ago, but has increased to a very injurious extent during the last three years. A committee was appointed in 1889, by H.E., the late Governor of Malta, who have just issued their report (which will be published shortly in the *Kew Bulletin*). The fly perforates the half-ripe Orange, and lays several eggs within it. This causes the fruit to fall prematurely. The larva finally escapes, and enters the ground to pass into the pupa stage. It is suggested that preventive measures should be taken at this period, first by collecting all fruits attacked, and mashing them up with water in a tank. Secondly, the surface of the ground should be sprinkled with a mixture of one part of sulphate of iron, finely powdered, to twenty-four parts of dry earth or sand, and subsequently slightly watered. An account of this insect (under the name of Ceratitis capitata) will be found in the *Gardeners' Chronicle* of 1848, p. 604, at which period it caused great damage to Oranges received from St. Michaels (see fig. 111). In Malta it particularly attacks the Mandarine (Citrus nobilis). Cold and inclement weather is very unfavourable to the fly, which becomes much more abundant in a hot dry season.

Prionus (Ceranibyx) coriarius.—Mr. Henslow showed specimens of Pear roots bored by this longicorn; also the grubs and beetles from Malta, where it is causing great damage to many fruit trees. The only remedy suggested was the well-known one of spearing. In Malta, however, the beetles attack the roots rather than the stems, so that the difficulty of reaching them was greatly increased, as the only sign of their presence may be a feebleness in the upper part of the tree, and the branches decaying, when the tree may be already past recovery. The greatest difficulty, however, is to overcome the apathy of the cultivators themselves.

Delphinium diseased.—Some leaves were sent by Mr. Haywood, of Reigate, apparently attacked by a fungus. They were forwarded to Professor M. Ward for examination and report.

Primula metamorphosed.—Mr. A. Dean sent a number of seedlings of the "Jack in the Green" form of Primula. In this variety the calyx is foliaceous. Of the seedlings some had assumed the "hose-in-hose" type, the calyx becoming petaloid; in others the calyx had become polysepalous, the sepals varying from the foliaceous to a setiform condition.

Primrose and Bluebells degenerated.—Mr. Henslow showed specimens grown in his garden. They were received some years ago from Wiltshire, but have degenerated on the gravelly soil of Ealing. The Bluebells become pink, then white, at the same time changing in form from the normal cylindrical to a cup-shaped perianth. This latter form is recognised as a permanent one—viz., var. campanulata, of which there is a bed at Kew. Transitional stages are not uncommon. The Primroses exhibited were taken from a number of separate plants of the long-styled form; but they had nearly all assumed a homomorphic character, by the pistil being dwarfed in length, and so bringing the stigma down to the level of the anthers.

Plants exhibited.—Mr. R. I. Lynch sent an interesting series from the Botanic Gardens, Cambridge. Neviusa alabamensis, A. Gray, a curious apetalous ally of Rhodotypus. It has foliaceous sepals, and three or four carpels only. Baccharis patagonica, a shrubby composite, with flowers not unlike that of Groundsel; the florets, however, are female only, with a rudimentary corolla tightly fitting the style, and having no border. Triosteum pinnatifidum, Maxim; Aristolochia ringens, Vahl.; Vanda alpina,



Fig. 111.—The Orange-fly (Ceratitis capitata). *a*, Larva; *b*, pupa; *c*, fly (green insect); the sizes indicated by the crossed lines.

a species not included in catalogues; Arisarum proboscideum (*Bot. Mag.*, No. 6634), from the shaded woods of Upper Arno and Apennines, a very rare plant; Asarum Hookeri, var. insignis, Duch., the rarest species in cultivation. A vote of thanks was unanimously accorded to Mr. Lynch.

ROYAL BOTANIC.

At the exhibition of this Society, held on the 14th inst., and reported in our last issue, the following certificates were awarded:—

Botanical.

To Disa tripetaloides, from Mr. J. O'Brien.

To Cypripedium Elliottianum, from Messrs. H. Low & Co.

To Acer Prince Hendjery, from Messrs. Paul & Son.

To Juniperus canadensis aurea, from Messrs. Paul & Son, and from Messrs. J. Veitch & Sons.

To Cattleya Mendelii albens, from Mr. G. T. White.

To Richardia (? Elliottiana), from Mr. Knight.

To Abies excelsa mutabilis, from Messrs. J. Veitch & Sons.

To Cytisus scoparius Andreanus, from Messrs. J. Veitch & Sons, and Messrs. Paul & Son.

To Acer japonicum laciniatum, from Messrs. J. Veitch & Sons.

To Nephrolepis cordata compacta, from Messrs. J. Veitch & Sons.

Floricultural.

To Syringa alba grandiflora, from Messrs. Kelway & Son.

To Myosotis rupicola, from Messrs. Paul & Son.

To Trollius caucasicus aurantiacus, from Mr. T. S. Ware.

To Tulipa elegans alba, from Messrs. Barr & Son.

To Phyllocactus Brilliant, from Messrs. J. Veitch & Sons.

To Phyllocactus Exquisite, from Messrs. J. Veitch & Sons.

To Rhododendron The Queen, from Messrs. J. Veitch & Sons.

To Gloxinia Mr. J. Donaldson, from Messrs. J. Veitch & Son.

To Azalea J. T. D. Llewelyn, from Mr. C. Turner.

To Pelargonium (show) Empress of India, from Messrs. J. and J. Hayes.

To Begonia Mammoth, from Messrs. J. Laing & Sons.

To Begonia Princess Victoria, from Messrs. J. Laing & Sons.

To Begonia Rosy Morn, from Messrs. J. Laing & Sons.

To Begonia Duchess of Portland, from Messrs. J. Laing & Sons.

To Begonia Profusion, from Messrs. J. Laing & Sons.

To Caladium Gaspard Crayer, from Messrs. J. Laing & Sons.

To Caladium Mrs. H. Veitch, from Messrs. J. Laing & Sons.

To Lunaria biennis variegata, from Messrs. W. Cutbush & Son.

GLOUCESTER AND CHELTENHAM.

The annual spring show of this Society took place at the Winter Gardens, Cheltenham, on the 15th inst. There was a fine lot of Orchids and stove and greenhouse plants in the large tent, the other exhibits being in the Winter Garden. Vegetables were arranged down the centre of one part of the building, and in another the collections of stove and greenhouse plants, of which there were three competitors for twenty plants. Roses, herbaceous Calceolarias, and Gloxinias occupied the sides.

Mr. J. Cypher, Cheltenham, staged fine specimen Orchids, exhibiting excellent culture; Cattleya Skinneri, with twenty-two spikes of bloom, C. Mendelii, forty, and C. intermedia, with ten spikes were fine indeed; Dendrobium thyrsiflorum, D. Jamesianum, Cymbidium Lowianum, Masdevallia Lindenii, and Cypripedium caudatum, with thirty blooms, were the best of the remainder. Orchid connoisseurs pronounced this to be the finest collection exhibited in Cheltenham. The 2nd prize, that exhibited by Messrs. Heath & Son, contained some large made up pans of plants, the best being Cypripedium Lawrenceanum, with more than 100 flowers; a large mass of Odontoglossum Pescatorei, somewhat past its best, and Dendrobium Jamesianum, and a few Cattleyas.

The best nine for amateurs were shown by G. Neville Wyatt, Esq. (gr., Mr. Simcoe), these were large single healthy plants, the best of which were Vanda suavis, Cattleya Mossiæ, twenty blooms—a grand piece; Ada aurantiaca, with fifteen spikes; and Cattleya Skinneri. Sir A. Ramsey, Bart., was 2nd, his best plants being a Cattleya Mossiæ, with twelve blooms; C. Mendeli, with nine; and a good Dendrobium suavissimum.

Tender Stove and Greenhouse Plants, in bloom.—Mr. Cypher was 1st, with superb specimens. A grand Erica Cavendishiana, a noble E. ventricosa rosea, Anthurium Wardianum, in fine condition; Pimelea spectabilis, P. Hendersoni, Hedaroma tulipifera, Franciscea eximia, Stephanotis floribunda, a sheet of bloom. 2nd, Mr. Mould, Pewsey, Wilts, his best plants being Bougainvillea glabra, Erica Cavendishiana, E. ventricosa rosea, Statice profusa, and Hedaroma tulipifera.

The class for ten Azalea indica was well filled. Mr. Cypher was 1st with very large well-bloomed plants, the best of which were Cedo nulli, 5 feet high, and 6 feet through; Duc de Nassau, 5 feet, by 6 feet wide; Roi d'Hollande, Lady Peltimore, a good white, and others equally fine. 2nd, Messrs. Heath & Son, with well-bloomed plants, of which we may note Beauty of Surrey and Duc de Nassau.

G. Neville Wyatt, Esq., took the special prize in this class for small plants, with many well-bloomed varieties.

Mr. J. F. Mould was 1st for six Azalea indica; 2nd, Mr. Wyatt.

Six Azaleas, grown in 10-inch pots.—1st, Messrs. Heath, well bloomed; 2nd, Mr. Cypher.

Six Specimen Azaleas.—Sir A. Ramsey, Bart., was the only competition, and had good plants.

The competition for six stove and greenhouse plants in flower was not heavy, and Mr. Mould was 1st, with Erica depressa, Azalea sinensis alba, and Aphelexis macrantha purpurea, &c.; and Mr. Wyatt was 2nd, his best plants being Clerodendron Balfourianum, and an Anthurium Scherzerianum.

The class for Pelargoniums was well filled with plants moderate in size: 1st, Mr. Lingwood; 2nd, H. Chapman, Esq. (gr., Mr. Sparkes).

Roses in pots call for little notice, the plants having lost much of their freshness; but the cut Roses were better: 1st, Messrs. Heath; 2nd, Mr. S. P. Budd, Bath. Mr. Cypher sent a fine stand of cut blooms of Tea Rose Niphetos, but was not for competition.

The class for twelve varieties of cut flowers only brought one competitor, Mr. Wyatt; the exhibit was a very fine one, and included six species of Orchids.

Cinerarias were well shown by T. P. W. Butt, Esq., Arle Court (gr., Mr. Marsh). Gloxinias were very fine, and were shown by five competitors, Messrs. Heath, Mr. Wyatt, Mr. Lingwood, and J. T. Agg-Gardner, Esq., M.P., being successful in the order named.

Calceolarias were not so good as usual. Mr. Wyatt had the best nine. The collections of herbaceous plants were only second-rate. The stand, or baskets grouped for effect, were scarcely up to those of former years. The groups of twenty plants arranged for effect, in or out of bloom, filled a large space: Mr. Cypher was 1st, with a nice lot of plants; 2nd, Messrs. Heath. The vases of cut flowers by ladies showed good taste, and were light in arrangement, and well blended in regard to colours. Miss Sturt was the winner of the 1st prize.

Fruit: Twelve Pots of Strawberries.—Mrs. Southwood, Colonel Rogers, and Lord Sudeley took the prizes for these in the order of their names; but the last-named exhibitor had nice fruit, and should have been put in the 2nd place—the fruit was a little bruised in travelling. A dish of excellent Peaches came from Arle Court; and good bunches of Lady Downes of 1889, in excellent condition, from Mr. Wyatt; also three bunches, not so good, but rather shrivelled, of Mrs. Pince's Black Muscat.

Vegetables.—These products are always to be found in fine condition at this show, and the collections consisting of six dishes each were excellent, the heads of Asparagus being very large, Stratagem Peas, Potatos, Beans, some fair Tomatos, and handsome Cucumbers. Mr. Skinner was 1st, and Mr. Cook 2nd.

The single dishes were very fine, Lord Sudeley, Rev. G. Coventry, Mr. Butt, Mr. Skinner, Messrs. Cook, Turk, and Smith being the chief winners of prizes.

The baskets of salad, always a feature here, were good for the season, and well put up, Messrs. Smith and Cook taking the 1st and 2nd prizes.

There was a large collection of well-grown English Tomatos, Perfection being the variety shown by most persons.

The competition for the best four sorts of vegetables was well contested. Mr. A. Cook was 1st, with a very nice lot.

A large number of persons visited the show. It is to be hoped that the next show will be held in tents, so that the disagreeable glare from the glass during the sunny part of the day may be avoided, and choice plants suffer less in consequence. *G. W. S.*

BRITISH FRUIT GROWERS' ASSOCIATION.

May 15.—A meeting of this Association was held at the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, S.W., T. F. Rivers, Esq., in the chair. The special object of the meeting was to consider the scheme for the fruit report, which had been prepared by the sub-committee appointed for that purpose on May 1.

The scheme submitted and adopted unanimously is as follows:—The introductory chapters will deal with climate and soils in relation to fruit culture, land tenure, rent, rates, and tithes, hardy fruit culture, fruit culture under glass, fruit preservation, stocks, insects, fungi, diseases, and remedies. The report will include summaries of the chief counties in Great Britain and Ireland in reference to fruit culture, with descriptions of orchards and fruit farms, also of market gardens and private gardens where fruit culture is a special feature. The details will comprise extent of land occupied, situation, soil and subsoil, age and character of trees, varieties, stocks, and methods of culture.

Sections will also be devoted to markets, dealing with supplies, salesmen's charges, packing, and cost of carriage; to expenses, returns, and profits, and to the prospects of fruit culture, pointing out the land and districts best suited for fruit culture, the best systems, and the varieties recommended.

Arrangements are being made to collect the information required through the committee, the local secretaries, and the members of the Association, but assistance of any kind will be gladly welcomed.

It was announced that Mr. Joseph Cheal, of Crawley, was about to undertake a long tour in the fruit districts of the United States and Canada, and he was, therefore, appointed delegate from the Association, with the object of collecting as much information as possible bearing upon the fruit question, and he expects to be home in time to give the results of his experience at the September meeting in the Crystal Palace. Messrs. Castle and Gordon proposed to devote a holiday in Ireland this year to an investigation of the condition and prospects of fruit culture there, and were also appointed delegates from the Association.

ROYAL AQUARIUM.

May 21 and 22.—The early summer show was held on Wednesday and Thursday last, when a pretty, if rather small exhibition resulted. Messrs. J. Laing & Son, Forest Hill, S.E., were awarded 1st for a group of plants arranged for effect (150 square feet), good sized Palms and Dracænas with Lilium longiflorum, formed the back, and in front were Begonias, Cattleya Trianæ, Leschenaultia biloba major, and small plants of Caladiums. A group of nine specimen Caladiums was also sent by Messrs. Laing, to whom the 1st place was properly accorded. Mr. H. James, Castle Nursery, Lower Norwood, S.E., was 2nd for a group, having Anthuriums, Ixora Dixiana (as a centre piece), and smaller foliage plants.

Mr. James bettered his position for Ferns, taking 1st, and also for eight specimen Azalea indica, having a creditable lot, in which La superbe and Reine des Pays Bas may be singled out. Mr. C. Turner, Slough, came in as a close 2nd with smaller specimens. For a group of hardy cut flowers and foliage, Mr. T. S. Ware, Tottenham, was 1st for an extensive collection, arranged in an artistic manner with undulations; among the plants included, was a white Viola pedata, Cypripedium arietinum, and Pæonia Wittmanniana.

The 2nd prize was awarded to Messrs. Paul & Son, for a group in which was a good number of Tulips, hardy ornamental foliaged plants (Acers, Elms, &c.), Lilacs, Rhododendrons, hardy Azaleas, Geum miniatum, Andromedas, &c. Messrs. Barr & Son, Covent Garden, were placed 3rd, with a smaller lot, in which Irises were conspicuous.

Pelargoniums were best from Mr. C. Turner, Slough, who had finely flowered specimens.

Pansies and Violas were numerous and good. Messrs. Paul & Son, Cheshunt, had the best twelve Violas in pots. Mr. F. Hooper, Bath, led for twelve pots of fancies, and Mr. R. Dean for show varieties.

Messrs. Ryder & Son, Sale, had a good lot of Pansies (not for competition), all good showy flowers, and Mr. F. Hooper, Bath, also contributed a good selection, with blooms of Pink Her Majesty.

Roses from Messrs. W. Paul & Son, Waltham Cross, were a very good display, the pot plants being very finely flowered samples; fresh and bright cut blooms were also sent.

Mr. R. Dean, Ealing, had a small lot of cut hardy flowers, Primulas, &c.; and Mr. Moore, Regent Street, sent a group of decorative plants, including freely-grown Erica Cavendishii.

A NATURAL HISTORY MUSEUM FOR ABERDEEN.

In concluding a brilliant lecture to the members of the Aberdeen Working Men's Natural History Society the other evening, Mr. George Sim, A.L.S., naturalist, Aberdeen, dwelt on the necessity for Aberdeen having a public natural history museum. He said: "And now, in conclusion, allow me just a few words on a matter closely related to the subject we have been considering, and one too which interests, or ought to interest, every one in our good city. I refer to the want of a good natural history museum. Many people seem to have the opinion that such an institution can only be of use or interest to those few who make the study of natural history a hobby. There could be no greater fallacy. A museum properly arranged, having nothing but the products of our own country within its walls, is an institution where everyone could study with profit, not only the external appearance of the creatures exhibited, but also learn something of their habits and modes of life. Then, and not till then, can we hope that the people will abstain from the many cruel practices presently directed against the most lovely and useful of living beings. Already the treatment meted out to the lapwing has been alluded to, but not less cruel is the reception given to the cuckoo on its yearly arrival on our shores, and yet few more useful visitors come to our land. For these and such like reasons would I advocate our being in possession of a public museum in Aberdeen, wherein the usefulness of every creature could be demonstrated. This is not a matter that calls for a large expenditure of money. I venture to think that if space were provided for such an institution, say in our Public Library Buildings, there is little doubt but that many of you gentlemen would consider it a privilege which you would readily avail yourselves of, of depositing your collections therein. I am not suggesting to you what I am not prepared to do myself, for I am ready, as soon as proper accommodation is provided, to hand over my private collection for the good of the inhabitants. I would, therefore, appeal to you to help on the work which has already been begun by our good friend, Dr. James W. H. Trail. Carried out on something like the lines indicated, there is little doubt but that a good and useful museum would be in the possession of the inhabitants in a very few years, and almost at no cost whatever to them. By such means would those interested in particular branches of natural history study see what has been done by their predecessors, and thereby save generation after generation from going over the same ground. Let us remember, gentlemen, that 'poor bees, and wasps, and ants, and birds, and all that now animate life,' on which he looks with supercilious contempt, man is destined one day to learn what in truth he really is."

EDINBURGH BOTANICAL.

May 8.—The Society held its first summer meeting in the club-room at the Royal Botanic Garden, under the presidency of Mr. Lindsay, who afterwards conducted the members of the Society through the glasshouses and over the rock garden. Mr. Arthur Bennet gave "Notes on the Records of Scottish Plants during 1889." Mr. Sewell sent a paper on "The use of Sphagnum moss in Mr. Hanbury's garden in the Riviera." Perhaps the most interesting paper of the evening was by Dr. Aitchison, who described the equipment of a botanical collector on the Afghan frontier. The 30 lb. bundles of boards and drying paper, as well as the small sharp pointed pick on a long handle, after the fashion of a geological hammer, given to each coolie who collected plants in lieu of the usual botanist's spud, were new ideas to the experienced collectors of home botanical specimens present. Mr. Lindsay gave the usual report as to the growth of vegetation in the Royal Botanic Garden in April; so did Mr. Bullen for the Glasgow Garden.

Amongst the exhibits were:—

From the garden, a collection of plants in pots in flower, mostly rare hardy plants.

From Dr. Paterson, Bridge of Allan, flower and photograph of Rhododendron Falconeri.

Report for April, 1890, by Robert Lindsay, Curator, Royal Botanic Garden, Edinburgh.—The month of April was dry and cold generally, with easterly wind. The thermometer fell below the freezing-point on fifteen occasions; the total amount of frost registered was 54°, as against 6° for April, 1889. The lowest readings were on the mornings of the 12th, 13th, 20th, 27th, and 28th, of the month, when the glass fell to 27°, 25°, 25°, 25°, and 26°, respectively. The lowest day temperature was 47°, on the 17th; and the highest, 67°, on the 30th.

The collective amount of frost registered this season up to the end of April is 364°, as against 342° for the same period last year. The following is the distribution for each month:—September 3°, of frost; October, 2°; November, 38°; December, 70°; January, 45°; February, 103°; March, 49°; April, 54°. The lowest point reached this season was 20°, or 12° of frost, which occurred on March 20. Notwithstanding the cold nature of last month, vegetation generally has made good progress. The rock garden was very attractive during the month, from the large number of plants in blossom; 150 species and varieties came into flower in April, many of

which display unwonted vigour. Of the forty spring-flowering plants annually recorded to show their periods of flowering, the following came into flower:—Adonis vernalis on the 2nd, Aubrietia grandiflora on the 9th, Fritillaria imperialis on the 10th, thus completing the list much earlier than usual.

Register of Spring-Flowering Plants, showing Dates of Flowering at the Royal Botanic Garden, Edinburgh, during the years 1888, 1889, *and* 1890.

No.	Names of Plants.	First Flowers opened.		
		1888.	1889.	1890.
1	Adonis vernalis ...	April 16	April 6	April 2
2	Arabis albida... ...	Feb. 6	March 18	Feb. 1
3	Aubrietia grandiflora	April 14	April 16	April 9
4	Bulbocodium vernum	Feb. 22	Feb. 18	Jan. 29
5	Corydalis solida ...	April 6	March 23	March 20
6	Corylus Avellana ...	Jan. 25	Feb. 22	Jan. 15
7	Crocus susianus ...	Jan. 26	Feb. 14	Jan. 26
8	,, vernus	Feb. 23	Feb. 23	Jan. 30
9	Daphne Mezereum ...	Feb. 22	Jan. 26	Jan. 24
10	Dondia epipactis ...	Jan. 5	Jan. 3	Jan. 6
11	Draba aizoides ...	March 30	March 22	March 9
12	Eranthis hyemalis ...	Feb. 8	Feb. 3	Jan. 15
13	Erythronium Dens-canis	March 31	March 30	March 10
14	Fritillaria imperialis	April 29	April 30	April 10
15	Galanthus nivalis ...	Jan. 26	Jan. 31	Jan. 13
16	,, plicatus ...	Jan. 26	Jan. 26	Jan. 17
17	Hyoscyamus Scopolia	April 13	March 29	March 23
18	Iris reticulata ...	Feb. 23	Feb. 25	Feb. 16
19	Leucoium vernum ...	Feb. 4	Jan. 30	Jan. 16
20	Mandragora officinalis...	March 8	March 12	Feb. 18
21	Narcissus Pseudo-Narcissus	April 3	April 7	March 15
22	,, pumilus ...	March 17	March 25	March 8
23	Nordmannia cordifolia	Feb. 11	March 4	Feb. 2
24	Omphalodes verna ...	March 23	March 16	March 11
25	Orobus vernus ...	March 31	March 26	March 9
26	Rhododendron atrovirens	Feb. 3	Jan. 17	Jan. 18
27	,, Nobleanum ...	April 13	Feb. 6	Jan. 20
28	Ribes sanguineum ...	April 10	March 30	March 22
29	Scilla bifolia	March 19	March 6	Feb. 15
30	,, ,, alba... ...	March 8	March 12	Feb. 28
31	,, præcox	Jan. 26	Feb. 1	Jan. 6
32	,, sibirica	Jan. 30	Feb. 3	Jan. 7
33	,, taurica	March 8	March 14	March 5
34	Sisyrinchium grandiflorum	March 8	Feb. 20	Jan. 31
35	,, ,, album ...	March 13	Feb. 26	Feb. 4
36	Symphytum caucasicum	April 18	April 16	Feb. 1
37	Symplocarpus fœtidus	Feb. 8	Feb. 22	Jan. 31
38	Tussilago alba ...	Feb. 9	Feb. 14	Jan. 19
39	,, fragrans	Dec. 28 1887	Jan. 11	Dec. 12 1889
40	,, nivea	April 10	Feb. 27	Jan. 30

Extract from Record of Temperature, Vegetation, &c., in the Botanic Garden, Glasgow. By Robt. Bullen, Curator. April, 1890.—The temperature fell below the freezing point twelve times during the month; the lowest reading was 4° during the night of the 12th. The total readings were only 17°. A large number of fine and dry days are recorded, but of these many were comparatively sunless here, cold winds were very prevalent, and from all points of the compass. The rainfall was light.

All forms of plant life are better for the little retardation, so that, notwithstanding the mild winter, the spring is not an unusually early one, the only plants which are in a more forward state than usual are those which are capable of existence, and even flourish, after the most rigorous winters. Many deciduous trees and shrubs are not showing so much bloom as was anticipated; but it is yet early to judge of fruit prospects, the bloom being yet in an embryo state.

NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION.

A WELL attended meeting of the members of this Association was held in the Christian Institute, Aberdeen, on Wednesday evening, the 7th inst. Mr. Smith, the President, occupied the chair. The chief item on the agenda card was a paper by Mr. Alexander Robson, of Messrs. William Smith & Son's, seedsmen, Aberdeen, on the "Propagation and Improvement of Cultivated Plants." Mr. Robson reviewed the improvements of the last twenty years, showing that immense progress had been made in that time, mainly owing to the increased activity of hybridists and cross-breeders. This activity was due very much to the painstaking work of Darwin, who did more than any other man to make clear the knowledge of the effect of crossing and hybridising upon plants. He instanced Darwin's experiments, giving chief prominence to cross-breeding, as being the means by which almost all recent improvements had been effected. Darwin had shown that cross-breeding improved the quality and productiveness of the stock. He gave detailed lists of vegetables and flowers, showing that, of the principal varieties of twenty years ago, new and greatly improved varieties had since superseded them. The science of horticulture had been making as much progress as any of the other arts and sciences.

Mr. Robson remarked that Darwin, Burbidge, and Dr. Lindley, had marked out clearly the distinction between crossing and hybridising, and it would be found in their books. The confusion in the two terms all resulted from popular inaccuracy in the use of them. It was only within certain degrees of affinity that hybridisation was possible. He defined the crossing of one species with another species as a hybrid, and the crossing of one variety with another variety of one species as a cross.

With regard to the relative merits of old and new varieties, Mr. Mortimer thought careful cultivation had a good deal to do with it. Some of the old varieties, for instance, of Cabbages, Potatos, and Peas, far excelled the new in his opinion.

Mr. William Reid, the Secretary, agreed with Mr. Mortimer's remarks, although admitting, along with Mr. France and others of the members, that crossing had done a great deal to strengthen and improve certain sorts of plants.

Mr. Reid remarked further that till within the last ten years, cross-breeding was done in a haphazard way.

Mr. Robson, at the close of a somewhat animated discussion, was warmly thanked for his paper. The members at this stage proceeded to inspect an exhibition of flowers, now becoming a feature of each meeting of the Society, and which are doing, not only good work among the members themselves, but to the public, who on the day following the meeting are allowed to inspect the display free.

The exhibits forward were largely illustrative of the paper read by Mr. Robson. Mr. Gregor, Fairfield, showed a collection of Orchids—exceptionally well flowered—a box of Polyanthus and Auriculas, for which he was awarded the Association's Cultural Certificate. There were three boxes of Daffodils, eighty varieties; a box of herbaceous flowers, thirty varieties; and a box of Polyanthus and Primroses, thirty varieties; two boxes of Pansies, sixty varieties; ten pots of Sieboldii, ten varieties; and a climbing Rose of rare merit from the nurseries of Messrs. James Cocker & Son, for which a similar honour was awarded. Mr. Stephen, Crathes Castle; and Mr. Ross, Cranford, also received Certificates. The other exhibitors were Mr. McPherson, Delmount; Mr. Morrison, Waterton; and Mr. Mortimer, Tullos.

A large number of the public visited the display on Thursday. At the close of the meeting notice of motion was given to the effect that the Association take into consideration the advisability of offering prizes for collections of spring flowers. Votes of thanks to the chairman and exhibitors terminated a most enjoyable and instructive meeting.

CULTURAL MEMORANDA.

THE BROMPTON STOCK.

SOMETIMES this variety of Stocks is raised from seed sown in pans in June, and subsequently pricked off on to well-prepared beds. But with equal success the plants may be reared by sowing outside, and treated similarly to Wallflowers. If the seed be sown about this time of the year, and when large enough pricked off on firm soil on a sunny border, allowing plenty of space between each, so as to afford abundance of air to pass among them, some fine strong and well-ripened plants will result that will produce abundance of sweetly scented blooms the following spring. In cold localities it is prudent to pot up the plants in September, and winter them in cold frames, as not unfrequently the plants will suffer from frosts during the winter months if left outside. These stocks are good for the cool conservatory, where, with good treatment, the plants will bloom well. *H. M.* [Provided the plants are plunged in fine coal-ashes and protected from rain and snow by glass sashes, cold in our ordinary winters will hardly hurt them. They should be more commonly grown than they are. ED.]

PRIMROSES.

If not already done, the plants that have bloomed in pots should be divided and planted 12 inches apart. Single offsets will grow into capital stuff by the time of lifting and potting them up. The Harbinger is a nice white variety that blooms well and is much admired.

SOLANUM CAPSICASTRUM.

The old plants, having been slightly pruned back and young growths started, should, when hardened off a little, be planted out; and these, with careful attention during the summer months, will make good plants, and set plenty of berries. Plenty of water must be afforded the plants in dry weather, and syringing sometimes overhead after a hot day will greatly benefit the plant.

EUPATORIUM ODORATUM.

This useful early winter-blooming subject thrives equally well when planted out young; cuttings struck early, if planted out now 18 inches apart on well-tilled soil, and the tops pinched a couple of times, will grow fine plants by September, and produce abundance of bloom. *H. Markham.*

VARIORUM.

BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.—From the list of those published in the *Journal of Botany* for April, we extract the following:—

"PARKINSON, JOHN (1567–1650): b. Nottinghamshire (?), 1567; d. London, Aug. 1650; bur. St. Martin's-in-the-Fields. Apothecary. King's Herbarist ('Botanicus Regius Primarius'). 'Paradisus Terrestris,' 1629. 'Theatrum Botanicum,' 1640. Had a garden in Long Acre, 'Theatrum,' 609. Pult. i. 138; Rees; Pritz. 240; Jacks. 589; Loudon, 'Arboretum,' 49, 53. Journ. Hort. xxviii. 1875, 493, with portr. Portr. by C. Switzer in 'Paradisus;' and one by W. Marshall in 'Theatrum,' re-engraved in Richardson's Illustr. to Granger. *Parkinsonia* L.

"PARKS, JOHN DAMPER (fl. 1823). Collector for Hort. Soc. in China and Java, 1823. Trans. Hort. Soc. v. 427.

"PARNELL, RICHARD (d. 1882): b. Devonshire; d. Edinburgh, 1882. Ichthyologist. M.D. F.R.S.E. Orig. Memb. Bot. Soc. Edinb., 1836. Lived in Jamaica, 1839. 'Grasses of Scotland,' 1842; 'Grasses of Britain,' 1845; both with figs. drawn and engraved by himself. Pritz. 241; Jacks. 589; Journ. Bot. 1883, 30; R. S. C. iv. 763. Herbarium of grasses at Linn. Soc. *Poa Parnellii* Bab.

"PARRY, CHARLES CHRISTOPHER (1823–1890): b. Admington, Worcestershire, Aug. 28, 1823; d. Davenport, Iowa, Feb. 20, 1890. Went to America, 1832. M.D. Botanical explorer and collector. On Mexican Boundary Survey, 1850; in Rocky Mountains, 1861. Botanist to Agric. Dept. Washington, 1869–71. 'Chorizanthe,' 1884, 1889, and various bot. papers. Friend of Torrey and Gray. Herb. at Davenport Acad. Nat. Sciences. Jacks. 589; R. S. C. iv. 767; viii. 565; 'Garden and Forest,' iii. 120; Bull. Torrey Bot. Club, March, 1890. *Pinus Parryana* Engelm.

"PATTON, GEORGE (1803–1869); b. 1803; d. Glenalmond, Perth, Sept. 30, 1869. Lord Justice Clerk

of Scotland,'1867, as 'Lord Glenalmond. Chairman Oregon Bot. Assoc. Introduced *Cupressus Lawsoniana* and *Abies Pattoniana*. Gard. Chron. 1869, 1043.

"PAXTON, SIR JOSEPH (1803–1865); b. Milton Bryant, Beds., Aug. 3, 1803; d. Sydenham, June 8, 1865. F.L.S., 1833. Foreman, Chiswick Arboretum, 1824. Superintendent, Chatsworth, 1826. 'Magazine of Bot.,' 1834. Travelled through S. Europe and Levant, 1838. 'Pocket Bot. Dictionary,' 1840; Knighted, 1851. M.P. for Coventry, 1854. Pritz 242; Jacks. 590; Proc. Linn. Soc. 1865–6, lxxxi. Gard. Chron. 1865, 554; Journ. Hort. viii. (1865). 446, with portr.; and ix. 12. Journ. Bot. 1865, 231. *Paxtonia* Lindl.

"PEARCE, RICHARD (d. 1868): d. Panama, July 19 1868. Of Stoke, Devonport. Collector for Messrs. Veitch and Bull. Plants at Kew and Brit. Mus. Journ. Bot. 1868, 320; Gard. Chron. 1868, 874, 893 Journ. Hort. xv. (1868), 134. *Stemonacanthus Pearcei* Hook. f.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Accumulated. Above (+) or below (—) the Mean for the week ending May 17.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg	Day-deg	Day-deg.	Day-deg.	10ths Inch.		In.		
1	2 +	45	0	+ 111 — 70		2 +	96	18.9	26	27
2	2 +	55	0	+ 62 — 60		6 +	81	11.0	28	29
3	2 +	67	0	+ 34 — 93		3 +	70	7.7	32	27
4	1 +	78	0	+ 13 — 38		3 —	75	8.2	45	34
5	1 +	72	0	+ 13 — 27		2 +	70	8.0	40	29
6	2 +	86	0	+ 22 — 68		1 —	71	9.6	52	31
7	2 +	62	0	+ 70 — 74		13 +	85	18.1	36	30
8	0 av.	63	0	+ 49 — 81		6 +	80	11.4	31	28
9	0 av.	69	0	+ 16 + 12		1 +	81	13.7	46	34
10	1 —	53	0	+ 15 — 54		1 +	90	11.4	37	30
11	2 —	53	0	+ 7 — 14		5 +	91	17.0	34	33
12	1 +	80	0	+ 105 — 22		3 +	85	11.0	67	41

The districts indicated by number in the first column are the following :—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 17, is furnished from the Meteorological Office :—

"The *weather* has been generally fair over the more south-eastern parts of the kingdom, but unsettled and rainy in the west and north. Thunderstorms were experienced in many parts of England and the Channel on the 11th and 12th.

"The *temperature* has been a little below the mean over Ireland, while in 'England, S.W.,' and 'N.W.,' it has just equalled the normal; in all other parts of the country a slight excess is shown. The highest of the maxima, which were registered on rather irregular dates, ranged from 61° in 'Ireland, S.,' to 68° in 'England, S.W.,' and to 70° over southern, midland, and eastern parts of England. The lowest of the minima were recorded in most places on the 15th, and varied from 34° in 'Ireland, N.,' and from 36° in 'Scotland, N. and E.,' 'Ireland, S.,' and 'England, S.W.,' to 41° in 'England, S.,' and to 44° in the Channel Islands.

The *rainfall* has been less than the mean in the south and east of England, but more than the mean in all other districts—especially in the north-west and north.

"*Bright sunshine* has been more prevalent than it was last week in most districts, the percentage of the possible duration having ranged from 26 in 'Scotland, N.,' and 28 in 'Scotland, E.,' to 52 in 'England, S.,' and to 67 in the Channel Islands."

MARKETS.

COVENT GARDEN, May 22.

[We cannot accept any editorial responsibility for the subjoined reports, which, however, are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations represent averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and they fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the particular prices at any particular date, and still less can they be taken as guides to the prices in the coming week. ED.]

Large supplies of indoor fruit to hand. Prices lower, Grapes especially meeting with a very dull trade. Business generally steady. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Apples, ½-sieve	1 6–	7 0
— Nova Scotia, brl.	12 0–	25 0
— Tasmanian, case	15 0–	20 0
Grapes, lb.	2 0–	4 0
Lemons, per case	12 0–	20 0
Melons, each	2 0–	5 0
Peaches, dozen,	6 0–	20 0
Pine-apples, St. Michael, each	2 0–	6 0
Strawberries, lb.	2 0–	6 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.
Asparagus, English, per 100	12 0–	
Beans, French, lb.	2 0–	
Beet, red, per dozen	1 2 0	
Carrots, per bunch	0 6–	
Cauliflowers, each	0 3–	
Celery, per bundle	1 6–	2 0
Cucumbers, each	1 0–	1 6
Endive, per dozen	2 0–	
Herbs, per bunch	0 4–	
Leeks, per bunch	0 3–	
Lettuces, per dozen	1 6–	
Mushrooms, punnet	1 6–	
Mustard and Cress, punnet	0 4–	
Onions, per bunch	0 5–	
Parsley, per bunch	0 6–	
Rhubarb, per bundle	0 6–	
Seakale, punnet	2 0–	
Shallots, per lb.	0 6–	
Spinach, per bushel	6 0–	
Sprue, per bundle	1 6–	
Brussel Sprouts, per lb.	0 3–	
Tomatos, per lb.	1 0–	
Turnips, per bunch, new	0 4–	

POTATOS.—Jersey arrivals fast increasing, prices having made a drop 16s. to 20s. per cwt.; ruling prices with a further probable decline of 2s. Maltas, down 14s. to 20s.; Canaries, 12s. to 16s.; Lisbons, 10s. 6d. to 12s. 6d.; Scilly Isles, 16s. to 18s.; Cornish (mainland) commencenext week. Old Potato stock gradually being reduced. Best samples maintain late prices. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0–	18 0
Arum Lilies, per doz.	8 0–	12 0
Aspidistria, doz.	18 0–	42 0
— specl. plants, each	7 6–	10 6
Azaleas, various, each	3 0–	3 0
Begonias, per doz.	6 0–	18 0
Cactus, per doz.	12 0–	24 0
Calceolaria, p. doz.	6 0–	12 0
Cineraria, per doz.	6 0–	10 0
Cyperus, per dozen	4 0–	12 0
Dielytra, per doz.	9 0–	12 0
Dracæna terminalis, per dozen	30 0–	60 0
— viridis, per doz.	12 0–	24 0
Erica Cavendishii, per dozen	18 0–	48 0
— ventricosa, doz.	15 0–	24 0
Euonymus, in var., per dozen	6 0–	18 0
Evergreens, in var., per dozen	6 0–	24 0
Ericas, various, doz.	8 0–	24 0
Ferns, in var., doz.	4 0–	18 0
Foliage plants, various, each	2 0–	10 0
Ficus elastica, each	1 6–	7 0
Fuchsia, per doz.	6 0–	12 0
Genista, per doz.	8 0–	12 0
Heliotrope, per doz.	6 0–	9 0
Hydrangeas, doz.	12 0–	18 0
Ivy Geranium, p. doz.	3 0–	6 0
Liliums, various, per dozen	18 0–	36 0
Lily of the Valley, p. doz. pots	12 0–	18 0
Lobelia, per doz.	4 0–	6 0
Marguerites, doz.	8 0–	12 0
Mignonette, per doz.	5 0–	9 0
Musk, per dozen	4 0–	6 0
Nasturtiums, p. doz.	4 0–	6 0
Palms in var., each	2 6–	21 0
Pelargoniums, scarlet, per dozen	6 0–	8 0
— per doz.	12 0–	24 0
Petunias, per doz.	6 0–	9 0
Roses, various, doz.	12 0–	24 0
— (Fairy), per doz.	8 0–	10 0
Saxifrages, per doz.	18 0–	24 0
Solanums, per dozen	6 0–	12 0
Tulips, doz. pots	6 0–	9 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Abutilons, 12 bun.	2 0–	4 0
Azaleas, doz. sprays	0 6–	1 0
Bluebells, doz. bun.	1 0–	2 0
Bouvardias, per bun.	0 8–	1 0
Callæthiopica, 12 bl.	3 0–	5 0
Carnations, 12 blms.	1 0–	2 0
Cowslips, doz. bun.	1 0–	1 6
Eucharis, per dozen	4 0–	6 0
Gardenias, 12 blooms	1 6–	4 0
Iris, various, 12 bun.	6 0–	18 0
Heliotropes, 12 spr.	0 6–	1 0
Lilac, white, Fr., bun.	4 0–	6 0
Lilium, var., 12 bl.	2 0–	6 0
Lily of the Valley, per doz. bunches	8 0–	12 0
Maiden Hair Fern, do	4 0–	9 0
Mignonette, 12 bun.	2 0–	4 0
— French, per bun.	1 6–	2 0
Narcissus, various, doz. bun.	1 6–	6 0
Marguerites, 12 bun.	3 0–	6 0
Pelargoniums, scarlet, 12 spr.	0 4–	0 6
— dozen sprays	0 9–	1 0
Primroses, 12 bun.	0 6–	0 9
Primulas, double, 12 sprays	1 0–	1 6
Roses, Tea, per doz.	0 6–	1 6
— coloured, dozen	2 0–	4 0
— French, doz.	1 0–	2 0
— red, per dozen	2 0–	4 0
— Safrano, dozen	1 0–	2 0
Ranunculus, 12 bun.	3 0–	4 0
Spirea, doz. sprays	0 6–	1 0
Stephanotis, 12 spr.	2 0–	4 0
Tuberoses, 12 bunches	1 0–	2 0
Tulips, doz. bunches	3 0–	6 0
Violets, French, bun.	1 0–	2 0
— Parma, bunch	3 0–	5 0
Wallflowers, 12 bun.	2 0–	4 0

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *May* 21.— Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that to-day's market presented quite a holiday appearance. Clover seeds all round are neglected, but a few speculative sales are noted of Trefoil. The sowing demand for Tares still continues. Canary seed maintains its advance of several shillings per quarter. Lower prices are taken for Hempseed. Choice blue Peas have become extremely scarce. Feeding Linseed is dull.

CORN.

Averages.— Official statement of the average prices of British corn, imperial measure, for the week ending May 17 : — Wheat, 32s. 6d.; Barley, 27s. 7d.; Oats, 19s. 3d. For the corresponding period last year :—Wheat, 29s. 11d.; Barley, 22s. 10d.; Oats, 18s. 1d.

FRUIT AND VEGETABLES.

SPITALFIELDS: *May* 21.—Good supplies of all kinds of farm and market garden produce. Demand fair Short supply of fruit. Demand very good. Prices as under :—Foreign Tomatos, 2s. to 3s. per box; forced Rhubarb, 1s. to 1s. 6d. per dozen bundles; natural do., 1s. 6d. to 2s. 9d. do.; Asparagus, 1s. 6d. to 2s. 6d. per bundle of 100 heads; Seakale, 1s. 3d. to 1s. 9d. per punnet; Cabbages, 1s. 6d. to 2s. 6d. per tally; Cauliflowers, 2s. 6d. to 4s. do.; Radishes, 3s. to 4s. 6d. do.; Spinach, 1s. to 1s. 3d. per bushel; Beetroots, 6d. to 9d. per dozen; frame Cucumbers, 1s. 3d. to 2s. 6d. do.; natural ditto, 1s. to 1s. 6d. do.; Horseradish, 1s. 2d. to 1s. 4d. per bundle; Parsley, 1s. 6d. to 2s. per dozen bunches; Mint, 1s. 6d. to 2s. do.; Greens, 1s. 6d. to 3s. do.; Endive, 1s. 3d. to 1s. 6d. per dozen; Cos Lettuces, 1s. 9d. to 2s. 6d. per score; Cabbage do., 1s. to 1s. 3d. per dozen; spring Onions, 1s. 6d. to 2s. per dozen bunches; Mustard and Cress, 1s. 3d. to 1s. 9d. per dozen baskets; Egyptian Onions, 7s. to 8s. per cwt.; Carrots, 10s. to 35s. per ton.

STRATFORD: *May* 21.—The supply has been good during the past week, and a fair trade done at the undermentioned prices :—Cabbages, 2s. to 4s. per tally; Greens, 4s. to 7s. 6d. do.; Cauliflowers, 1s. to 2s. per dozen; Carrots (household), 40s. to 60s. per ton; do. (cattle feeding), 10s. to 14s. do.; Mangels, 10s. to 17s. do.; Onions, Egyptian, 6s. to 8s. 6d. per cwt.; Watercress, 4d. to 8d. per dozen; Onions, 2s. to 2s. 6d. per dozen bundles; Lettuce, 8d. to 1s. 4d. per score.

POTATOS.

BOROUGH AND SPITALFIELDS : *May* 20.—Regents, 35s. to 45s.; Magnums, black, 37s. to 50s.; Lincolns, 50s. to 68s.; Yorks, 55s. to 80s.; Kent and Essex, 50s. to 60s.; Scotch, 80s. to 110s.; Imperators, 40s. to 70s.; New : Malta and Canary Islands, £14 to £18; Jersey, £18 per ton.

SPITALFIELDS: *May* 21. — Quotations : — New : Jersey Kidneys, 20s. to 22s. per cwt.; Lisbon Rounds, 12s. to 14s. do.; Old : Hebrons, 30s. to 40s.; Imperators, 35s. to 70s.; Champions, 30s. to 40s.; Regents, 30s. to 60s.; Magnums, 30s. to 70s. per ton.

STRATFORD: *May* 21.—Quotations : — Magnums, light, 40s. to 60s.; do., dark, 35s. to 45s.; Imperators, 40s. to 60s.; Scotch Magnums, 50s. to 75s.; do., Bruce, 65s. to 85s. per ton.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week :—Clover, prime, 75s. to 92s.; inferior do., 46s. to 75s.; hay, best, 60s. to 87s.; inferior do., 26s. to 50s.; and straw, 20s. to 38s. per load.

NOTICES TO CORRESPONDENTS.

*** **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

BROCCOLI : *J. H.* The new variety you sent for our inspection has a well-protected, white, round head,

of delicate flavour when cooked. The total height of the plant was only 18 inches, and actual length of stem above-ground less than 6 inches. It is an acquisition.

Ivy-leaved Pelargonium: *Buz.* It is a case of the growth of the buds being arrested, probably by cold or too much water at the root. The variety is more susceptible to injury from those causes than the others you cultivate.

Names of Plants: *J. Sykosa.* 1, Polypodium trifurcatum; 2, Hymenophyllum axillare; 3, H. fucoides; 4, Asplenium furcatum; 5, Polypodium glaucophyllum; 6, Alsophila latevagans, Baker.—*F. B. D.* Paullinia thalictroides; stove plant.—*Gurteen.* Clematis montana. — *F. D.* Ophrys muscifera. — *Llandaff.* 1, Dodecatheon Meadia; 2, Spiræa Ulmaria (golden leaved form); 3, Ranunculus acris, double; 4, Pulmonaria officinalis; 5, Campanula glomerata; 6, Saxifraga granulata, double flower,—*J. W. K.* Iris gramineus (was overlooked last week).—*Stansted.* 1, Cytisus albus; 2, Saxifraga granulata, double; 3, Diplopappus chrysophyllus; 4, Acalypha tricolor; 5, Orchid.—*A. B.* 1, Veronica gentianoides; 2, V. serpyllifolia; 3, Lamium Galeobdolon; 4, Anchusa italica.—*J. P. S.* 1, Witsenia corymbosa; 2 (labelled 3), Ophiopogon Jaburan; 3, Lavatera arborea variegata; 4, Chorozema ilicifolia; 5, Spiræa Thunbergia; 6, Erinus alpinus.—*J. B.* 1, Ribes aureum; 2, Doronicum plantagineum; 3, Asphodelus luteus; 4, Geranium, sp. not recognised; 5, Geranium pratense, pale-flowered form; 6, Veronica gentianoides. *T. B.* Picea (or Abies) Morinda, *not* Larix Kæmpferi: white Scilla very fine.—*A. W.* 1, Retinospora pisifera var. plumosa; 2, Cupressus Lawsoniana; 3, Thuia plicata; 4, Retinospora obtusa; 5, Meconopsis cambrica.—*G. S. S.* 1, Lychnis diurna, double; 2, Saxifraga muscoides purpurea; 3, S. muscoides; 4, Saxifrage, no leaf sent; 5, Primula japonica; 6, Iberis coriifolia; 7, Ceanothus azureus.—*S. A.* Polygonum lapathifolium.—*E. C. W.* 1, Alnus cordata; 2, Spiræa prunifolia; 3, Choisya ternata.—*J. M.* 1, Eupatorium probum; 2, Kerrya japonica fl.-pl.; 3, Spiræa prunifolia; 4, Spiræa confusa; 5, Ribes aureum; 6, Forsythia viridissima.—*W. H. H.* 1, Vaccinium myrtillus; 2, Gaultheria Shallon; 3, Acer campestre, common Maple. Next time address such a question to the Editor.—*J. M. P.* The Jew's Ear fungus, Herneola Auricula Judie.—*E. D. L.* 1, Rhamnus alpinus; 2, Fraxinus ornus; 3, Berberis Wallichiana; 4, the Quince, Cydonia vulgaris; 5, Eurybia?—next week; 6, Acæna millefolia.—*F. G.* 1, Berberis vulgaris var. atropurpurea; 2, Styrax europæa; 3, Berberis vulgaris; 4, Laurus sassafras; 5, Cytisus scoparius var.—*E. Richards.* Pittosporum undulatum.

Books: *T. Enus.* Forcing Vegetables: *The Forcing Garden*, Samuel Wood; published by Crosby, Lockwood & Co., Stationers' Hall Court, London, E.C.—*Garden Manuring: A Treatise on Manures, or, the Philosophy of Manuring*, A. B. Griffiths, Ph.D., F.R.S., Edin., &c.; published by Whittaker & Co., 2, White Hart Street, Paternoster Square, London, E.C.

Tomatos and Melon Leaves: *G. R. T., Shapley* The leaves are free from disease, and there is no fungus or animal life seen upon them: their unsatisfactory state is owing to some improper condition of culture.

CATALOGUES RECEIVED.

J. Veitch & Sons, Royal Exotic Nursery, 544, King's Road, Chelsea, S.W.—Plants and Novelties for 1890.

John Laing & Sons, Forest Hill, London, S.E. - Plants, Novelties, &c.

John Forbes, Hawick, N.B. Florists' Flowers.

Yokohama Gardeners' Association, 21 to 28, Nakamura, Yokohama, Japan Plants, Trees, Seeds, and Bulbs.

Communications Received.—D. T. B.; Ashford.—W. C. & S.—Dammann & Co.—J. S. J.—E. R. C.—M. Rothschild, Paris (with many thanks).—W. B.—Professor Oudemans, Amsterdam.—Sutton & Sons.—M. Thomayer, Prague.—A. S. M.—John Davies (sorry we cannot help you).—W. D.—G. W. W.—H. D.—W. Bull.—J. H. M.—H. H. D.—W. H.—A. E. R. A. R.—P. L. S.—W. S.—G. G. J.—D.—W. W.—A. D. W.—J. S.—E. M.—H. W. W.—C. Harvey.—W. N. R. D.—J. H. C.—J. Mackinnon.—A. D.

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GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d. BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth, 1s. 6d.; Paper, 1s. per lb. Special Manures, Peat Moss Litter, Crushed Bones, Virgin Cork, Sheet Sphagnum, Charcoal, Mushroom Spawn, and Russia Mats.
GARDEN NETTING, 2 yards wide, 1½d., or 100 yards, 10s.; 4 yards wide, 3d., or 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3d.; 2 yard, 6d. per yard. TIFFANY, 38 in. wide, in 20 yard pieces, 6d. per piece.
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PROTECTION for FRUIT and FLOWERS.
GARDEN NETTING, 2 yards wide, 1½d., or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s.
SCRIM CANVAS, 1 yard wide, 3d., and 2 yards, 6d. per yard.
TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece.

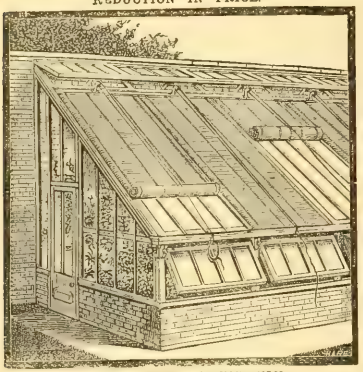
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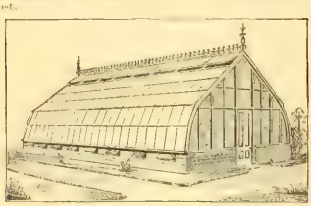
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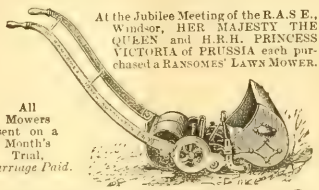
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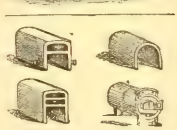
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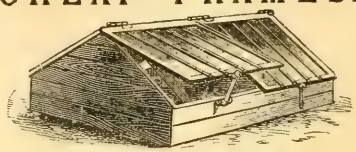
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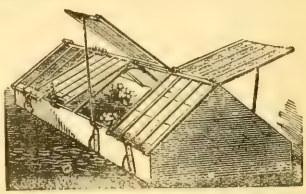
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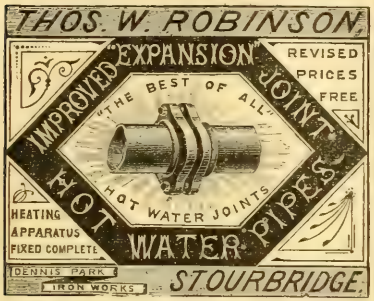
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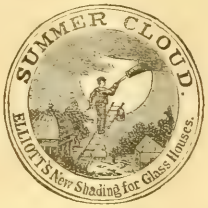
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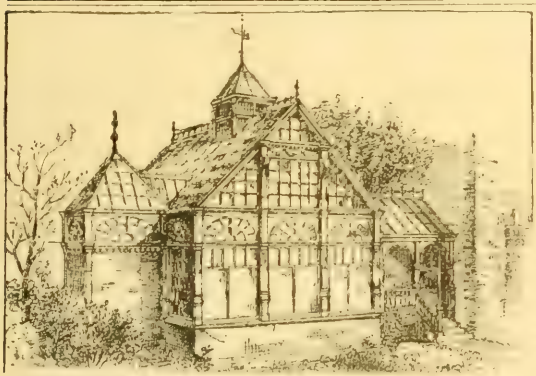
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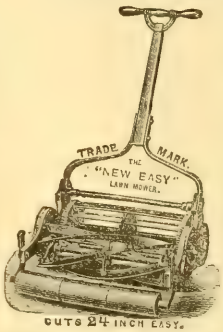
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11	,,	..	0	6	6	22	,,	..	0	12	0
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WANTED, a GARDENER; some help given. Conservatory, small Hot-house (no vines), Kitchen and small Flower Garden.—Write, stating wages, to Miss F., Larchwood, Horley.

WANTED, a GARDENER, to go to the West Indies—an energetic man of about 30, accustomed to the Cultivation of Palms and Tropical Plants for Market. A married man and a total abstainer preferred.—Apply, stating previous experience and salary required, to M. C. L., W. H. SMITH AND SON, Birmingham.

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GARDENER (Head Working); age 34, married.—A Gentleman wishes to recommend his late Head Working Gardener, who has left through establishment being broken up. Three years' character. Eighteen years' experience in all branches of Horticulture.—B. STRANGE, Wote Street, Basingstoke.

GARDENER (Head Working); age 28.—Mr. T. Spencer, Head Gardener to H. C. Moffatt, Esq., Goodrich Court, Ross, would be pleased to recommend his Foreman, William Baigent, to any Lady or Gentleman requiring a man as above. Has had good experience in Early and Late Forcing, Vines, Peaches, Cucumbers, and Melons, Stove and Greenhouse Plants. Good knowledge of Orchids.

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GARDENER (Second), Inside; age 21.—Mr. A. Blacker, Gardener to the Right Hon. Earl Stanhope, Revesby Abbey, Boston, will highly recommend Thomas Coggan, who has been with him two years.

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TO SEEDSMEN and NURSERYMEN.—An elderly person, who can Correspond and Invoice well, seeks employment in a Seed Warehouse or Nursery. Thoroughly practical, and would be willing to accept small remuneration. F. F., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO FLORISTS.—Advertiser (age 24) seeks a situation in Floral Business. Well up in Making Bouquets, Wreaths, &c., and all kinds of Floral Decoration.—R. B., 11, Wellington Street, Strand, W.C.

FLORIST.—Wanted, a situation by a young Lady, well up in Wreaths, Crosses, Bouquets, Sprays, Button Holes, and other Floral Designs. Five years in last situation. Good reference.—Miss C., 5, Tressellian Terrace, Penarth Road, Cardiff.

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No Cost for Motive Power, which is obtained from the Stream of Water passing through the Ram.

NO OILING OR PACKING REQUIRED.

MADE IN SIZES TO RAISE FROM 300 TO 200,000 GALLONS PER DAY. WILL FORCE TO A HEIGHT OF 1500 FEET.
SPECIAL RAMS for HIGH FALLS to send up to Two Gallons out of every Five Gallons passing through them.



Fig. A.
This Ram raises a portion of the same water that works it.



This View represents Fig. A Ram forcing up a part of the same water that works it, which is supplied from a spring. Special Rams of A make can be supplied to force to a height of 800 feet.



Fig. B.
This Ram, whilst worked by a stream of impure wate , will pump clean water from a well or spring.

TESTIMONIALS.

From Mr. THOMAS VARLEY, Agent to the Trustees of the late William Roundell, Esq., Gledstone Estate, West Marton, Skipton, August 11, 1887.

"Dear Sir,—The Patent Hydraulic Ram you fixed five years ago on this estate is still working as well as it did on the day it started. It is driven by spring water carried along the hillside in 950 yards of iron pipe, and forces up an abundant supply to an underground tank on the hill at a distance of two miles from, and at an elevation of 280 feet above the Ram. The water is then gravitated through several pipes and branches, having a total length of about four miles, for the supply of the mansion, gardens, stables, estate workshop, and steam boiler, the village of West Marton, and several farms. There are five fire-plugs inside the mansion, and seven outside; and as the underground reservoir is 70 feet above the mansion, seven jets of water can be thrown over the house in case of fire. As there is still a considerable overflow from the underground reservoir running to waste, I intend to form a second reservoir at a lower level, and utilize the water for other farms. I have much pleasure in being able to report as above."

From C. PAGE WOOD, Esq., Wakes Hall, Wakes Colne, Essex, January 11, 1889.

"Sir,—In reply to your inquiry, the Hydraulic Ram you put down for me in 1884 has cost me only sixpence in repairs (for a new stud my blacksmith made); the second Ram you put down to supply an off-hand farm, has been running three years, and has cost not a penny for repairs; the third and largest Ram you put down two months ago, which is for the supply of water to my neighbours, is running satisfactorily. All three Rams throw up more water than you guaranteed. From inquiries I have made from friends who have Rams of other makers, I am convinced of the superiority of yours, and my third order is a proof of my good opinion. My abundant water supply is the greatest possible comfort to me. "Yours faithfully,
"C. PAGE WOOD."

From MATTHIAS SMITH, Esq., Hill Top Hall, Pannal, near Leeds, January 14, 1889.

"Dear Sir,—I have great pleasure in bearing testimony to the marvellous efficiency of the Ram you fixed here in January, 1888. It is worked by spring water of irregular volume, the dry-weather flow being 6 pints per minute, with which quantity you promised to work the Ram, forcing through 330 yards of delivery pipe to an elevation of fully 144 feet, but out of 5¼ pints per minute, 166 gallons per day are sent up; and out of 2 gallons per minute now flowing through the Ram, 540 gallons per day are delivered at the same height. Considering the extremely small quantity of driving water, I certainly did not expect so grand a result. With every wish that you may get the reward you deserve,—I am, dear Sir, yours faithfully,
"MATTHIAS SMITH."

From Mr. HENRY ROBINSON, Engineer to the Stockport District Waterworks Company, September 8, 1883.

"Dear Sir,—I can now report well of the two Hydraulic Rams we have fixed to your instructions for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 68 feet, but on testing them I am convinced that 50,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equal to half the capacity of the 6-*inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found.*"

From J. A. RUTHERFORD, Agent to C. F. H. Bolckow, Esq., Estate Office, Marton Hall, Middlesbrough, September 26, 1883.

"Dear Sir,—I am glad to say that the Rams you put down on the Hambleden Estate for Mr. C. F. H. Bolckow are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a day, and with enough water to work the Rams at full power, 2000 gallons a day. With a supply of 11½ gallons per minute they are lifting 2200 gallons, and when working full power 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start, and have gone well since." (The delivery pipe in the above case is 9000 feet in length.)

From CAPTAIN TOWNSEND, Wineham, February 10, 1877.

"In answer to your inquiry I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long, at the rate of 80,000 gallons per day, although you only promised 50,000."

JOHN BLAKE, HYDRAULIC ENGINEER, ACCRINGTON, LANCASHIRE.

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THE GARDENERS' CHRONICLE, Vol. VI., Third Series, JULY to DEC., 1889.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

TRENTHAM HORTICULTURAL SOCIETY.
GREAT FRUIT and ROSE SHOW, will be held in Trentham Gardens on JULY 3 instead of July 10 as previously arranged. Upwards of EIGHTY POUNDS is given in PRIZES for Cut Roses. Collections of Fruit, nine varieties, 1st, £8, and special value £5; 2nd, £6; 3rd, £4. Six varieties, £4, £2, and £1. PRIZES amounting to nearly TWO HUNDRED AND FIFTY POUNDS will be given. Schedules now ready, post free, on application to—
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WANTED, Rooted Cuttings of EUPHORBIA JACQUINIÆFLORA. Price per 100, for cash, to W. GOLBY, Edgend Nursery, Briercliffe, near Burnley.

POULTRY.—WANTED PULLETS hatched last February, early Bantams, Brahmas, or Houdans. Write, giving price.
STEAVENSON, Pyrford, near Woking.

Sow in June.
SUTTON'S PRIZE GLOXINIA.—This is the strain so much admired by Her Majesty the Queen at the Windsor Show last year. The *Morning Post* of June 29, 1889, said:—"Mr. Sutton had the honour of presenting the Queen with a splendid bouquet of Gloxinias grown at the seed grounds of the firm at Reading." Price of seed, 2s. 6d. and 5s. per packet, post-free.
Sutton's Seeds Genuine only Direct from
SUTTON AND SONS, The Queen's Seedsmen, READING.

"HOOPER, Covent Garden.—The Flower and Fruit Commission Department formerly carried on by Hooper & Co. (Limited), is no longer conducted by them, but is entirely in the hands of Mr. C. B. HOOPER, who is responsible for it.—Address, C. B. HOOPER, Covent Garden, London."

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.
J. J. CLARK, Goldstone Farm, Brighton.

BEGONIAS, extra choice, for bedding, Single, 4s., 5s., and 6s. per dozen; Double, 9s. and 12s., very effective. Cheaper by the 100. For Pots from 6s. See the best CATALOGUE published, free.
CALCEOLARIAS, Golden Gem, 5s. to 7s. per 100.
LOBELIAS, 2s. 6d. to 3s. 6d. per 100.
Both extra strong.
B. R. DAVIS, Begonia Grower, Yeovil Nurseries, Yeovil.

Special Trade Offer.
DOUBLE WHITE PRIMULA. Strong Plants in 60's, £12 10s. per 1000, 3s. per 100.—C. B. MANSFIELD, Lysonen Gardens, near St. Clears.

CHOICE DAHLIAS, 12 New Cactus Dahlias, including Prince of Wales, Prince Albert Victor, Lady Brassey, Lady Marsham, Black Knight, Our Leader, for 6s.; also 100 of the best exhibition sorts of Show, Fancy, Pompons, and Singles, true to name, from 3 inch pots, sample dozen for 2s. 6d. Packing free for cash with order.
CHARLES COLEBROOK, Royal Nurseries, Grimsby.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."
First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser, G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

FOR SALE, Large Collection of Established ORCHIDS, choice and fine plants; many varieties of Cattleyas, Cypripediums, Odontoglossums, Cœlogynes, Calanthes, &c., &c. Also large, varied, and well selected Collection of STOVE and GREENHOUSE PLANTS. Lots to suit purchasers. The property of a Lady giving up her houses.
To view, and for particulars, apply by letter to J. H. VARTY, Moseley Court Gardens, near Wolverhampton.

DAHLIAS—DAHLIAS.—Several Thousand strong Plants in pots, including Show, Fancy, Single, and Cactus. 12s. per 100. Cash with order.
HOWARD, Cambridge Nursery, Walthamstow.

BOUVARDIAS.—Well-rooted Cuttings of Pres. Cleveland, new scarlet, 12s. 6d. per 100; ARUMS, from 60's, 12s. 6d. per 100; ADIANTUM CUNEATUM, good stuff, in 5 inch pots, 9s. per dozen, 60s. per 100; packing free for cash.
CRANE AND CLARKE, The Nurseries, March, Cambs.

To the Trade.
ELEPHANT and MONARCH SWEDES.—We have a good stock of these splendid sorts at moderate prices.—HARRISON AND SONS, Seed Growers, Leicester.

SPECIAL OFFER.—Forty Bushels of fine selected Drummond's Purple-top SWEDE, grown from selected bulbs, 13s. per bushel, cash.
J. S. SMITH, Brompton, Hunts.

THOMSON'S IMPROVED VINE and PLANT MANURE. This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt., and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Tuesday Next.- Orchids in Flower.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, June 3, at half-past 12 o'Clock, a large number of ORCHIDS in FLOWER, from various collections, also a quantity of imported PHALÆNOPSIS, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday Next.

IMPORTED PHALÆNOPSIS. Direct Consignment for UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will include in their Sale of ORCHIDS on TUESDAY NEXT, June 3, a fine importation of PHALÆNOPSIS, just received in good condition, comprising 170 P. SCHILLERIANA, 130 P. AMABILIS; several supposed hybrids; PHALÆNOPSIS CARMINGII, SACCOLABIUM, HENDERSONIANUM, S. CŒLESTE, RENANTHERA LOWII, and other ORCHIDS. The whole collected and sent home by Mr. C. Roebelen, for Sale without reserve; also a small importation of DENDROBIUM DENSIFLORUM, SAUVISSIMUM, &c.

On view morning of Sale, and Catalogues had.

Friday Next.

Important to Orchid Fanciers and Others.

The unique and singularly beautiful COLLECTION of Life-size WATER-COLOUR DRAWINGS of ORCHIDS, by Durham, comprising 286 Drawings in 22 handsomely bound volumes, formed by the late John Day, Esq., of Tottenham, and painted specially for him at great cost, the whole forming undoubtedly the most valuable Collection of Orchid Paintings extant.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions to SELL the ABOVE VALUABLE COLLECTION by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 6, 1890, at 2 o'Clock precisely, in one lot.

May be viewed at the Auctioneers' Offices two days prior to the Sale, or at any previous time by appointment. Descriptive Catalogues are now ready, and will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander, of St. Albans, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 6, at half-past 12 o'Clock, a large quantity of Imported and Established Plants.

CATTLEYA GIGAS IMPERIALIS.

A few grand masses of this most lovely Cattleya, with numerous bulbs and leads. There are only a few such pieces, but they are exceptionally fine, and will shortly be grand specimens. We have flowered a plant from the same importation, and we can recommend the variety as being the very best. Also a few sturdy plants with large sound bulbs and eyes; the leads, which are coming away, show exceptional vigour.

A very choice collection of Established Plants will also be sold, including PHAIUS HUMBLOTII and P. TUBERCULOSUS—two of the choicest Orchids of the day; CŒLOGYNE DAYANA (true); CALANTHE VESTITA OCULATA GIGANTEA, now in flower; Dendrobium Dearei—the beautiful pure white flowering Dendrobe; Aerides Sanderiana, recently exhibited at the Temple Show; Cattleya Mendelii, good healthy plants, mostly unflowered; Odontoglossum crispum, unflowered plants in best condition. Also some plants of the lovely Odontoglossum citrosmum, which has long, pendulous spikes of sweetly-scented flowers; some healthy plants of CYPRIPEDIUM ELLIOTTIANUM, C. CURTISII, new and very fine; C. Sanderianum, with long-tailed flowers; Phalænopsis Schilleriana, some grand well-growing plants.

CATTLEYA TRIANÆ.

The only few remaining plants from our recent importation; the plants are strong and healthy, and are furnished with good eyes. We import C. Trianæ from the very best district, and some grand forms may confidently be looked for from these plants.

DENDROBIUM FORMOSUM GIGANTEUM.

A batch of imported plants, with large bulbs, and sound eyes; these plants are exceptionally fine, and, after being potted and put in heat for a few weeks, numerous leads will push their way up. The flowers of this variety are the largest of all the family, in colour pure white, with a large blotch of rich orange on the frontal portion of the lip. The flowers are much used for cutting purposes, as they remain a long time in perfection.

CATTLEYA MOSSIÆ. Immense Masses.

We have just received the finest importation of Cattleya Mossiæ that has arrived for many years. Each mass has a hundred or more stout bulbs, and many of them are furnished with fine green leaves. These grand masses come from the district whence were imported the magnificent dark-lipped varieties of a few years ago. Cattleya Mossiæ is certainly one of the finest of all the Cattleyas, having large, rich, rosy sepals and petals, and a huge lip heavily marked with yellow, purple, and crimson. We recommend the plants to the buyers as some of the finest ever seen.

ODONTOGLOSSUM HYSTRIX.

A very fine importation of this lovely Odontoglot, O. hystrix, is one of the very best of all the Odontoglots. It is free growing, and produces flower-spikes several feet in length when well grown. The flowers are very large and handsome.

ONCIDIUM ROGERSII.

A fine importation, in the finest possible condition, with strong bulbs and fine leaves.

ONCIDIUM CRISPUM.

A magnificent lot of plants, with rich sturdy bulbs and fine leaves. The old flower spikes which are on these plants show of what an exceptional quality they are, the stems being very stout, and the old flower seats numerous.

DENDROBIUM BARBATULUM.

A good lot of plants of this charming Dendrobe, easy to grow and very free flowering.

On view morning of Sale, and Catalogues had.

Stamford Hill.

40,000 GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Stamford Hill Nursery, Amhurst Park, N., adjoining Stamford Hill Station, G.E.R., on SATURDAY NEXT, June 7, at 1 o'Clock, by order of Mr. W. J. Sampson, 40,000 well-grown GREENHOUSE and BEDDING PLANTS, including 10,000 Geraniums, 300 Large Tea-Roses in pots, 2000 Chrysanthemums of the best varieties, several valuable specimen Camellias, and other Stock.

May be viewed three days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

The Celebrated Studley House Collection
of ESTABLISHED ORCHIDS.
Absolutely without reserve.

HIGHLY IMPORTANT SALE of the FIRST PORTION of this renowned COLLECTION, the whole being remarkable for splendid culture and condition, and including a great proportion of plants matchless in point of rarity, by order of F. G. Tautz, Esq., who is compelled to relinquish their cultivation in consequence of a change of residence.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, June 24 and 25, at half-past 12 o'Clock precisely each day, the FIRST PORTION of this SUPERB COLLECTION. Amongst the many fine things contained in the Collection may be mentioned:-

Aerides Schroderi
,, Lawrenceanum
Arundina bambusæfolia
Angræcum Ellisii
,, chaltanum
Cattleya maxima superba
,, Gaskelliana alba
,, ,, albescens
,, Mendelii gloriosa
,, Fausta delicata
,, exoniensis
,, O'Brieni
,, Loddigesi candida (rare)
,, aurea (fine plants)
,, Lawrenceanum
,, Reineckiana
,, Trianæ Empress
,, ,, Tautziana
,, ,, Studleyana
,, ,, splendens
,, ,, eboracensis
,, ,, The Bride
,, ,, alba
,, ,, Dodgsoni
,, ,, Backhousiana
,, ,, operta
,, ,, varieties
,, Mendelii Wilsoni
,, ,, gloriosa
,, ,, conspicua
,, ,, Garnettii
,, ,, Wallisi
,, Percivalliana alba
,, porphyroglossa
,, Skinneri alba
,, labiata (autumn flowering)
,, gigas Normani
Cœlogyne Lowii
,, Dayanum
,, Sanderiana
,, cristata alba (grand)
,, Massangeana
,, Lemoniana
Cymbidium eburneum
,, Devonianum
,, Hookerianum
,, Parishii
Camarotis purpurea
Cypripedium Spicerianum nanum
,, grande
,, concinnum superbum
,, Amesianum
,, Crossianum Tautzianum
,, Measuresianum
,, Arthurianum
,, leucorrhodum
,, Morganæ
,, pluuerum
,, regale
,, Lathamianum
,, De Witt Smith
,, orphanum
,, porphyrochlamis
,, macropterum
,, concolor tongkinensis
,, Wallisii
,, Marshallianum (rare)
,, Schroderæ
,, vexillarium
,, Charles Canham
,, Leeanum superbum
,, pycnopterum (rare)
,, argus-Measuresi
,, hybridum
,, caudatum
,, Wallaertianum
,, Laforcadei
,, Parishii
,, Fairrieanum
,, porphyreum
,, Ainsworthii
,, cardinale
,, conchiferum
,, calurum
,, reticulatum (rare)
,, Winneanum
,, Tautzianum (rare)
,, tonsum superbum
,, trichrochilum
Cypripedium Mrs. Charles Canham (purple flowered)
,, ,, ,, yellow flowered
,, Boxerianum
,, Schlimii maxima
,, selligerum rubrum
,, ,, majus
,, caudatum giganteum
,, Druryi
,, Measurianum superbum
,, radiosum
,, Carrieri
,, Thibautianum
,, obscurum
,, Ashburtoniæ superbum
,, Euryole
,, Hornianum
,, dolor
,, tessellatum porphyreum
,, acis
,, Fraserii
,, calligare
,, porphrospilum
,, Lawrenceanum stenosemium
,, Brayanum
,, thetis
,, Fitchianum
,, Sandersianum
,, dilectum
,, Boxallii atratum
,, ,, (Studley House variety.)
,, insigne Tautzianum
,, germinyanum
,, Godefroyanum
,, politum
,, amandum
,, Masterianum
,, concinnum
,, Bonnyanum
,, Morganæ "Burfordiense"
,, Bartetii
,, sallieri Hyeanum
,, Peteri
,, insigne Hallianum
,, ,, Hors-marianum
,, villosum aureum (Studley House variety)
,, ,, alba marginata
,, Boxalli superbum
,, insigne Wallisii
,, ,, Wiottii
,, Nillsoni
,, insigne Cowleyanum
Dendrobium nobile album
,, ,, Cooksoni
,, ,, nobilius
,, ,, chrysodiscus
,, Schrœderianum
,, melanopthalmum
,, MacFarlanei
,, rhodostoma
,, Wardianum album
Epidendrum Wallisii
,, myrianthum album
,, Parkeri
Grammatophyllum Measureslana
,, Ellisii
Lælia albida sulphurea
,, anceps Williamsii
,, ,, alba
,, ,, Sanderiana
,, ,, Amesiana
,, ,, Protheroeana
,, ,, Schroderianum
,, ,, Schroderæ
,, ,, Veitchii
,, ,, Dawsoni
,, ,, Knowsiana
,, callistoglossa
,, autumnalis alba
,, purpurata Schroderæ
,, ,, Sunset
,, ,, Williamsii
,, elegans Studleyana
,, ,, prasiata
,, ,, Blenheimensis
,, ,, Morreniana
,, ,, Turneri

Continued on next column.

Continued from previous column.

Lælia elegans Measuresiana
,, Perrini nivea
Lycaste plana variety
,, Skinneri alba
,, Demmigsiana
Masdevallia luteo-oculata
,, Harryana
,, Backhousiana
Maxillaria Sanderiana
Nanodes maduse
Odontoglossum Alexandræ, in variety
,, Pescatorei melanocentrum
,, ,, Lehmanni
,, Andersonianum
,, cirrhosum Klabochorum
,, vexillarium superbum
,, ,, purpureum
,, ,, Measuresianum
,, ,, leucoglossum
,, nobile Cooksoni
,, ,, nobilius
,, elegans
Odontoglossum egregium
,, chirguensis
,, blepharicanthum
,, polyxanthum
,, Insleayi splendens
,, ,, ,, aurea
,, grande aureum
Oncidium macranthum Williamsiæ
Restrepia antennifera
Renanthera Storeyii
,, Lowii
Saccolabium giganteum album
Sobralia species
Sophronitis in variety
Schomburgkia carinata (Griesbach)
Sobralia Zantholeuca
Spathoglottis Kimballiana
Trichopilia suavis trilabella
,, ,, alba
,, crispa splendens
Vanda Parishii Marriottiana
,, suavis (Chatsworth var.)
,, ,, Lindeni

N.B.—The whole of the Plants will be submitted to the hammer, and in no case will any plant be sold privately. The Catalogue is now in course of preparation, and will be ready in a few days, when copies will be forwarded on application.

Brunswick Nursery, Tottenham.

Expiration of Lease. First Portion.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Muller to SELL by AUCTION, on the Premises, The Brunswick Nursery, Tottenham, N., close to the White Hart Lane Station, G.E.R., on THURSDAY, June 26, at 12 o'Clock, the erection of ten GREENHOUSES and ten PITS, with the Hot-water Piping, Boilers, and Brickwork; 120 moveable Lights; also a large quantity of Stove and Greenhouse Plants, Ferns, Chrysanthemums, Ampelopsis Veitchii, &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Brimsdown Nursery, Enfield Highway; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

To be Sold by Auction, without reserve.

The COLLECTION of ORCHIDS and GREENHOUSE PLANTS of the late George Firth, Esq., J.P., Manningham Thorpe, Toller Lane, Bradford.

No plant of any description will be sold previous to the Sale.

MESSRS. T. S. BEST AND HARRIS respectfully beg to give notice that they have received instructions from the Executors of George Firth, Esq., to SELL by AUCTION, on FRIDAY, June 6, 1890, the COLLECTION of GREENHOUSE PLANTS, amongst which will be found specimen plants of the following:—Rhododendron Veitchii, Duke of Edinburgh, Japonicum, Duchess of Connaught, Countess of Haddington, Amaryllis, Empress of India, Mrs. George Firth, George Firth, John Heal, and Mrs. W. Lee. Imantophyllums in great variety.

On TUESDAY and WEDNESDAY, June 10 and 11, 1890, the extremely valuable COLLECTION of ORCHIDS, which have been bought principally in flower, and which includes the following plants:-

Cattleya Gaskeliana, alba
,, Mendelii Firthii
,, mossiæ Chaptoneusis
,, ,, Reineckiana
,, Brymeriana
,, Skinneri alba
,, Wagneri
Cypripedium Morganæ
,, Schroderæ
,, Œanthum superbum
,, grande
,, bellatulum roseum
Dendrobium nobile nobilius
,, splendidissimum grandiflorum
,, Walton
Phalænopsis Schilleriana alba
,, Brymeriana
,, Tetraspis
,, Mariæ
Odontoglossum nebulosum candidulum
Odontoglossum hebriacum
,, Andersonianum
,, Ruckerianum
,, Wilckeanum
,, Uro Skinneri
,, vexillarium Cobbianum
,, ,, insigne
Lælia anceps Schroderæ
,, alba
,, ,, Dawsoni
,, elegans prasiata
,, purpurata
Cœlogyne cristata alba
Cymbidium Dayanum
,, Philbrickianum
Vanda Sanderiana
,, cœrulea
,, suavis Veitchii
,, planelabris
Sobralia xanthaleuca, 60 growths, together with many other valuable varieties.

Catalogues may be had gratis, on Monday, June 2, at the Auctioneers' Offices, the British Gallery, Bradford, Yorkshire; and the Collection may be viewed at any time by applying to the Head Gardener, Mr. COLLIER.

The Sale to commence each day at 11 o'Clock.

"The Brokes," Reigate.

about half a mile from the Railway Station.

SALE OF STOVE, GREENHOUSE, &c., PLANTS.

MESSRS. JOHN LEES AND BURCHELL, have received instructions from the executors of the late W. H. Trego, Esq., to SELL by AUCTION upon the Premises, as above, on TUESDAY, June 12, at 10 for 11 o'Clock, the whole COLLECTION of PLANTS, including choice Orchids, fine Palms, Dracænas, Aloes, Amaryllis, Eucharis, Imported specimen Anthuriums, Begonias, Crotons, Fricas, Rhododendrons, Fuchsias, Pelargoniums, and many others; Bedding Plants, and Garden Implements, Tools, Pit Lights, Frames, &c.

May be viewed the day preceding the Sale, and Catalogues obtained of JOHN LEES AND BURCHELL, Auctioneers and Land Agents, Reigate, and 17, Wool Exchange, E.C.

Thursday, June 12.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD, will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 12, at half-past 12 o'Clock precisely, and he will be glad if Gentlemen desirous of ENTERING PLANTS for THIS SALE will please SEND LISTS NOT LATER THAN THURSDAY NEXT.

Thursday, June 12.

Twenty fine Plants of MASDEVALLIA HINCKSIANUM.

MR. J. C. STEVENS has received instructions to include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 12.

On view morning of Sale, and Catalogues had.

Ashford, Middlesex.

FRUIT FARMS, MARKET GARDEN, and ACCOMMODATION LANDS, in Lots to suit Small Capitalists and Investors, the purchase-money being payable by instalments extending over nine years; 73 acres of important Freehold Land, having the extensive frontage of 2654 feet to the main road from Ashford to Feltham; one mile distant only from Ashford Station on the London and South Western Railway, and 17 miles from London, thus being within easy reach of the metropolitan markets. The land is situate in a popular residential locality, and the nature of the soil renders it peculiarly adapted to the Cultivation of Fruit, Flowers, and Vegetables, an industry extensively carried on in this neighbourhood. The present Sale therefore, affords an opportunity for Purchasing Small Freeholds in a proverbially healthy locality, and developing the combined advantages of residence with a lucrative, pleasant, and refined occupation. With possession on completion of purchase.

MESSRS. HUMBERT, SON and FLINT are instructed to SELL the above by AUCTION, at the Mart, Tokenhouse Yard, E.C., on WEDNESDAY, June 18, 1890, at 2 o'Clock precisely, in numerous Lots.

Full particulars may be had of Messrs. R. S. TAYLOR, SON AND HUMBERT, Solicitors, 4, Field Court, Gray's Inn, W.C.; at the Mart, E.C.; and of the Auctioneers, 11, Serle Street, Lincoln's Inn, W.C., and Watford, Herts.

Cut Flowers, Plants, and Bulbs.

We hold Sales, several each week. Reference to senders of years standing. Particulars on application

MESSRS. POPE AND SONS, Sale Rooms, 6, Phillip Street, adjoining Market Hall, Birmingham.

WANTED, TO RENT, on Lease, 6 to 8 Acres of good LAND, for Nursery, 15 to 20 miles from London, near station and Post Office, with Dwelling-house, if possible.—Apply, S. C., *Gardeners' Chronicle* Office, 11, Wellington Street, Strand, W.C.

NURSERY, small, all at £130—part can remain if wished. Six-roomed House, Stables, Fowl houses and Sheds, 6 long Greenhouses, all stocked. Same hands many years. Now wishing to SELL through family affairs. Good Jobbing Business. A fortune to a working Gardener. Pretty place. One mile from Crystal Palace. Long Lease.

Apply, ADAMS, 5, Belvedere Road, Upper Norwood, S.E.

Enfield, 6 minutes from the G.N.R. Station.

To Gentlemen fond of Horticulture, combining pleasure with profit.

A MEDIUM-SIZED Detached RESIDENCE, containing 8 Bed rooms, Bath room, 3 Reception rooms, Offices, &c. In the Garden are Vinery, 70 by 25 feet; Orchid-house, 70 by 12 feet; Greenhouse, 70 by 12 feet; forming one range Greenhouse, 90 by 22 feet, with Frames adjoining, all economically worked from one boiler, auxiliary boiler; small Kitchen Garden and Orchard, with back entrance. Lease 17 years. Rent £91. Small premium required.

Messrs. H. E. FOSTER AND CRANFIELD, 6, Poultry, E.C., and Enfield. Fol. 118.

To Florists. N.W. District.

TO LET, at a nominal rental, Large GARDEN, with Greenhouses (one very large), Orchid-house, Vineries, Frames, &c., in thorough working order, on a main road.

Address, M., 6, Craven Park, N.W.

TO BE LET, within 15 miles of Covent Garden, on advantageous terms, to work out short lease, a large FRUIT and PLANT GROWING ESTABLISHMENT, containing 25 Houses, and everything in full business order. About 4 tons of Grapes, &c., are annually grown. Good Dwelling-house, Cottage, Stables, &c. The proprietor having accepted a very important appointment is the sole cause of the above being now offered.

H. A. H., care of Mr. Unwin, Fruit Salesman, Covent Garden Market, W.C.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

London, N.W.

TO BE LET, on Lease, an old-established NURSERY, occupying good position in a most fashionable Residential District. There are 12 Greenhouses, with several Pits, large Show-house, and 3 acres of Land. Vendor will grant Lease for 21 years. Stock at a valuation.

Full particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited,

Have just received large and fine importations of the following and many other ORCHIDS.—Cattleya Trianæ, Odontoglossum vexillarium, O. Rœzlii, O. cristatellum, O. luteo-purpureum, Oncidium undulatum, O. fuscatum, Pescatorea Dayana, Bollea coelestis.—Full particulars will be sent post-free, on application to the Co., The Vineyard and Nurseries, Garston, near Liverpool.

CLIBRAN'S SUPERIOR DAHLIAS, Superb Shows, Charming Fancies, Best Bedding, Pretty Bouquet, Exquisite Singles, Lovely Cactus, named and distinct, special sorts, 12 vars., 3s. 6d.; 50 in 12 vars., 12s. 6d.; 100 in 50 vars., 21s. See List, free.

CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

THE

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

DONATIONS and SUBSCRIPTIONS

Paid or Promised on occasion of the Fifty-first Anniversary Festival, June 12, 1890, on which occasion

MR. HARRY J. VEITCH,

The Treasurer, will preside.

In Addition to the last Announcement:—

Mrs. CATTLEY, Edenbridge	...	5	0 0
Mrs. MARKHAM, Chesterfield	...	2	0 0
Mr. C. WARDEN, Clarendon Park Gardens	...	10	10 0
Mr. A. LAING, Salisbury Gardens, Edinburgh	...	3	7 0
Mr. H. KENT, Tyttenhanger Gardens	...	1	1 0
Mrs. MORTIMORE, Holmwood, Surrey (A.)	...	1	1 0
Mr. BEEVERS, Farnham Gardens	...	0	10 6
Mr. RAYSON, Royal Exotic Nursery	...	1	1 0
Mrs. MIDDLETON BERRY, 18, Chester Terrace (A.)	...	2	2 0
Mrs. COLE, Newbury (A.)	...	1	1 0
Major GAISFORD, Ollington, Worthing	...	10	10 0
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Mr. S. TAYLOR, Loughcrew Gardens	...	10	10 0
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Captain BRYAN, East Hoathly	...	1	0 0
Mr. THOMAS HOLMAN, East Hoathly	...	1	1 0
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Mr. WHITTAKER, Kentish Town	...	0	10 6
Mrs. EDWARDS, Hilperton	...	1	1 0
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Messrs. PAGE AND SON, Forest Gate	...	2	2 0
Mr. J. ROBERTS, Duke Street	...	1	1 0
Mrs. MITCHELL, Walworth	...	0	5 0
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Mr. BEDDARD, Stoneleigh Abbey Gardens	...	2	7 0
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Mr. W. GREENYER, Gorrey Hale Gardens	...	10	10 0
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WALTER COBB, Esq., Silverdale, Sydenham	...	5	5 0
Mr. WILLIAMS, Handsworth Nurseries	...	10	6
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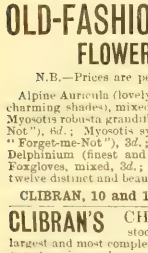
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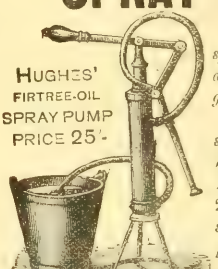
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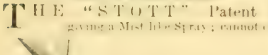
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PRICE:—1-lb. tin, 1s.; 2-lb. tin, 2s. Post-free, 4½d. extra.

1 lb. makes half a gallon for use.

THE
"PERFECT" WEED KILLER

TRADE MARK. SWIFT & SURE.

(Trial sample post-free.) WITHOUT WHICH NONE IS GENUINE

Maintains its Superiority over all Rivals for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, &c.
Used at Kew Gardens, Royal Horticultural Gardens, &c., &c.

COMPLETE SATISFACTION GUARANTEED
to all using WEED KILLER bearing our Trade Mark, without which none is genuine. *Refuse Imitations.*

PRICE: Gallon, 2/; ½-gal., 1/3 per gal.; 10 gal. 1/6 per gal.; 40 gal. 1/4 per gal. SPECIAL QUOTATIONS FOR QUANTITIES. *Carriage paid on 1 gallon and upwards.*



DISTRIBUTOR for "Perfect" Weed Killer.

Holds 10 gallons. Wrought iron frame, work neatly painted. Gal vanized tubes with tap to regulate flow. Gives spray 30 ins. wide. Price £4 net on rail Glasgow.

SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97, Milton Street, Glasgow.
Principal Agents: BLACKLEY, YOUNG AND CO., 108, Holm Street, Glasgow.

NOTICE. *We are now fully at our Horticultural Works, Kent, but permanent address* GLASGOW *as formerly, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.

SOLD by SEEDSMEN and FLORISTS.

CLAY'S FERTILISER OR PLANT FOOD

Sold in Packets, 6d. and 1s. each, and in Sealed Bags Only.
7 lb., 2/6; 14 lb., 4/6; 28 lb., 7/6; 56 lb., 12/6; 1 cwt., 20/-

CLAY & LEVESLEY,
TEMPLE MILL LANE, STRATFORD, LONDON, E.

NORMAL FERTILISER

For GREENHOUSE or GARDEN.

Price.—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
	2s.	3s. 6d.	5s. 6d.	9s.	14s.

And in 6d. and 1s. packets.

To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST AND SON, 152, Houndsditch, London

THE CELEBRATED "ACME"
WEED KILLER
CHEAPEST & BEST

SAVES MORE THAN TWICE ITS COST IN LABOUR. NO SMELL.

One application will keep the Walks and Drives clear of Weeds for at least Eighteen Months.

Highly commended by the Judges at the Alexandra Palace Rose Show, 1889, after 15 Months' Trial. Awarded a Certificate of Merit by the Scottish Horticultural Association, 1889.

Mr. W. G. HEAD, Crystal Palace, says:—"We were so satisfied with your composition and its price, that we have used it absolutely, and have every confidence in recommending it."

Mr. R. IRWIN LYNCH, Curator, Botanic Gardens, Cambridge, says:—"There can be no question with regard to its efficacy."

Prices:—In 1 and 2-gal. tins, 2s. per gal. (tins included); in 5-gal. drums, 1s. 6d. per gal.; 10 and 15-gal. Drums, 1s. 4d. per gal. Special quotation for larger quantities. Carriage paid on 10 gals. and upwards.

☞ *Used in the proportion of One Gallon to 25 Gallons of Water.*

TO BE HAD OF ALL NURSERYMEN AND SEEDSMEN.

To prevent disappointment, insist upon having the "ACME."

Sole Proprietors and Manufacturers,

THE AGRI-HORTICULTURAL CHEMICAL COMPANY, Tunbridge, Kent; & Carlton St., Bolton, Lancashire.

Agents in Ireland.—W. DRUMMOND & SONS, 58, Dawson St., Dublin; WALTER CARSON & SONS, 21, Bachelor's Walk, Dublin; ALEX. DICKSON & SONS, 55, Royal Avenue, Belfast; MCKENZIE & SONS, Limited, Agricultural House, Camden Quay, Cork.

London: Wholesale Agents, Messrs. Corry, Soper, Fowler & Co. (Limited), Finsbury Street; Messrs. Hooper & Co. (Limited), Covent Garden. May also be had of Messrs. Barr & Son, 12, King Street, Covent Garden; Barclay & Sons (Limited), 95, Farringdon Street; Jas. Veitch & Son, Royal Exotic Nursery, Chelsea; and others.

GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 4d. each; 10 sacks, 12s. 6d.; 15 sacks, 17s. 6d., 20 sacks, 20s.; 25 sacks, 24s.; 30 sacks, 27s.; 40 sacks, 33s.; 50 sacks, 40s.; Truck-load, loose, free on rail, 30s.

GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d. BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth, 1s. 3d.; Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, Shell Shingle, Charcoal, Mushroom Spawn, and Russia Mats.

GARDEN NETTING, 2 yards wide, 1½d., or 100 yards, 10s.; 1 yards wide, 3d., or 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3d., 2 yards, 6d. per yard. TIFFANY, 38 in. wide, in 20 yard pieces, 3s. 6d. per piece.

BAMBOO CANES, 3 feet 10 in., 3s. 6d., 5s., and 7s. per 100; extra long, 8s. per dozen.

DAHLIA STAKES, and all kinds of Flower Sticks, Cheapest in the Market. Marquees, Tents, Flags, and all kinds of Garden Foods and Sundries.

Terms strictly Cash with order. Price LIST on application from CHUBB, ROUND & CO., West Ferry Road, Millwall, London, E. *Bankers—Smith, Payne, & Smiths.*

Three Valuable Friends.

CLIBRAN'S SHADING acts as a beautiful shade during sunny weather, but becomes almost transparent during rain reappearing again as the glass dries. *Unlike other preparations,* it shades only at the particular time wanted. Practical growers are noting this. Non-poisonous.
½, 1s. 9d., and 2s. 9d. per packet, post free.

Greenhouse Friend.

LEMON-OIL is fast superseding all other Insecticides, being cheaper, far more certain, and can safely be used by any amateur. If you want beautiful foliage and healthy plants, try this.
Post-free: pints, 1s. 10d.; quarts, 3s. 3d.; half-gal., 5s. 9d.

Plant Friend.

EUCHARIS MITE-KILLER.—This valuable compound enables everyone to grow and flower Eucharis splendidly, and has saved thousands of bulbs which otherwise would have been destroyed. See Testimonials.
Post free: ½ pints, 1/9; pints, 2/9; quarts, 4/9; ½ gal., 8/
Or from your Seedsman.

Eucharis Friend.

CLIBRAN'S, Oldfield Nurseries, ALTRINCHAM;
Also 10 and 12, Market Street, Manchester.

GENUINE ROLL TOBACCO PAPER.—Strong, effective, 1s. per lb., carriage paid, for cash only. W. C. LEE, 61, Westgate, Grantham.

"ROSIKA"

Trade Mark Registered.
Effective, Harmless.



Promptly clears Roses and all plants from green fly, caterpillars, spiders, and other insect pests. It recommends itself to all who have tried it for its efficiency, pleasant odour, the facility with which it is applied, and its cleanliness in application; so that anyone, however particular, can use it, and it is always ready for use. Price 1/- & 1/9. To be had through Chemists & Seedsmen, or direct from the manufacturers, F. SCHUTZE & CO., 36A, Aldersgate Street, London, E.C.
Apparatus for use of Rosika, 3 sizes, 1s. 9d., 3s., and 4s. 6d.

GREEN'S PATENT "SILENS MESSOR" AND OTHER LAWN-MOWING,

ROLLING AND COLLECTING MACHINES FOR 1890.

The Winners of every Highest Prize in all cases of competition, and they are the only Mowers in **constant** *use at all the Royal Gardens and at the Royal Horticultural Society's Gardens, South Kensington.*

Patronised by—
HER MOST GRACIOUS MAJESTY THE QUEEN on many occasions,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.

Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," *of June 9, says:*—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

Upwards of 155,000 of these Machines have been Sold since they were first introduced in the year 1856.
And thousands of unsolicited Testimonials have been received, testifying to their superiority over all others.
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off the Highest Prize that has been given.

The following are their Advantages over all others:—1st. Simplicity of Construction—every part being easily accessible. 2nd. They are worked with much greater ease than any other. 3rd. They are the least liable to get out of order. 4th. They make little or no noise in working. 5th. They will cut either short or long Grass, wet or dry.

SILENS MESSOR MOWER,

With Improved Steel Chains and Handles.



DOUBLE-HANDED LAWN MOWER.

To cut 16 inches, can be worked by one man on even lawn ...	£6 10 0
To cut 18 inches, do. man and boy ...	7 10 0
To cut 20 inches, do. do. ...	8 0 0
*To cut 22 inches, can be worked by two men	£8 10 0
*To cut 24 inches, do. do. ...	9 0 0

* If made stronger, suitable for Donkey, *30s.* extra.

These Mowers are the "Ne Plus Ultra" and "Acme" of perfection of all Lawn Mowers extant.

For PRICES of DONKEY, PONY, and HORSE MACHINES, see LIST.

SINGLE-HANDED LAWN MOWER.

	Price.
To cut 6 in., can be worked by a Lady ...	£1 15 0
To cut 8 in., do. do.	2 10 0
To cut 10 in., do. by a strong youth	3 10 0
To cut 12 in., do. by a man ...	4 10 0
To cut 14 in., do. do.	5 10 0

REDUCED PRICES OF

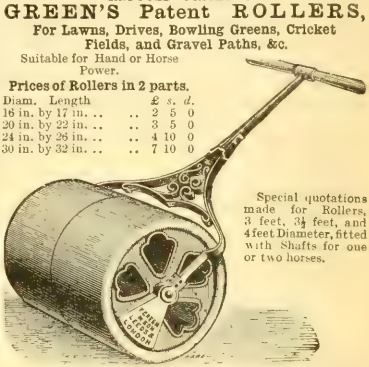
GREEN'S Patent ROLLERS,

For Lawns, Drives, Bowling Greens, Cricket Fields, and Gravel Paths, &c.

Suitable for Hand or Horse Power.

Prices of Rollers in 2 parts.

Diam.	Length	£ s. d.
16 in. by 17 in. ..	..	2 5 0
20 in. by 22 in. ..	..	3 5 0
24 in. by 26 in. ..	..	4 10 0
30 in. by 32 in. ..	..	7 10 0



Special quotations made for Rollers, 3 feet, 3½ feet, and 4 feet Diameter, fitted with Shafts for one or two horses.

SPECIAL.—A FEW TESTIMONIALS OUT OF THOUSANDS RECEIVED.

☞ **ROYAL GARDENS, WINDSOR, January 28, 1890.**

To Messrs. GREEN & SON, Limited.

Dear Sirs,—In sending you the enclosed order for Lawn Mowers, I think it may be interesting to you to know that I am still using the Horse Machine you supplied in the year 1856; it is in perfect order even now, which is a proof that the workmanship is first-class, and speaks for itself. As to your "Hand Silens Messor," no Lawn Mowers could give greater satisfaction either to myself or to the men who work them—they are unequalled. During the season I have them daily in use in the Royal Gardens here, and never have the slightest trouble with them. Your machines are also the only ones I have in use at the Private Gardens, Hampton Court Palace; the Royal Lodge, Windsor Great Park; Cumberland Lodge, and the Royal Pavilion Grounds, Aldershot. I shall feel a great pleasure in recommending them to all my friends.

I remain, dear sirs, yours very truly, THOMAS JONES.

☞ **Mr. J. R. STIRLING,** of the **ROYAL GARDENS, BUCKINGHAM PALACE,** writing under date Feb. 24, 1890, says:—"As regards the work your 42-inch Horse Machine does (which two years ago took the place of the one you supplied in '63), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your 'Hand Silens Messors' also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

Bathersden, Ashford, Kent, June 14, 1878.
Gentlemen,—Your "Silens Messor" Mower, 20-inch, works splendidly. It is a most perfect machine, and beats the old 20-inch one that for so many years did my work without repairs. I recommend your machines, and never see any doing such good work and with so little power. You may refer any one to me, and I will then show them the S. M. at work, and I shall show it to all I can. I am, yours truly,
Messrs. Green & Son. W. H. MOLD.

Kintbury, Hungerford, April 20, 1883.
Sirs,—I shall be glad of a list of your Lawn Mowing Machines priced. I am glad to mention that I bought one of your 14-inch machines 22 years ago. It has had hard and rough usage *every year since*, and only on Monday was it put quite out of use by the snapping in two of the driving wheel under the hammer. It is surprising to think of the work it has done, and done well. Yours faithfully,
Messrs. Green, Leeds. ALFRED T. BAZETT.

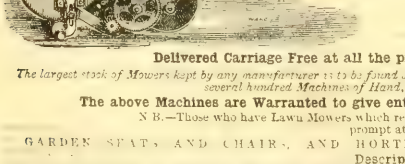
Wellingborough, February 4, 1890.
To Messrs. Green & Son, Leeds.
Gentlemen,—I have sent you our Lawn Mower for repairs, which please have done to it. I have used your machines for 25 years, and I find them more durable and do their work better than any other machines I have seen.
I am, gentlemen, yours truly,
DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).
Cottingham, Hull, February 13, 1890.

To Messrs. Green & Son, Limited, Leeds.
I am instructed by Arthur Harrison, Esq., of Northgate House, Cottingham, near Hull, who has had one of your 36-inch Horse Mowers in use over 20 years, and ask whether you think it advisable to send it for repair or have a new one, for it is as you may suppose now getting worse for wear. Kindly say per return, and enclose Price List.
I am, gentlemen, yours truly,
JOHN BAYNTON.

Ivy Bank, Broadway, Worcester, April 13, 1884.
Gentlemen,—Some fifteen or sixteen years ago, I had from you one of your 12-inch Lawn Mowers which, I may say, has from that day to the present time given perfect satisfaction, and goes as easily, and does its work as well now as it did at first. I have recommended yours as the best machine ever since. I am, yours faithfully,
Messrs. Green & Son, Leeds. C. FRENCH HARTLEY.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

HIGHLY RECOMMENDED FOR SMALL LAWNS.



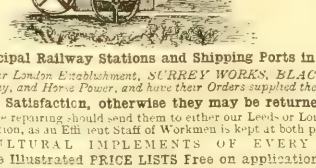
PRICES,
With Grass-box.

To cut 6 in.	£1 5 0
To cut 7 in.	1 13 0
To cut 8 in.	2 5 0
To cut 10 in.	3 0 0

GREEN'S Patent LAWN TENNIS COURT MARKER.

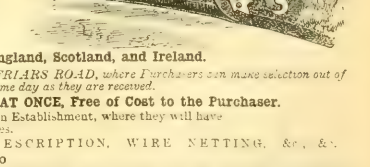
No. 2412.

The Best Marker made.
Size with 1 wheel for Ordinary Courts, price **14s.**
Do., with 3 wheels, **17s.**
Size for Club and Large Grounds, price **£1.**



Small Bag of Marking Composition, 9*d.*

GREEN'S PATENT GRASS EDGE CLIPPER



Size and Price, 7 inches wide, 7 ins. diam., **£1 16s.** Packing Case, 3*s.*

Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

☞ **A very useful and serviceable Machine.**

Delivered Carriage Free at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

The largest stock of Mowers kept by any manufacturer is to be found at our London Establishment, SURREY WORKS, BLACKFRIARS ROAD, where Purchasers can make selection out of several hundred Machines of Hand, Pony, and Horse Power, and have their Orders supplied the same day as they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, Free of Cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

GARDEN SEATS AND CHAIRS, AND HORTICULTURAL IMPLEMENTS OF EVERY DESCRIPTION, WIRE NETTING, &c., &c.

Descriptive Illustrated PRICE LISTS Free on application to

THOMAS GREEN & SON, LIMITED, SMITHFIELD IRONWORKS, LEEDS; AND SURREY WORKS, BLACKFRIARS ROAD, LONDON;

or they can also be had of any Ironmonger, Seedsman, Merchant, or Factor in the United Kingdom.

CHEAP BEDDING PLANTS,

All Strong and Healthy.

GERANIUMS, from single pots, autumn-struck:—
,, Vesuvius, Sisley, Christine, Madame Vaucher, 2s. 6d. per doz., 14s. per 100.
,, Henry Jacoby, Happy Thought, Silver-leaf, 3s. per dozen, 16s. per 100.
,, Ivy-leaf, double and single, to name, sweet-scented Oak-leaf, 3s. per doz., 16s. per 100.
VERBENAS, purple, striped, pink, crimson, scarlet, white, 1s. 6d. per doz., 12s. per 100.
CALCEOLARIAS, Golden Gem, 2s. per doz., 15s. per 100; Amplexicaulis, handsome lemon, 3s. per doz., 20s. per 100.
LOBELIAS, Emperor William (the best blue), from cuttings, 2s. 6d. per 100, 20s. per 1000.
AGERATUM, dwarf blue, 5s. per 100, 35s. per 1000.
MIMULUS, Queen's Prize, splendid mixed colours, 2s. per doz., 10s. per 100.
PYRETHRUM, Selageneides (new Golden Feather), 2s. per 100, 20s. per 1000.
PETUNIAS, splendid striped and fringed, single, 5s. per 100, 40s. per 1000.
,, beautiful double mixed, 8s. per 100, 60s. per 1000.
HELIOTROPE, Miss Nightingale (dark), 3s. per doz., 20s. per 100.
PINK, Mrs. Sinkins, large plants, from single pots, 3s. per doz.
,, Dianthus Delecata, ,, ,, ,, 3s. per doz.
CLOVE, old crimson ,, ,, ,, 3s. per doz.
CARNATION, finest, Doubles, mixed ,, ,, 3s. per doz.
DAHLIAS, Single, named, all shades of brilliant colours, from single pots, 2s. 6d. per doz., 18s. per 100.
,, Doubles, best named, Show, Fancy, and Pompones, from single pots, 2s. 6d. per doz., 18s. per 100.
CACTUS DAHLIAS, Juarezii, Constance, Fire King, and others, 4s. per doz.
PANSIES, Show and Fancy, splendid mixed, "from cuttings," 8s. per 100.
PYRETHRUM (Herbaceous), Double and Single to name, from single pots, 4s. per doz.
PHLOX (Herbaceous), mixed colours, 2s. per doz.
PAPAVIA, Nudicaule (beautiful Iceland Poppy), white and orange, 4s. per 100, 30s. per 1000.
,, "The Shirley," splendid showy variety, 4s. per 100, 30s. per 1000.
ASTERS, finest German double, 3s. per 100, 20s. per 1000.
STOCKS, finest 10-week German double, 3s. p. 100, 20s. p. 1000.
HELECHRYSUM, splendid double mixed, 3s. p. 100, 20s. p. 1000.
MARYGOLD, dwarf French, gold striped, 3s. p. 100, 25s. p. 1000.
,, African, double orange and African, 3s. p. 100, 20s. p. 1000.
DIANTHUS, Eastern Queen and Crimson Belle, 3s. per 100, 20s. per 1000.
ZINNIA ELEGANS, double and single, 3s. p. 100, 20s. p. 1000.
CASH, Package Free. Extra plants to cover carriage.

CATALOGUE Gratis.

H. I. HARDY, F.R.H.S.,

STOUR VALLEY NURSERIES, BURES, SUFFOLK.

KELWAY'S

GLADIOLI	... ...	of which we grow	20 Acres.
PYRETHRUMS	...	,, ,,	5 ,,
GAILLARDIAS	...	,, ,,	5 ,,
DELPHINIUMS	...	,, ,,	5 ,,
DAHLIAS	... ...	,, ,,	5 ,,
HERBACEOUS PLANTS		,, ,,	5 ,,

Now is the Time to Plant.

CATALOGUES GRATIS.

KELWAY & SON, LANGPORT, SOMERSET

GOLD MEDAL, PARIS, 1889.

CLIBRAN'S REGAL STRAINS,

POST-FREE.

Try the following strains, and you will grow no others. Qualities being superb—the result of some years' careful hybridising:—

BEGONIA, Single, 1s. and 2s. 6d. per packet; Double, 2s. 6d. per packet; CALCEOLARIA, 1s. and 2s. 6d. per pkt. CYCLAMEN PERSICUM, 1s. and 2s. 6d. per packet. *TRY THEM!* FERN SPORES (Seeds), Greenhouse and Stove varieties, 1s. and 2s. 6d. per packet. EUCALYPTUS, five packets, in five named sorts, 2s. LIST post-free.

CLIBRAN, 10 and 12, Market Street, Manchester.

THE BEST MUSHROOM SPAWN
"DICKSONS IMPROVED."
5/- per bus. *Circular, with testimonials, Post Free.*
DICKSONS Seed Merchants & Nurserymen **CHESTER.**

CLIBRAN'S BRILLIANT BEDDING DISPLAY, produced by Clibran's Special Tuberous Begonias, wonderful colours, unequalled habit. Single—seed, 1s. per packet; tubers, 4s., 6s., 9s., and 12s. per dozen. Doubles, magnificent forms and hues—seed, 2s. 6d. per packet; tubers, 9s., 15s., 20s., and 30s. per dozen. Centaurea candidissima, charming silvery foliage, 3s. per dozen. Lobelias (blue and white), Alternantheras, Iresines, and other bedding plants in great variety, at 2s. 6d. per dozen. Also a large number of beautiful Carpet Bedding Plants. See Catalogue, free.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

ORCHID EXHIBITION.

One of the most beautiful sights in London.

ORCHIDS.—The Orchid Exhibition at MR. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W., now OPEN, 10 to 6 o'Clock. Admission, 2s. 6d.

ORCHIDS.—A vision of loveliness unparalleled in Europe.

ORCHIDS.—"A scene of the greatest Orchidic beauty, baffling description, and defying exaggeration."

ORCHIDS.—The Exhibition is worth going any distance to see at Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

WILLIAM BULL, F.L.S.,

Establishment for New and Rare Plants,

536, KING'S ROAD, CHELSEA, S.W.

CLIBRAN'S 10,000 FUCHSIAS. Best varieties in existence—inferior sorts carefully weeded out. 12 vars., 3s. 6d.; 25 vars., 6s.; 50 vars., 12s. 6d.
CLIBRAN, Oldfield Nurseries, Altrincham and Manchester.

DAHLIAS.—Clearance Sale.—A superb Collection, including all the most beautiful and popular of the Show and Fancy Cactus-flowered and Pompone varieties, 3s. 6d. per dozen, 6 for 2s., or 15 for 6s. 6d. Extra choice sorts, 4s. 6d. per dozen, 6 for 2s. 6d., or 25 for 8s. All strong plants, correctly named, and ready for immediate planting-out. Carriage free at prices quoted.
DANIELS BROS., Town Close Nurseries, Norwich.

FUCHSIAS.—Clearance Sale.—A magnificent Collection of superb Double and Single-flowered varieties, including the newest and most beautiful sorts in cultivation. Splendid for pot culture or the garden. Strong young Plants, from single pots, correctly named, 2s. 6d. per dozen, 6 for 1s. 6d., or 25 for 4s. 6d. Extra choice sorts, 3s. 6d. per dozen, 6 for 2s., or 25 for 6s. 6d., post-free.
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NEW ZONAL PELARGONIUMS. Single and Double-flowered. Fine young autumn struck Plants, from our magnificent Collection, including the newest and most splendid varieties in cultivation. Superb for pot culture, 3s. 6d. per dozen, 6 for 2s., 25 for 6s. 6d., or 24s. per 100. All correctly named and carriage free for cash.
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HARDY FLOWERING PLANTS.—Splendid Summer and Autumn-blooming Perennial Varieties for the permanent decoration of the garden. Good strong Plants, from single pots, for immediate planting out, including Anthemis pallida, Helenium pumilum, Phloxes, &c. 12 choice varieties, 4s. 6d., 6 for 2s. 9d., 25 for 8s., or 100 for 30s., carriage free for cash with order.
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CHRYSANTHEMUMS.—Clearance Sale.—A splendid Collection, including all the most beautiful and popular of the Japanese, Incurved, and Pompone varieties. Strong well-rooted Cuttings, correctly named, 1s. 6d. per dozen, 100 for 10s. 6d. Extra choice sorts, 2s. 6d. per dozen, 100 for 15s., post-free.
DANIELS BROS., Town Close Nurseries, Norwich.

SINGLE-FLOWERED DAHLIAS planted out now will produce a charming display of beautiful flowers, splendid for the garden. Strong mixed Seedlings, from our fine collection of choice named sorts, 2s. per dozen, 25 for 3s. 6d., or 100 for 12s. 6d., carriage free for cash.
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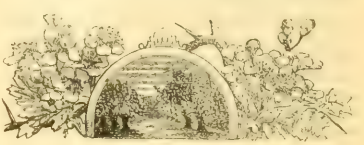
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THE

Gardeners' Chronicle.

SATURDAY, MAY 31, 1890.

NEW YORK AND THE ORANGE GROVES OF FLORIDA.

ARRIVING at New York by the *Etruria*, on December 2, I proceeded, as soon as possible, to the world-famed establishment of Peter Henderson, who, since my visit, has ended a long and useful life among us. The seed shop in Cortlandt Street is a fine building, adapted to meet the requirements of a very large trade. The nurseries are situated in Jersey City, about half-an-hour's ride by ferry and tram. Mr. Davis, the manager, described the nursery to me as a large plant factory, and such in truth it is. Roses, Verbenas, Carnations, Bouvardias, &c., are grown by the thousand, in a very rough way, which suits the Americans however, and brings in a good profit. During the spring and summer, Coleus, Pelargoniums and Fuchsias are grown in similar quantities, but Messrs. Henderson find there is only a very small demand for stove and greenhouse foliage plants, such as Crotons, Dracænas, Palms, &c., which accounts for their growing only a very small number of them. They have a large quantity of glass, principally span-roofed houses, one or two of them are heated by steam, the majority by hot-water pipes in the ordinary way, and anthracite coal is the fuel used, and in fact is the only kind of coal attainable in America.

Cut flowers of Roses are sold as well as plants, and bring in good prices during the winter months. One splendid Rose house for established plants, about 300 feet long and 20 feet wide, half span, facing S.W., was a fine sight at the time of my visit, the plants were even then growing freely, in full foliage, and had a large number of buds showing, in short, were looking as Roses do in June with us at home. I had often heard what beautiful Roses they get in New York during the winter months, and a look at these plants explained all difficulties; moreover, our cousins at New York get a clearer sky and much more sunshine in winter than we do, which is a great gain in all kinds of plant forcing. The plants are grown in good turfy loam with plenty of bone dust added, and are planted out in wooden troughs, vary-

ing in depth from 9 to 18 inches, and raised up near to the glass above the hotwater pipes, &c., a nice growing temperature is maintained. H.P. Magna Charta was flowering well, and others were coming on; most of the plants belonged to this class, but a few Teas such as Madame de Watteville, Perle de Lyon, Niphetos, &c., are also grown. Maréchal Niel is said to be useless for winter-flowering. I especially noticed the bright, clean, healthy foliage, which had not a spot of dirt upon it. I also saw a lot of brown stringy-looking stuff covering the floor of the houses, with the exception of the paths, and on inquiring, I found these two things had a very close connection, the brown-looking material being the refuse from tobacco works, and consisted of the midribs of the leaves, &c.; this is damped occasionally with water, and keeps the air charged to a certain extent with nicotine; it lasts in condition about two months, and is then renewed, and is sometimes placed upon the pipes, as well as the floor of the houses; the smell of it is peculiar, and rather unpleasant, but probably one soon gets used to it. I was assured it kept the plants clear of greenfly, &c., without any trouble of fumigating and its attendant evils, and only costs a nominal price, and a short time since it could be obtained for nothing. Will not some kind M.P. who is interested in horticulture introduce a short Bill to our Government, in order that this material might be landed here duty free, when used solely for insecticidal purposes; such a measure would be an inestimable boon to our gardeners in the cultivation of fruit and flowers, tobacco in some form or other being one of the best insecticides known, but owing to the heavy duty it is practically impossible to use it as largely as is desirable.

Another thing I noticed, which our nurserymen and large growers would do well to copy, is stencilled labels; they are machine made, and are then stamped in nice clear type by the men as overtime work. They last two years in the houses, but not so long when exposed to the weather, and are far better in appearance and quicker to read than if written with a pencil. The gardeners at nurseries get about 8 dol. a week, which is equivalent to 33*s.* 4*d.*, with house, &c., and do not work so hard as English gardeners do. Food and clothing are, however, much dearer in the States, and really good clothes almost unobtainable. The public walk round the nurseries and through the houses quite unaccompanied; the manager said they had not time to show people round. The soil here is a light loam. The new Chrysanthemum, Louis Boehmer, in flower at the time of my visit, has hairy petals like those of Mrs. Alpheus Hardy, but the colour is a soft rose. A large stock of the latter was noticed, but most of the Chrysanthemum flowers were cut. Scutellaria pulchella, plants of which were flowering freely, is considered a useful winter-flowering plant; it has red flowers, and grows to a height of 24 inches; but it also flowers well in a smaller state. A quantity of Coccoloba platyclada looked very curious, with its flat articulated stems and small leaves.

Central Park.

My next visit of any horticultural interest was to the Central Park, of which an illustration appeared in the *Gardeners' Chronicle*, August 31, 1889; this is very pretty, as it is beautifully undulated, and has a number of rocks appearing above the turf in a natural manner. On inquiring of one of the men if the park was artificially made, he said, "No, sir; it grew so." Unfortunately, the Superintendent resides a long way from town, and I was unable to see him. The water scenery is very good, but much of its beauty is spoiled through placing so much carved stonework and asphalte in the foreground, at the principal point of view. The park is exceedingly well kept, the grass even then was beautifully fresh and green, and they were giving it heavy dressings of farmyard manure in some parts, which possibly accounts in some measure for the clean healthy growth of the trees, some specimens of Salisburia adiantifolia had made shoots 4 feet long last summer, but the deciduous trees were of course leafless when I was there. Some of the species of Cratægus were very pretty, with berries of a much brighter red than we see them in England, a variety or species of Symphoricarpus, probably vulgaris, was very telling, with its long branches of dark red fruit. It ought to be hardy here, but I do not remember having seen it before. Forsythia suspensa appeared quite at home, and had made very strong, healthy growth as bushes. Lonicera japonica looked very pretty, trailing in a natural manner over some rocks. This park is about 900 acres in extent, and evidently well patronised by the public, who find in it every convenience.

Orchids, etc.

On enquiring if Orchids were grown in the neighbourhood, I was directed to Messrs. Pitcher & Manda's establishment, at Short Hills, New Jersey, about an hour's ride from New York, where a very interesting collection is grown, the plants looking remarkably clean and healthy, although I was told the nursery was quite new, the houses having been built about a year before. The Cypripediums seem to be especial favourites, and some varieties were represented by very large numbers. I noticed in flower C. marmorophyllum, C. callosum superbum, C. calurum Rogerii, C. Spicerianum, C. tessellatum porphyreum, C. Boxalli, C. Masereelli, the latter an especially choice variety, for a small plant of which the firm gave £200. Phalænopsis amabilis, Lælia Gouldiana, L. autumnalis, and Cymbidium Mastersianum var. alba were also flowering well. The manager said that seedling Orchids grow much quicker than in Europe, and he showed me a large quantity in various stages of growth, one of which — a Cypripedium — was showing flower, although it was only a little more than twelve months old. They had a number of good foliage plants of the stove, amongst them being Hoffmannia Ghiesbreghtii, noted for its variously coloured leaves, and a fine batch of the handsome and useful Pandanus Veitchii. Chrysanthemum flowers were almost over, but C. Kioto, a broad petalled Japanese variety, Medusa, with white thread-like petals, and Lilian B. Bird, were worthy of notice. A nice lot of Chrysanthemums in seed was progressing favourably, and raising seedling Orchids and Chrysanthemums appears to be much easier in America than in Europe.

New York Market.

However much the Americans have improved on our plans in some things, they have not made much advance in this, although it is not perhaps quite so crowded as Covent Garden. A large open space not far from the docks is divided lengthwise into spaces about 30 feet wide, by 5 feet pathways, the latter being paved with smooth slabs, and the other part with stone pitching. The larger spaces hold four rows of vans, with room in the centre to get out and in; and the buyers walk down the pathways or drive round among the vehicles as best they can, and make their purchases. Some of the vans were piled up with hard white heads of Drumhead Cabbages, which were selling at 1*d.* to 1½*d.* each; these seem to be the only kind of Cabbage they grow for market. I found when I got to Florida they were sent down there from New York, and sold at 2½*d.* per lb. Celery was very small and poor, and selling at 3*d.* per dozen heads; I did not see any good enough for an English market. There were also Turnips, Carrots, Beet, and herbs. Near this place are square blocks of buildings where fruit and vegetables in barrels and boxes are sold; these shops have a verandah in most instances which extends about 12 feet over the pathway, and specimens of the goods for sale are stood out on the pavement, leaving an opening up the centre for the public to walk. I was much amused to find that Swede Turnips have a ready sale at New York at 4*s.* 2*d.* per barrel. Potatos of the Early Rose class were fetching 8*s.* 4*d.* per barrel; very small Onions 9*s.* 5*d.* to 12*s.* 6*d.* Apples of various kinds were very fine in appearance, and making about 11*s.* 5*d.* per barrel; the sorts consisted chiefly of Greenings, Spitzenburg, Russets, and King of Tomkin's County, the latter being very fine in appearance. Florida Oranges were 8*s.* 4*d.* per box, but they were not ripe. I noticed an excellent plan for protecting things exposed in these barrels for sale from the fingers of the public. This is managed with domes of wirework made to fit the tops of the barrels [Also in London. Ed.], so as to allow the fruit, &c., full exposure to the eye of passing pedestrians. New York is a busy place. It is also one of the dirtiest towns I ever saw, but I suppose this is only another verification of the old Yorkshire saying, "Where there's muck there's money." There are a few good florists and fruiterers shops in the better part of the city, some of which were well supplied with goods, and do a large trade; but on the whole, New York has nothing like the supply of London in the way of market garden produce. Even in the third week of February, it was almost impossible to get Asparagus, and the vegetable market at that date had very little besides Drumhead Cabbage, Potatos, Onions, and Swede Turnips. *W. H. Divers, Ketton Hall, Stamford.*

(To be continued.)

ABIES BRACTEATA.

We are now enabled, thanks to the courtesy of Mr. Coleman, of Eastnor Castle Gardens, to give a representation of this very distinct and very beautiful Silver Fir in two stages, and thus to supplement our account of the cone and foliage also taken from specimens furnished by Mr. Coleman, in the number for February 23, 1889. When the dry parchment-like scales of the hitherto sharply pointed buds fall off, the growing shoot thrusts itself forward in the shape of a dense tuft of green leaves, as shown in Mr. Smith's drawing. The male flowers, which up to this time have not been described or figured in books, are of a pale lemon-yellow, and as it is desirable to place their characteristics on record, we add the following description:—

Male flowers solitary axillary produced from the sides of last year's shoots near the base, each 30 to 40 mm. long, 5 to 7 mm. lat., slender cylindric, shortly stipitate, surrounded at the base by numerous imbricating navicular, lanceolate, fawn-coloured, parchment-like scales, increasing in size from below upwards, similar to the perule of the leaf bud. Anthers stipitate, pale lemon-yellow, dehiscing transversely, and with a blunt knob projecting from the middle of the dorsal surface. Sometimes, as in the anther figured, there are two such knobs.

The tree is one of the handsomest of its race, alike in foliage and in cone. It is a native of Southern California, and is tender in some parts, though we can speak for its hardihood in East Kent.

New or Noteworthy Plants.

BULBOPHYLLUM LEMNISCATOIDES.

Rolfe, n. sp.

Bulbophyllum leminiscatum, Parish, is a very remarkable little plant, which was discovered in Moulmein by the Rev. C. Parish, and of which an excellent figure may be found in the *Botanical Magazine*, t. 5961. Its great peculiarity is the presence of three long appendages, one from the back of

* *Bulbophyllum lemniscatoides*, Rolfe, n. sp.—The pseudobulbs are crowded, ovoid, ¾ inch high, bearing one, linear-lanceolate, subacute leaf, about 3½ inches long. Scape suberect, at least 6 inches high, with two light brown, sheathing, lanceolate, acute bracts, one above the middle, the other nearer the base. Flowering bracts lanceolate, acute, light brown, 1½ line long. Ovary light green, a little exceeding the bract, pilose near the apex. Sepals broadly elliptical-oblong, obtuse, very dark purple, with numerous white pilose hairs, appendages situated on the back of each sepal just below the apex, and five times their length, papillose, light flesh-purple. Petals linear bidentate, serrulate to near the base, ¾ line long. Lip very fleshy smooth intense dark purple, elliptical-oblong, obtuse, equalling the petals. Column short, with a pair of stout, acute teeth, anther-case minutely papillose.

each sepal near the apex, which hang pendulous underneath the flower, and which are supposed to have some connection with its fertilisation. No other species was known which could possibly be confounded with it, if indeed any could be said to present analogous features. The other day a remarkably similar plant was sent to Kew by Mynheer Van Lansberge, Château de Rees, Brummen Gueldre, Holland, and which had been imported direct from Java. The flowers, and indeed the whole inflorescence, are so remarkably similar that at first I thought they belonged to the first-named species; but on careful examination numerous important differences came to light, and now that a drawing of



FIG. 112.—ABIES BRACTEATA, SHOWING MALE FLOWER, ANTHERS, POLLEN, AND EXPANDING SHOOT. (SEE P. 672.)

the plant has been sent, it is clear that we have a very distinct species to deal with.

In addition to the diverse habit, the totally different structure of the sepaline appendages is especially noticeable. In the older species these consist of ten longitudinal crested plates radiating from a common centre, but in the present one they are terete and simply papillose. *R. A. Rolfe.*

ROSE THE QUEEN.—Messrs. W. PAUL & SON ask us to state that they were awarded a Horticultural Certificate for this white Tea-scented Rose at the last exhibition of the Royal Botanic Society on the 14th inst. This is a pretty flower—a pure white sport from Souvenir d'un Ami, and does not appear to differ essentially from the sport shown by Mr. G. Prince, of Oxford, as Souvenir de S. A. Prince.

WATERING.

As the time of year is at hand when outdoor waterings of plants must be resorted to, a few remarks upon the subject may not be out of place; for we venture to think that the matter, important as it is, does not receive the amount of attention that it deserves.

We all know that water is essential for the activity of all living agents, whether of animal or vegetable; and we find that the oxidation and nitrification of plant-food is far more rapid and effectual in a moist soil than in a dry one. At the same time, it must be remembered that an excess of water is fatal to the development of plant-food, air being naturally excluded as soon as the soil is filled with water. One essential condition, therefore, for healthy plant-growth is a perfectly aerated soil; porosity in a soil always tends to the oxidation of organic nitrogen, converting the insoluble and latent substances into soluble and easily assimilable food.

Temperature is another prime factor in determining the rate of oxidation and nitrification in soils, the activity of all bacteria, or nitrifying organisms, being dependent on the occurrence of a favourable degree of heat, as well as of moisture; and further, it is found to be confined to certain specific ranges of temperature. Hence we find plant-growth far more rapid in summer than in winter, and much more energetic in a conservatory or greenhouse, (where the degrees of warmth and moisture can be better regulated and controlled), than in the open garden.

We learn from these facts that artificial waterings of plants, to be most effective, should be copious, and sufficiently abundant to moisten the soil throughout down to the roots; and that the operation is rendered more efficient if a deep stirring of the soil is afterwards given with the hand-hoe. The latter process neutralises the surface-caking, and allows of a free circulation of air, and at the same time assists to retain the water within the soil.

In reference to the same subject, it may be stated that while the evaporation per single plant of a crop thinly planted is greater than for one of a crop planted closely, the total evaporation from thickly planted crops is vastly greater than from those thinly planted. Hence, in time of drought and hot weather, the former is likely to suffer first and most.

On the other hand, when rains are excessive, the reverse may be the case; the thickly planted crop under those conditions may do best, because the large evaporation by the crop tends to keep the soil from being over-saturated with water, and so from being deprived of air and the work of oxidation.

The importance of soft-water for artificial waterings is recognised by every successful and intelligent gardener. Rain and pond-waters are decidedly preferable to spring or well-water, for besides being softer, they contain more manurial qualities.

Spring water may, however, be softened by exposure in a tub or tank to the sun's rays for twenty-four hours previous to using, or a small quantity of slacked lime may be stirred in and allowed to settle.

Soap-suds from the kitchen should be saved, and used for artificial waterings, because the alkaline salts of potash and soda used in the manufacture of the soap are valuable as manure, especially to fruit trees, and the clear liquid may be employed with great advantage for syringing. *J. J. Willis, Harpenden, Herts.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT THE BRIARS, REIGATE.

THE collection of Orchids at this place is now of considerable extent, the proprietor, W. L. Barclay, Esq., an enthusiast and a liberal patron of horticulture generally, having exercised much judgment in selection during several years past. He is President of the Reigate Chrysanthemum Society, but in his own gardens, however, Orchids would seem to be his favourite plants, and a more or less interesting display is generally to be found at The Briars; and owing to Mr. Bailey's skill as a cultivator, many of the specimens are more than usually good. Prominent among those flowering at the present time were noticed some examples of Odontoglossum Hallii, with very large and distinctly marked flowers; many excellent varieties of the popular O. crispum and O. Pescatorei, and on several plants of the latter the flowers were of great substance and pure colour; O. ramosissimum, with its much branched panicles of white and purplish-lilac spotted flowers, was rather effective. The fragrant O. læve (Reichenheimii) and O. gloriosum were flowering in profusion. There is a fine mass of Mesospinidium vulcanicum, with its rosy racemes; Oncidium cucullatum, largely represented, was showing a great range of variation in point of quality—and although all were equally well grown, yet some had flowers nearly twice as large as others. O. concolor looked particularly happy in its elevated position, as did also O. bifolium majus and the delicious O. prætextum. Several plants of O. macranthum were doing finely, and showing great promise; some of them, as on former occasions, have run out an inflorescence more than 15 feet in length, and may grow still further; Oncidium carthaginense was also flowering well.

Cattleyas consist of Mossiæ, Trianæ, Mendelii, gigas, crispa, Acklandiæ, and Schilleriana; and these, with Lælia elegans alba, were found in good form. A good potful of the new Phaius Hum-

*

blotii, healthy and vigorous, was just coming into flower. The old Calanthe veratrifolia, with its white spikes of flowers, was noted in quantity; it is a plant which still holds its own. Dendrobiums are well represented, but most of these plants had flowered; still there were some plants of D. Devonianum, which were in great beauty, the slender pendent pseudobulbs being clothed with the delicately formed, prettily marked flowers, the fringing of which gives them so charming an appearance. D. Freemanii, the deep coloured form of D. lituiflorum, had several pseudobulbs well-flowered; as also was the old light-coloured D. Pierardii. The popular genus of the day—Cypripedium—was well represented: concolor, bellatulum, caudatum, Lawrenceanum, barbatum, nigrum, being species that were conspicuous; Miltonia vexillaria, some with forty to fifty racemes in a pot, was a fine sight. The distinct and showy true Epidendrum vitellinum majus, is well-grown and flowered. Vanda Sanderiana seemed to be well-established here, and V. teres was flowering freely. An old, but rather refractory subject, in the shape of Lycaste jugosa (Colax jugosus), was flowering freely, and seemed happier than I remember to have observed in other gardens. It may be noted that the house in which it was growing was light and airy, conditions which this mountaineer evidently enjoyed. In the same house were the Masdevallias, and it evidently suited them also. One sometimes sees these plants with flower-scapes so weak that they can scarcely carry the weight of the flowers, whereas here the scapes were stout, and consequently quite erect. Fine examples were observed of Lindenii, and the variety Harryana-Veitchiana with immense flowers; and neat, but well-flowered masses of M. Shuttleworthii and M. triangularis, also M. amabilis and M. ignea. The collection has much improved since Mr. Bailey undertook its management. *F. R.*

Mrs. Studd's Orchids.

Steadily increasing in importance, the collection of Mrs. Studd, Royal Crescent, Bath, will now rank with the leading collections of the West. Quality rather than quantity has been the maxim of the owner, hence the preponderance of fine species and varieties. The effect of this carefulness of selection is noticeable at the present time in the superb forms of Cattleya Mendelii, C. Lawrenceana, and Lælia purpurata, with which the large Cattleya-house is embellished, among which almost every plant in flower is of more than average merit, while Lælia purpurata Studdiæ and L. p. superba appear to have attained the highest point of excellence; many of the specimens, too, are of a very large size, one piece of Cattleya Mendelii, for example, having twelve flower-sheaths, and specimens of C. gigas, C. Dowiana, and C. aurea, which were suspended overhead, were furnished with flowering growths so profusely as to warrant the expectation of a great display of its gorgeous flowers in due season. Mr. Geo. Cypher, the gardener, who is an apt scion of a plant-growing family, and particularly successful with these plants, remarked that the plants of C. gigas and C. Dowiana sections, flower better when not overpotted, and when kept rather dry from the present time until the flower-spikes are well advanced. Cattleya Lawrenceana superba was grand, and C. Skinneri, a fine mass of beautiful flowers; but perhaps the most charming plant of the collection was a novelty of the macrantha section of Sobralia, with large flowers, the sepals blush-white, the petals lavender, and the large labellum of a clear yellow colour at the base, the throat white, and the broadly-expanded front lobe of pale lavender-blue,—the perfection of a beautiful and delicately-tinted flower. In the same range of houses were Cattleya Schilleriana, Burlingtonia fragrans, Cymbidium Lowianum, and a number of Odontoglossum citrosmum in great beauty.

In the Cypripedium division, several specimens of C. superbiens, C. ciliolare, and C. Curtisii, were in bloom, also larger specimens of C. Lawrenceanum, C. Dayanum, C. caudatum, and various forms of C. barbatum.

The Dendrobes are grown to great perfection here, and a plant of D. Ainsworthii may be cited as an example which bore 230 flowers last year, and bids fair to have this year still more flowers. D. Phalænopsis and species of the bigibbum section were doing remarkably well in baskets suspended near the glass, in a light situation in a warm division. Some beautiful forms of D. nobile were in flower; and small plants of that rather restive subject, D. MacCarthei, had as many as sixteen of their curious large flowers with the slipper-shaped labellums. The small rare D. mesochlorum, and the new and handsome D. atroviolaceum were also in bloom, and D. suavissimum bore twelve spikes.

In the same corner of the house in which some Phalænopsis were growing thriftily, stood Zygopetalum rostratum, a species that is not in general successfully grown. It was in vigorous health, and growing with it were Phaius tuberculosus, P. Humblotii, both well in flower, and other plants requiring similar treatment to these. An instance of remarkable success in plant growing was a specimen of Thunia Marshalliana, with very stout stems clad with leaves nine inches in length. The Bamboo-like character of this plant, when well grown, renders it highly ornamental, even when not in flower. Among out-of-the-way plants, a healthy collection of those interesting plants, the Catasetums, Aërides expansum, Leonia Gongora maculata, Vanda Hookeri, &c., was remarked. The cool houses held a good show of Miltonia vexillaria, Odontoglossums, Masdevallias, Lycastes, Epidendrum vitellinum, and Oncidium lamelligerum, and O. macranthum. The Orchid houses are away from the dwelling-house, and the plants in bloom are kept in their various houses, but a temperate and a cool conservatory adjoin the residence, and contain Palms and Ferns, and are always kept gay with the flowers of the season, but not Orchids.

Trees and Shrubs.

THE VARIEGATED SYCAMORE.

The form of Acer pseudo-platanus known as flavo variegata is an effective tree during the spring months, especially if planted on the lawn, or, in other parts where the grass is not so neatly kept as there. The green and yellow markings of the leaves show best when the tree is backed up with dark-coloured evergreen foliage. The growth of the tree is quick in almost any kind of soil, and its habit is more erect than spreading. *E. M.*

Spiræa prunifolia, fl.-pl.

This double-flowered Spiræa is one of the best of the genus as a plant for the shrubbery border. The growth is semi-drooping, the flowers white, are freely produced along the top of the shoots, and by the manner in which they grow they are readily seen. Planted in clumps of three or four, in a sunny spot, is the way to grow and see this Spiræa the best. *E. M.*

Rubus deliciosus.

This should find a home in every garden; it is a non-spiny Rubus, with growth and leaves resembling those of a Currant, and bearing numerous large white flowers, something after the manner of Clematis montana. It thrives in these gardens freely on a wall with an easterly aspect. After flowering, the growths required for covering its allotted space should be laid in, and the superfluous cut away, leaving the young growths free; and in this way the plant presents a most pleasing effect when in flower. *W. Harrow, Botanic Gardens, Cambridge.*

Drimys Winteri.

This plant will stand out in some localities, and may also be turned to good account for decorative purposes. By the use of the pruning-knife, good bushy specimens may be obtained, without any apparent injurious effect to the plant. It belongs to the Magnolia family, and grows to a height of 25 feet. It was introduced from South America in 1827. The flowers are of creamy-white, scented, and compare with those of the Jessamine; they measure from 1 inch to 1¼ inch in diameter, and are produced at the ends of the branches in profusion. The leaves in shape resemble those of the Rhododendron, being light green above and glaucous below. The same treatment afforded Choisya ternata suits it also. *W. H.*

Florists' Flowers.

THE AURICULA.

The advocates of the early potting of Auriculas have a great amount of common sense on their side. The Auricula becomes active in February, and accordingly as the weather is favourable or otherwise, it develops, makes bare its trusses of bloom, and expands the pips. It develops offsets on such plants as are strong enough to do so, and then takes its midsummer rest. The Auricula may be said to have two periods of rest, very opposite in themselves—midwinter and midsummer. As the summer wanes, the second period of activity sets in, which continues until autumn is reached, and then the plants gently fall away to their winter rest, as the Rev. F. D. Horner puts it. The appearance of the plant, indeed, at each is very different, but its condition is much the same—one of rest. In December, its apparent quietude is but the preparation for the display of spring; and though scarcely a movement is perceptible in the few short stout leaves that are left, and that form its winter covering, it is busy within forming leaves and flower-buds, just as the Tulip bulb also, in its time of rest, invisible to us, is making a like preparation.

I like to repot my young unbloomed stock of Auriculas early in April; they catch the flowing tide of Auricula fervour, and during May make free and vigorous growth, becoming fine plants by the end of the summer. The blooming plants cannot well be repotted until the flowers have begun to fade; and such plants as it may be deemed desirable to take seed from, are best left in their pits until the seed is ripe. The most critical time for the plants, and when they often go rapidly back, comes in the interval between blooming and repotting. August used formerly to be regarded as the best time to repot, and if the plants are left in exhausted or sour soil until then, or if they are not closely looked after during midsummer, they deteriorate at a great pace, and we have found that the downward course is a more rapid one than the upward. It is easy to see that there was a positive advantage in top-dressing in the case of plants not to be repotted until August; it was a kind of foretaste of a complete repotting to follow later, and it furnished the plants with some surface soil in which to root, as in the spring the plants put forth the roots immediately below the bottom leaves, and just above the soil. It is invaluable to the plants to have some sweet and invigorating soil for their new roots to work into. Even for out-of-door plants a little compost tucked under the leaves in April does much good, and is equal to sinking the plants. Soon after midsummer the Auricula again becomes active, but its growth is not so stirring as in the spring. Happy are they who have repotted in time to benefit by this awakening. Plants not repotted put on this growth, but they do not appear to answer to it with the zest they do if the roots are in fresh soil. While yet waiting repotting, the soil dries quickly because so full of roots, and exhausted. In warm weather Auriculas require water almost daily if in a dry position, while those which have been repotted will go for several days without much harm, though it is risky to let them become dust-dry at that period of the year. Unpotted plants seem to be more liable to be infested by insects than those in clean pots and fresh soil. At the same time, newly-potted plants need to be

closely looked after, as aphides soon make headway if allowed to gather on the under sides of the leaves. The Auricula is a plant that never requires much water. My plants are in a north house, and get some sun during early morning and late in the afternoon, and they frequently go for a week or more without being watered. The drainage of Auricula pots should be perfect, so that the water will pass away freely, and if it should remain on the surface, there is defective drainage.

I have mentioned the potting of young stock. I give only a shift, so that the pots may soon be filled with roots. About the end of August I give another shift. It is true the plants make but little growth afterwards, but the roots are active, and the plants are well established by the time of their winter's rest.

Yellow Forms of Auriculas: Selfs.

Golden and yellow forms of the Auricula are not uncommon, as is seen in the case of the fancy Auriculas shown last week by Messrs. Douglas and Barlow. Some of Mr. Dodwell's flowers were very novel and singularly handsome. The term fancy, as applied to the Auricula, is a convenient and elastic rather than a definite and arbitrary one; and under it can be comprehended any variations not in the sections acknowledged in schedules of prizes. Many seedlings of this character are too good to be thrown away, and they can only be exhibited as fancies.

The blue self appears to be the highest in point of value; at the present time, Barlow's Mrs. Potts may be said to head the list. It was more numerously shown than any other self on April 22, which says much for its constancy of character. Next come the purple and dark selfs, of which Heroine and Black Bess are such conspicuous types; the latter is a very fine dark flower, making a first-class exhibition variety, and, like Black Bess, was much shown recently. Next comes the red selfs, of which we have very few, Maud and Lord of Lorne still being the best. Mr. Horner has a very fine red self, named Firefly, which, it is to be hoped, will be distributed in due course, if it still maintains its reputation. Lord of Lorne is a striking flower when well grown, though it has the defects of a weak paste and notched segments. But its bright colour always causes it to tell well in a stand. Duke of Argyll, by the same raiser, is scarcely ever—or I might say never—seen now.

Lowest of all in point of rank come the yellows. Strange to say, however beautiful a yellow self may be, an exhibitor would regard its presence in a collection as weakening rather than strengthening it. Does not this partake of a kind of old world prejudice it would be well to get rid of. I shall, doubtless, be thought proclaiming a rank floricultural heresy, but I say it because I think the yellow self should have a place on the exhibition table as well as any other colour in the section. It has been said the yellow selfs can be shown among the fancies. Precisely so, if they are only second-rate; if they are first-rate, let them be considered as of the same value as selfs of any other colour. *R. D.*

Plant Notes.

NICOTIANA AFFINIS.

This is a charming tender perennial, which will grow in a greenhouse in winter, but to have the full beauty it should be kept gently moving. When planted in 32's and 24's it makes fine plants that are of decorative value in the spring, throwing out numbers of flower spikes from the upper part of its branching stems to the height of 5 feet. The flowers come in succession. It is usual to raise a stock of it from seeds, but a good pure white variety being secured, cuttings of the side shoots and of the roots may be employed for the purpose. The soil best suited for the plant is loam, exhausted Mushroom bed materials, and a little sand; and the plant should be grown in a pit and near to the glass, at least, during the winter, and in a temperature of 55°. Here they make dwarf sturdy plants, and well repay the little trouble bestowed on them. *A. Evans.*

Callas, or Richardias.

Although some gardeners advocate the plants to be kept in pots during the summer months, it is a practice that is not likely to become general, as planting out means less labour and equally good results. I divide the old stools before putting them out on fairly well enriched soil, planting them firmly at 2 feet apart, and supporting the leaves with strong stakes. The old flower-spikes are cut away, and, if left on, they not unfrequently seed at the expense of the plant. A basin-like depression should be made round each plant to hold water.

Saxifraga Camposii.

This species of Saxifrage, sometimes known as S. Wallacei, is a first-rate plant for the front of the herbaceous border, if allowed to grow into tufts about 1 foot across; or on the rockery, where it makes a brave show at this time of the year. The flowers, about two-thirds of an inch in diameter, are produced abundantly, and it is one of the easiest of the whole genus to increase and grow, which it does not do more than 6 inches in height.

Anthericum Liliago.

The St. Bernard's Lily is a charming spring-flowering hardy plant, well suited for planting in the mixed border, or on the rockery, where root-space is ample. In such places, the plant throws up numerous flower-spikes 1 to 2 feet high; the individual blossoms are pure white, and the points of the petals recurve. It flourishes in a light sandy soil, but objects to a cold, heavy, or wet soil, and usually suffers in such during the winter. *E. M.*

Rondeletia gratissima.

Of the various species which have been introduced, perhaps those which have at one time or other been designated Rogieras are certainly showiest, and as they come from a rather cool region, they are more at home in the cool greenhouse than in the stove, where the West Indian Rondeletias are usually grown. R. gratissima, however, is quite at home in a house where the temperature never falls below the freezing-point, and is in no wise particular as to soil; but a good friable loam is best, and the position should be light and airy, and abundance of water being afforded the plant when growing, which it nearly always is more or less, as no sooner have the flowers faded than it begins to push new growth, and any cutting back that may be needed should be done at that time. The flowers are of a pinkish colour, agreeably scented, and produced in dense terminal and axillary corymbs which are sometimes 6 inches across; at all events, when planted out in a good rich bed of soil, they attain such dimensions. Although it is a plant well suited for planting in a winter garden or conservatory, it is quite amenable to pot culture. The flowers are useful for cutting, indeed, they are rather choice in that respect.

Fuchsia arborescens.

In general appearance, the inflorescence is not unlike a huge bunch of Lilac; in fact, the plant has been figured in the *Revue Horticole* under the name of F. syringæflora. Its nearest ally is probably F. ovalis, but in that species the peduncles are axillary, and the plant pubescent; whereas, in F. arborescens the flowers are borne in large, terminal, trichotomously-divided panicles, and are produced in early summer from the growth of the previous year. Any pruning which the plant may require should be done as soon as the flowering season is passed, in order that a good growth may be developed before winter sets in. The species thus differs from the florist varieties of Fuchsia, inasmuch as it cannot, like them, be ripened and stored away for a few months, under which treatment it might survive, but would not be likely to flower. It is really an evergreen, attaining the dimensions of a small tree and is a capital thing for planting out in a large glass-house. It may be kept cut back to a given height, but it should not have less than 10 or 12 feet of space to itself, if it is to be seen in its true character. It is easily propagated by cuttings, and succeeds in any ordinary garden soil. *F. R.*

Anemone nemorosa, flore pleno.

This is a good plant for a sunny part of the rockery, and makes a show at the end of April or early in May. When once established in a loamy soil, mixed with lime rubble sufficient to keep the soil porous, it quickly spreads, and forms a dense clump, which never fails to flower freely each year. We have it growing beside the blue A. appenina, which is a beautiful rock plant; and by the time that that species is past flowering, the white-flowered species under notice commences to bloom. Division of the roots or tubers any time after the foliage has ripened off is the means of increasing the stock. We do not practise lifting the roots annually, and they succeed very well.

Arenaria balearica.

This Sandwort is a gem for covering the stones in the rockery, especially those which are moist and sandy; upon such it grows the fastest, forming a dense covering of close growth, thickly studded with the minute white flowers during April and May. At the end of the summer, when the weather is dry, the leaves of the plant appear to shrivel up as if the plant were dead, but with a return of moist weather the growth again springs forth as in early spring. Where a rockery, large or small, is in existence, a portion of it should be covered with this Sandwort. *E. M.*

NATURAL CONDITIONS & CULTURE: PLEIONES.

Mr. Gammie, in his interesting communication on p. 546 ("Orchids in Sikkim"), refers to a portion of a chapter on Pleiones written by me, and editorially quoted in the *Gardeners' Chronicle* a little while ago. As Mr. Gammie complains that the words quoted were not sufficiently explicit to prevent misunderstanding as regards the cultural requirements, and error as to the geographical position of Pleiones, perhaps I may be allowed to explain, as I do not wish to be suspected of carelessness in matters of this kind.

The quotation commented upon was from the introductory remarks on the genus Pleione as a whole. Permit me to make the following extracts from the chapter as it appears in *Orchids*:—

"All the Pleiones are natives of the mountains in India. . . . Two of them are wild in regions where snow and frost sometimes occur. They are found often in great abundance, clothing the trunks of trees, and clinging to moist rocks, in positions exposed to full sunlight.

"Culture. . . . Many fail with them through giving them tropical treatment and excessive coddling. . . . The plants after potting are placed in a cool house, and not watered until the leaves are well developed, and the new roots have penetrated well into the soil. About the beginning of April they are placed in an intermediate temperature, close to the roof, in a light moist house. . . . When the leaves are mature, the plants are again placed in a cool house."

Under the species described, the following information is given:—

P. Hookeriana.— . . . Requires constant cool treatment. . . . Found wild at an elevation of 8000 to 10,000 feet on the Sikkim Himalayas . . . where in the cold season the temperature falls many degrees below freezing point. It should be grown close to the roof in a cool moist house.

P. humilis . . . This species is found in Nepal, at an elevation of 7000 feet.

P. lagenaria . . . We have seen pans 10 inches across, containing plants of this species, bearing over eighty flowers expanded at one time . . . Himalayas,

where it is common on trees and rocks at high elevations.

P. maculata . . . This is found at lower elevations, consequently it requires a little more warmth than the others. It should be grown in an intermediate temperature, although under the treatment recommended for Pleiones generally it makes large bulbs and flowers fairly well.

P. præcox . . . scarcely different from P. lagenaria, except in the colour of the flowers.

Mr. Gammie, is of course, in a better position than I am to test the accuracy of all that is said in the above as to the natural habitats of the Pleiones described. The figures given agree with those in Sir Joseph Hooker's recently published monograph of the Indian Orchids [in the Flora of British India.] But whether these Pleiones grow on wet or dry rocks, in the lowlands or on the highlands of India, I am absolutely certain that the cultural directions given for them are reliable, as they are from actual experience.

With respect to temperature as an important factor in the distribution of plants, it has to be borne in mind that it is not the only one. A plant may be prevented from extending higher or lower, as the case may be, by other obstacles than heat or cold. The behaviour of hosts of plants under cultivation proves that such must be the case. I will mention only two: Mr. Burbidge found Nepenthes Rajah at so high an elevation that he recommended cool treatment for it; under cultivation it is perfectly happy in a tropical house with the rest of the Nepenthes. Zephyranthes candida, found in the hot Valley of Lima, but perfectly hardy at Kew, is the only hardy species in fact, although the others come from high altitudes. Herbert noticed this peculiarity in this Zephyranthes, and makes the following comment upon it: "There is, however, a mystery in the constitution of plants, which does not always depend upon their native climate." (*Amaryllidaceæ*," p. 177.)

Mr. Gammie's remarks on Cymbidium eburneum appear to me to clearly indicate that this plant requires tropical treatment. At Kew it is grown and flowered in the same house as Lycaste Skinneri, in fact it is now, I believe, invariably grown in a greenhouse rather than in a stove temperature. If placed in the same house with Dendrobium fimbriatum and D. aureum, its leaves soon become spotted, and the plant is a failure. Indian botanists and travellers frequently express surprise and astonishment on seeing the temperatures in which some plants thrive when under cultivation in England. *W. Watson, Kew.*

SUNDIALS.

Imagine a blessed time when Time was not; when light and darkness formed the only measurement of recurring but uncounted days; when business engagements were impossible, punctuality a word unknown; when hunger sounded the dinner-bell, drowsiness rang the curfew; when Jaques' Fool could not have "moralled" in the Forest, nor King Henry VI. have soliloquised on Towton field; when Southey could not have cursed the Balliol chapel bell, nor Mr. Peter Magnus' signature have "amused his friends very much." The gods confound the man, says Plautus,

> "The gods confound the man who first found out
> How to distinguish hours;—confound him, too,
> Who in this place set up a sundial,
> To cut and hack my days so wretchedly
> Into small pieces. When I was a boy,
> My belly told me when 'twas proper time
> To go to dinner,—when I had aught to eat;—
> But now-a-days, why even when I have,
> I can't fall to, unless the sun gives leave."

The first horological offender—so say the learned—was some Chaldean shepherd ranging trackless fields, who being, what David Copperfield called his rival at the pic-nic, "an ingenious beast," erected his staff in the ground, and marked by stones or indentations the progressive shadows of the Sun-day, primal rudiments of the hour. To later sages it was revealed that a staff inclining to the pole-star afforded more permanent measurement; and there for centuries invention paused, till the mathematical astronomy of after days took in hand the rude device, regenerating it into an instrument of precision, portable or fixed, horizontal or vertical, reflective or refractive.

The earliest on record is the sundial of Ahaz, obtained by him doubtless from Assyria, about 714 B.C. It appears to have been an obelisk, approached by steps or "degrees," down which the shadows would creep as the sun sank. A partial eclipse, obscuring the upper hemisphere of the sun a little before midday, would cause the shadows to descend the steps, perceptibly to a scientific observer, retiring up or "going backwards" as the obscuration passed off; and it has been ascertained that such an eclipse did take place in the year of Hezekiah's illness. Our next historical or quasi-historical sundials appear in Greece, nearly 200 years later, introduced by Anaximander of Miletus. The Greek numerals are represented by the letters of the alphabet; and the characters which express the hours from noon till 4 o'clock spell, curiously enough, the word ζῆθι, "live." An epigram by Lucian crystallises the lesson—

> "Six hours to toil, the rest to leisure give,
> In them—so say the dial's hours—live."

Three centuries more elapsed before the art was known to the Romans; for though a sundial from a Greek town in Sicily was set up in the Forum about 263 B.C., yet not having been calculated for the latitude of Rome, it told the time inaccurately during a hundred years. The early Christians ascribed to devilry and magic a splendid dial erected in Byzantium by Apollonius of Tyana. A brazen eagle, elevated on a lofty column, grasped a struggling serpent in his talons; the divisions of the day were inscribed upon his wings, and the gnomon was formed by his erected head and beak. The dials of our Teutonic forefathers survive, mutilated here and there, built into the walls of ancient churches. They held to the quadral division of time, distributing the day-night into four, eight, or sixteen parts, which commenced and ended with 4.30 A.M.; and it was not until the Renaissance that in England and on the Continent, the more perfect dial was adopted and passed into ordinary use. We have a dial in Albert Durer's *Melancholia*: Henry VIII. maintained a "deviser of horologies;" Charles I. gave his pocket dial to his attendant just before his execution; the Seven Dials of the London slums, set on a block of stone where seven streets converged, are described by Evelyn, in 1694, and commented on in Gay's *Trivia*. Sir William Temple ordered that his heart, inclosed in a silver vase, should be deposited under his sundial at Moor Park; the dying words of Howard, the philanthropist, have been handed down:—"Suffer no pomp to be used at my funeral, no monument to mark the spot where I am laid; but put me quietly in the earth, place a sundial over my grave, and let me be forgotten!"

And here sundials, supplanted by the pendulum clock, would become mere tenants of the limbo of survivals; their literature, like themselves, "falling into the portion of weeds and worn out faces," but for the fresh interest awakened by the mottos which, from the sixteenth century onwards, makers were wont to inscribe upon them. Few men can be so dull of imagination, or so unconscious of varying words as not to feel thoughts devout, fanciful, scholarly, consolatory, sad, or genial, spring up within in answer to their silent admonitions—

> "Ghostly shapes
> There meet at noontide;—Fear and trembling Hope,
> Silence and Foresight, Death the skeleton,
> And Time the shadow."

Grateful to those who have condensed the happy inspiration or the brooded moral into the witty or the pregnant saying, and eternised them in graven form, we find the motto'd dial, with Charles Lamb, "more touching than a tombstone." Of the 760 specimens collected in Mr. Gatty's beautiful *Book of Sundials*, scarcely one is commonplace; even the familiar, "Tempus edax rerum," "Præterit ætas," "Sic transit gloria mundi," enforce attention, like John of Gaunt's dying words. Occasionally they are classical, as in the happy adoption of Horace's "Eheu fugaces!" "Labitur et labetur," "Vestigia nulla retrorsum;" more rarely a play on words, as "Fugit hora, ora;" the quaint rebus, "We shall—— (*i.e.*, dial = die-all);" the inscription on a dial made of Mulberry wood, "Memento *Mori*" (morus being Latin for a Mulberry). Often they are happily sententious: "Now is yesterday's to-morrow;" "Aspice, Respice, Prospice" (Look, look back, look onward); "Meam non tuam noscis" (Mine hour thou knowest, not thine own); "Scis horas, nescis horam" (The hours thou knowest, the Hour thou knowest not); "I mark time, dost thou?" "Begone about your business," formerly on the Inner Temple Terrace, was the peevish utterance of a busy Bencher whom the artist importuned for a motto. The man accepted it as intentional, and its unexpected appropriateness caused it to be retained. Harriett Martineau, original in everything, emblazoned on her Ambleside dial words of her own invention—"Come, Light, visit me!" and Wordsworth gave his hearty approbation to the motto. Not far off, at Neaum Crag, near Skelwith, is a fine adaptation from the Vulgate—"Sicut umbra ejus, ita lux ejus," (The darkness and light to Thee are both alike). "Ich dien," is obvious but significant; "Mox Nox," untranslatable without loss of force; jolly and hospitable is "Amicis quælibet hora" (To friends any hour they please). "Detego tegendo" (covering I discover), sums in two words the sentiment of Blanco White's splendid sonnet. "Vivit memoria fugit hora" (The hour flies, the memory abides), may be expanded into Tom Moore's juvenile lines:—

> "When Time, who steals our years away,
> Shall steal our pleasures too,
> The memory of the past will stay,
> And half our joys renew.
>
> "Then talk no more of fortune's gloom,
> Our joys shall always last,
> For Hope shall lighten days to come,
> And Memory gild the past."

The most beautiful of all perhaps is, "Horas non numero nisi serenas" (I reckon none but shining hours); the most impressive, from an epigram of Martial, "Pereunt et imputantur" (They pass, but their account is kept).

"No garden is complete without its sundial," is the practical outcome of our homily. When spade and trowel have done their work; when constructive effort is satiated, pictorial grace produced, there remains a reserve of enjoyment to the gardener who loves his plants for themselves as well as for their show, in contemplation of the imperious organic forces which his hand has set in motion, of the mysteries of resurrection, life, decay, at which he sits half dramatist, half spectator, of associating his favourites with myth, legend, folk-lore, weird superstition, and poetic fancy. To these higher temperaments plants and sundials harmoniously minister; in colour, as in shadow, children of the sun; unhasting yet unresting chroniclers of fleeting time; prophetic, by their daily vanishment into the night, when none can work; hopeful in their fixed awakening, the dial from its nightly obscuration, the flowers from their winter sojourn out of sight. If there are tongues in trees, there are no less sermons in stones; every "burgeoned maze of Quick"—every "span of shade that steals"—combine to make one music. *W. Tuckwell, Stockton.*

[The fine old sundial represented (fig. 113) is in the possession of Sir F. Millbank, of Thorpe Perrow, Bedale, and stands in a central position in the flower garden at that beautiful place, an object of interest alike to the proprietor and to his gardener. Ed.]

Calycanthus floridus.—Every shrubbery border should contain a few plants of this Carolina Allspice. It is a bushy plant, growing from 5 to 9 feet in height, according to soil and situation, and does best in an open sunny situation in any kind of soil from peat to light loam, providing the drainage is good. Its dusky, aromatic flowers are produced freely from the middle of May to the middle of July. The plants should be spurred in a little at the fall of the leaf, so as to secure compact, free-flowering bushes. *H. W.*

THE SCIENCE OF HORTICULTURE.

The science of horticulture is many sided, and sometimes ill-defined. The better part of it may be expressed in the phrase, "Variation of plants under culture and selection." In many cases, the effects of the simplest operations of culture are not well understood. The mere accident of variation in soil may be found to modify plants, sometimes profoundly. Sandy soils tend to produce high colours and high flavours, in consequence of their greater warmth. Peaches are nearly always richer in colour and flavour on such soils than on wetter and stronger soils, other things being equal. Squashes often show remarkable differences when grown upon different soils, and these differences can sometimes be perpetuated for a time by seeds. The writer has produced from the same parent Squashes so dissimilar, through the simple agency of a change of soil in one season, that



Fig. 113.—Old sundial at Thorpe Perrow. (see p. 676.)

they might readily be taken for distinct varieties. Peas are known to vary in the same manner. The ends of a row of Peas, sown of the same kind, last year gave the writer marked variations due to differences in soil. Many well known varieties are less distinct than were the two extremes of this planting. Light soils also tend to shorten the period of growth. Upon such soils plants mature earlier, and are consequently hardier. This is one of the earliest lessons which the fruit-grower masters. It is not known if this character attained from soil, is transmissible to offspring. Light soils tend to make most plants smaller. Pea growers characterise soils as "good" and "viney." Upon the latter sort the plants run to vine at the expense of fruit, and their offspring, for two or three generations, have the same tendency. Light soils decrease the tendency to vary. Of many plants seedsmen secure best seeds from such soils. These seeds are more likely than others to "come true," to reproduce their parents closely. Upon heavy and rich soils varieties tend to "break," or to assume various forms; and this "breaking" is the inception of new varieties. Our general knowledge of the influences of soils upon plants, of which these illustrations are trifling examples, is wholly fragmentary.

Change of latitude often works great change in cultivated plants, and yet the change is so obscure as to lead good observers to declare that acclimatisation does not exist. The most apparent effect of removal through degrees of latitude appears in the stature of the plant. Northward, plants are smaller, dwarfer than southward. As a rule, dwarf plants are relatively more productive than large ones, and as more plants can be grown upon a given area, it follows that they give greater total yields in field culture. But there must be a point beyond which dwarfing is unprofitable, as diminutive plants can produce little. In other words, there must be for each species a most profitable ratio of size of plant to quantity of fruit. Experiment can determine this ratio, and must then seek to produce it. In general, transfer in latitude seems to be the readiest means to accomplish this object. When the latitude of most profitable production is determined for each species, the plant can there be propagated for dissemination elsewhere. Variation in reference to latitude is apparent in many directions. Colour, flavour, habit of plant, and even variability itself, all are modified in many ways through laws of latitude, altitude, and climate which we cannot yet announce.

Plants respond in a wonderful manner to man's care through direct selection. "Like produces like," is to the gardener a law of circumstances and conditions. If the phrase were strictly true, we should expect no improvement in varieties. We should still know only the old Cherry Tomato and the single white or pink Petunia. When once a species begins to vary, is "broken," man's power over it is marvellous. In a score of ways it responds to his touch. Yet, strangely enough, there are few explicit laws known concerning plant breeding by simple selection. It is tolerably well known that the character of offspring is determined by the character of the parent as a whole, rather than by that of any individual part which we may desire to improve. Small tubers of Potatos from large or productive hills give larger yields than large tubers from small hills. An experimenter laboured in vain for many years in the endeavour to improve the Tomato by selecting seeds from best fruits, but when he began to select seeds from fruits of best plants success came rapidly. So it appears that even so simple a matter as "selecting the best" may result in poor practice. *Extracts from an article in the "American Garden," by Professor Bailey.*

INDIA.

FLOWER SHOW AT BOMBAY.

The Victoria Gardens at Bombay have undergone many vicissitudes during the twenty-five years they have been open to the public, and until lately did not give unalloyed pleasure to the numerous travellers, familiar with public gardens in Europe, who passed through Bombay. Such visitors seem to imagine that because heat and moisture are brought into play to produce the most cherished objects of the garden in Europe, that to keep up a magnificent garden in Bombay must be an easy task. Such is not the case. The continual presence of heat and moisture, with no escape from it, perhaps requires more skill to contend with than the frequent absence of those two important conditions necessitates.

During the last two years much of the necessary skill, embodied in Mr. G. Carstensen, has been brought to bear on the work, and in consequence the garden has undergone a great moulting; its old bedraggled feathers have been removed, and the new plumage undoubtedly is very attractive. All the good features of the old garden have been brought into prominent relief, and the objectionable removed. The animals are being removed from the shabby malodorous huts they occupied, and accommodated in well-designed ornamental structures specially adapted to the wants of the occupants. This has cost much money, which is being reimbursed by a small charge made for entrance. In the renovated Victoria Gardens a horticultural exhibition was held on March 26, and two following days, at which valuable prizes brought out some of the showy contents of Bombay gardens, which, combined with the presence of Prince Albert Victor, certainly brought much money from the pockets of the citizens.

The exhibits were much of the same character as would be produced on a similar occasion in England. Showy Crotons, Coleus, Dracænas, Palms, and Panax, were the staple. Fine collections of Ferns, chiefly Adiantum, with good specimens of A. Farleyense, accompanied by numerous seedlings of that Fern, which the exhibitor, Mr. Luard, finds springing up freely on the floor of his Fern-house. A solitary group of well-flowered Dendrobium, chiefly from Northern India, and Phalænopsis, attracted much attention, as they were very tastefully arranged by the amateur owner. Aristolochia elegans was shown in good condition. Eucharis, Hippeastrum, and quantities of the hardy annuals of England, contributed by the Victoria Gardens, and tastefully arranged by amateur members of the committee, improved the general effect.

Among fruits, the Banana, Grape, Suntura Orange, Sapodilla, Pommelo Mango, and Melon, were shown in good condition.

Of vegetables, Cabbage, Cauliflower in fair condition, Celery only fit for flowering, fine white Onions, and red-skinned Potatos, were prominent; and a vegetable that is not sufficiently known—the Dilpassand (*Anglice*, Heart's-delight), Citrullus fistulosa—was shown in good condition. This fruit is used for the same purposes as Vegetable Marrow; it is very good, the flavour approaching that of a new-laid egg.

On the whole, it is evident that the public of Bombay have not awakened to the idea of competition at horticultural exhibitions, nor are they likely to do, so long as intervals of about ten years are allowed to elapse between the exhibitions. If flower shows were arranged annually the spirit of competition would be developed, to the infinite benefit of horticulture in the city that claims the second place in the British empire. *G. Marshall Woodrow.*

QUINCES, MEDLARS, CRABS.

We are reminded at this time of year of the great amount of floral beauty found in these fruit trees and which remain in great part neglected in many gardens and pleasure-grounds.

On sunny banks, and other warm situations that are not too dry, the Quince develops into a large bush, that is every year covered with its large white blossoms, to be succeeded by bunches of round or Pear-shaped fruits. It need not be told with what satisfaction the fruits are regarded by the housewife for imparting a piquant flavour to her Apple tarts, and to make a marmalade that shall almost equal in its delicacy of flavour that made from the Guava.

The Medlar is even a more abundant bloomer than the former, and an ornament to any lawn or shrubbery. It is quaint and compact of growth, not rapidly outgrowing its position. The fruits, if not liked as dessert, make the finest of jelly, if first allowed to become bletted. The small fruited variety is the greater bearer, and the best in flavour.

Of Crabs, there are numerous varieties, all equally hardy and floriferous, not requiring to become aged before flowering. A few species may be here mentioned:—Pirus (malus) pumila, a native of South Russia and the Caucasus, bushy in growth, fruit yellow or reddish; the species is often employed as a stock for dwarf Apple trees. One variety is the Doucin of the French, and another the Johannis Apfel of the Germans. P. malus frutescens has smooth leaves, and increases in size by suckers thrown out by the parent stock when unworked; P. acerba, the common Crab, the parent of all cultivated Apples; P. prunifolia, the Plum-leaved Siberian Crab, grows from 18 to 30 feet high when on its own roots, but may be dwarfed by working it on the Doucin; the fruit is as large as a walnut, reddish-yellow in colour. P. prunifolia is sometimes known in gardens as P. sibirica, P. polonica, and P. græca.

P. spectabilis is a well-known Chinese species, with roundish red-yellow fruits. P. s. floribunda has wood-buds and flower-buds of a carmine colour just before they expand. The type and its varieties flower most freely; and P. s. Sieversii has double flowers of a lively red colour. P. baccata, the berry-bearing Crab, is a tree or a bush according to its training; flowers, like most of the genus, are white, the fruit round, reddish-yellow, with long stalks and hanging in bunches. There are in nurseries some eight or nine varieties of this species with fruits of various colours. P. b. præcox is fourteen days earlier in flowering than the other forms; and P. b. cerasifera has fruit of a yellow colour larger than any others.

America has several species of Crab, but as these are seldom met with in our country, mention of their names must suffice, P. angustifolia, P. coronaria, and P. Toringo. The fruits of all Crabs are eligible for all the purposes for which Quinces and Medlars are fitted, and for bottling.

Epimedium diphyllum.—This pure white variety is an excellent one for the rockery, or a nook near the water's edge. A correspondent says that he has it growing at the foot of a stone bridge amongst the stones close to the water, and it succeeds well. The ground during the winter is covered with Sedum Lydium, which makes an excellent carpet for hiding the soil at that time, and also in forming a suitable contrast to the flowers. The leaves are supported upon slender stalks, are not deeply veined or marked as in the larger E. alpinum, but are extremely pretty when in young growth during the early part of May. Propagation is easily effected by dividing the roots in the autumn or early in April before the new growth commences.

FORESTRY.

Planting Chalky Soil on the Sea Coast.—The difficulties to be encountered either in planting chalky ground or exposed seaside situations are great enough, but when we have to contend with both these combined, the task becomes one that is fraught with unusual and peculiar interest.

Along the seacoast from Folkestone to St. Margaret's Bay, are at least a few examples of the particular trees and shrubs that succeed fairly well under the combined influences just described, as well as the methods pursued in planting and after management.

Having for the past few years had some experience of tree and shrub planting along this particular coast, and in the worst class of soil and most exposed situations, I may be allowed to say a few words regarding not only the best system of planting, but the kinds of plants to be used. No more salutary lesson could, however, be learnt than from a keen scrutiny of the various kinds that do best in the numerous grounds and gardens along the coast. On Lord Granville's property, I have noticed that on the exposed chalky cliffs which rise perpendicularly, or almost so, for 500 or 600 feet, the tree that does better than any other is the Austrian Pine (Pinus austriaca).

The growth, as might well be expected on so high cliffs and fully exposed to the Channel winds, is not what one is accustomed to see in inland woods and parks, but it is, nevertheless, so stout and well-formed that even the most severe hurricanes seem to do it but little harm. In such situations I have frequently noticed that the spread laterally is out of all comparison with the height of the plants, and where shelter is of paramount importance this mode of growth is perhaps quite as valuable as had the shoots a more upward inclination.

When compared with the Austrian, the Scotch Fir (P. sylvestris) is a good way behind; but for all that, it is of great value for planting on exposed chalky ground. The Evergreen Oak (Quercus Ilex), is certainly a most valuable evergreen for the seacoast, as it takes kindly to exposure and the saline blast, while for planting in chalk it is all that could be desired.

Amongst deciduous trees, the Sycamore seems to be one of the best, for it comes out fresh and green, and without the dying-off tips that make the majority of trees so unsightly in exposed and high-lying maritime situations. Two species of Poplar and two of Willow grow with unusual freedom at St. Margaret's Bay, and they seem little the worse for the stiffish winds to which they are often subjected.

Shrubs that will thrive on chalk and within sea-influence are not a few, for I have noted rather a long list of such as are in every sense of the word to be recommended for the rather peculiar conditions. Everyone knows that the Tamarisk and Euonymus are proof against the saline blast. The following are excellent:—The flowering Currant (Ribes sanguineum), Snowberry (Symphoricarpus racemosus), oval-leaved Privet (Ligustrum ovalifolium), Sweet Bay, Lavender, and Veronica spicata—the latter is a valuable shrub for chalky soils on the sea-coast, it grows very freely, and produces an abundance of showy flowers.

Juniperus communis, hardly half-a-foot in height, but in broad and dense patches of several feet across, I found in quantity on some of the more easily ascended chalk cliffs, thus showing that for withstanding the double influences of chalk and saline air it is of value. The Laurustinus must not be excluded from the list. Two plants that, above all others, do well, are the New Zealand Flax and Pampas-grass, the former in particular sending up stout leaves 5 feet high and 4 inches wide in the Hermitage garden at St. Margaret's Bay.

Having given a short but reliable list of trees and shrubs for planting on pure chalk, or almost so, and on the seashore, it may, in conclusion, be well to point out some of the drawbacks to successfully establishing any or all of those named.

In the first place, more deaths are due to bringing the plants from sheltered inland situations than to any other cause I know of. To give an example: for the past two years I have been sending picked plants from the home nursery at Holwood to the seaside at St. Margaret's, and by picked plants I mean such as were in perfect health, well rooted, and of stout build. Now in planting these, along with others that had been grown in a temporary nursery on the seashore close to where they were to be used, the difference in growth was very marked; indeed, so marked that I intend having all plants that are for this particular place transplanted to the nursery in question for a year at least before being planted out permanently. *A. D. Webster.*

PLANTS AND THEIR CULTURE.

Ferns.—If the Ferns were repotted early in the year the pots will be filled with roots, and some weak liquid manure may be afforded them; and more space will be required for the further development of fronds and to prevent loss by damping. By removing the Adiantums required for cutting purposes to a slightly cooler house, this object will be attained. Ferns will now require to be shaded during warm sunshine, but the shading should be portable, as nothing spoils them sooner than perpetual shade. The late Adiantums should have been repotted, and then placed in a cool house, not syringing them overhead. These cool grown plants are better for cutting than others grown warmly. We reserve a few dozen plants every year for this purpose, and grow them in cool pits.

Filmy Ferns should be frequently syringed overhead, a trifling amount of fresh air being afforded them daily, and denser shade—when shade is required—during the next few months. Gymnogrammas, now growing freely, may stand in the driest and warmest part of the house. Gymnogrammas suffer if syringed, and they do well in a house devoted to plants requiring little atmospheric moisture, succeeding wonderfully in houses in bad repair where much glass is broken, and in vineries. Small plants that have grown from spores are often found in various parts of the house growing on walls, under the benches, &c., these should be collected and potted. Slugs are troublesome on Gymnogrammas, destroying the young growths if not diligently searched for in the evening.

Davallias, and other species of Ferns employed in hanging baskets, will now require abundance of water to keep them in good condition, sometimes soaking the baskets in a water-tank—merely watering them with the can being insufficient. Nephrolepis are good basket Ferns, and make splendid plants; N. exaltata, N. davalloides, N. tuberosa and others, if kept thoroughly moist.

Adiantum amabile, the useful Asplenium flaccidum, and A. longissimum are also desirable Ferns. Any refurnishing of baskets should get instant attention, keeping the newly-planted ones in a moist house for a short time. Ferns infested with scale should have all infested fronds removed and burnt, and if mealy bug should be present, the Ferns, if not valuable, should be destroyed. Pteris serrulata is best when grown in a cool house if the fronds are intended to be cut, as they are then more lasting. Many of the more robust of the Pteris are benefited by frequent applications of manure in a much diluted state.

Gleichenias, now making progress, should have their creeping rhizomes pegged down to the soil. Such Tree Ferns as Dicksonias, Lomarias, Cyatheas, and Alsophilas which are throwing up fronds in quantity must be encouraged to grow by syringing the stems three or four times a day from different points, so as to wet every part of them. Any sickly plants can be encouraged to make new roots by binding fresh sphagnum moss round the stems. Any unsightly fronds may be removed to make room for new ones, and especially should the dirty fronds be cut off. Hardy deciduous species which were housed should be removed to a cool frame facing north, where they will make strong growth. These hardy species will be found useful in places where it would be undesirable to put choicer varieties. *Geo. Wythes, Syon House, Brentford.*

THE FLOWER GARDEN.

Bedding Out.—If the various hints given in preceding calendars have been made use of, much time will be saved now that the bedding out the summer occupants of the flower beds must be taken in hand. Before putting any plant into the soil, it should receive an hour or so previously a thorough watering; and in planting, the soil around the roots should be made firm with the hand. When the planting of a bed or series of beds is finished, and no rain fall, the soil should receive a good watering, and when it becomes somewhat dry afterwards, the surface

should be loosened up and raked moderately fine, although soils which cake readily after rain are the better for being left with a rougher surface.

Sub-tropical Plants. — Weather permitting, the tender plants employed for filling the beds in the sub-tropical department may generally be planted, only in unsheltered gardens and in northern counties may the work be deferred a little longer. A rich soil, good drainage, and in some cases beds slightly raised above the level of the lawn are essentials of good growth. Do not plant thickly, bnt allow each plant space for full development without crowding its neighbour. Sub-tropicals, as soon as planted, should be staked if standing in need of support, and watered. Opinions differ as to the position these plants should occupy. A few are admissible in the flower garden proper, where as foils to flowers and flat beds they are appropriate. The dwarfer Castor Oils, Canna, Eucalyptus, Grevilleas, Abutilon, Wigandia, and some of the dwarfer Solanums, are some that admit of being used in that part. They are best grouped by themselves, but may also be dotted amongst the flowers, but not everywhere. As a rule, the taller sub-tropicals are better in sheltered nooks, where the sun reaches them the greater part of the day, or in a garden by themselves. Wherever they are placed in masses, some tall flowering plants should be added to relieve the monotony of green leaves. The following are the names of a few such: the taller species and hybrids of flowering tuberous Begonias, Dahlias, single and double flowered, Hollyhocks, Plumbago capensis, Fuchsias, Delphiniums, Polymnia grandis, Roses trained as pillars, Funkia Sieboldi, F. subcordata, Everlasting Peas, Helichrysum monstrosum, Erythrina crus galli, and Campanula pyramidalis. And it goes without saying that all groups look better when some dwarfer plant, flowering or not, is employed as an edging to the same. When the bedding out is completed, a general tidying up should follow, the edgings to beds and walks cut evenly and the grass swept, and everything made neat.

Miscellaneous.—The seed pods of Rhododendrons and Azaleas should be removed, and herbaceous plants staked and tied up loosely but neatly. Examine the Rose bushes and standards for caterpillars and aphis. Hand-picking is the only means of destroying the former, and tobacco water mixed with clean water for the latter. Good tobacco water will require to be diluted with ten times its bulk of water. An infusion of quassia chips is a cheap insecticide for use against aphis; and for mildew, syringing with soap-suds and a slight dusting with flowers-of-sulphur is efficacious. *D. C. Powell, Powderham Castle, Devon.*

The Orchid Houses.

East-Indian House. — The Phalænopsis, now growing and rooting vigorously, will need encouragement to make their growths as large as possible, and to this end weak liquid cow-manure may be given them with safety once a week. Manure should not be afforded these plants unless they are making leaves. Lose no opportunity of sponging the foliage with soft soap water. As the leaves of Cattleya Dowiana burst, and show flowers or not, the plants should receive a good watering. Any plants that do not show sheaths will require to be rebasketed, an operation that may now be done. As compost, use three parts fibrous peat, and one of sphagnum moss, and if a few potsherds be mixed with the above it will be better for the roots of these Cattleyas, which cling to and run over hard but porous substances. Cattleya Eldorado and its varieties should be grown in this house, and not grown so cool as is often done. Where Dendrobiums are grown in this house, they should be so placed that the syringe may be freely used upon them without water touching such plants as Phalænopsis and Calanthes. Calanthes, as the roots begin to fill the pots, should gradually receive more and more water, but, like most bulbs, they object to have water in their neighbourhood until roots are emitted.

Cattleya Lawrenceana, which has been flowering in the Cattleya house, should now be brought back to the East-India house, and placed in a light position near the glass, and if repotting is required, it should now be done, employing the same kind of compost as that advised for C. Dowiana. Cypripedium niveum, C. Godefroyæ, and C. concolor, will now be the better for being syringed overhead every day, in the morning; but care should be taken to place these plants close to the ventilators or the door, so as to ensure good ventilation, for if this matter be neglected, damping off of the growths is almost certain to occur, no matter how much care be taken in the watering. Sudden chills must be avoided, and where the shading over Phalænopsis is thin, it is a good plan to paint the glass above them, as very strong light is not good for their well-being. The temperature should range from 70° to 75° at night, with a rise of 15° by sunheat.

Cattleya House.—The greater number of the plants of C. Skinnerii will now have passed out of bloom, and should be repotted, at least those that require it; but this species does not like its roots disturbed, and where the pots are filled with roots, the greatest care should be taken to first break the pots and carefully remove the roots from the potsherds with a thin bladed knife, and not disturbing the roots which may have coiled round the drainage materials, which should be placed intact in the new pot, putting some more potsherds around these. A compost consisting of three parts fibrous peat and one of sphagnum moss will suit these plants, little water being necessary for a month afterwards, if the potting materials were moist when used.

The white varieties of Lælia anceps, now growing away freely, may be syringed overhead every day, in the morning; the roots of these plants seem to like to ramble away from the potting material, so that it becomes necessary to adopt this means of keeping them moist. It will now be necessary to increase the moisture of this house; all stages, walls, and floor should be saturated morning and afternoon, the shading removed about 3 P.M., and the house shut up, the thermometer being allowed to touch 95°, with a minimum night temperature of 65°. *A. G. Catt, Parkfield, Worcester.*

The Hardy Fruit Garden.

The Orchard.—Newly-planted trees will still require attention, not only in supplying the roots with water, but a larger quantity of mulching, which should be of a loose nature. The season so far has been dry, and unless mulching be attended to, on light soils in particular, the wood buds will not develope into more than a tuft of small leaves, which will form undesirable fruit buds. Trees newly grafted should be examined, and if the clay be found in a cracked state, which, after dry weather, is very probable, it should be smeared with a thin wash of clay and cow dung, the aim being to keep the scion in a fresh, moist condition, which can only be done by the exclusion of the air. When necessity has compelled the grafter to employ scions from trees affected with American blight—always a misfortune when it is carried into healthy orchards—a keen outlook should be kept on such stocks, and should the blight make its appearance, a dressing of the following mixture should be given: half-a-pint of petroleum should be put into one gallon of the before-mentioned wash of clay and dung, and be worked well into clay and bark with a brush, both above and below. This will be found a really safe remedy. *A. Evans, Lythe Hill, Haslemere.*

Fruits Under Glass.

Peaches and Nectarines.—Keep those trees clear of insects from which the fruit has been gathered, using the syringe daily for that purpose, removing the overhead lights if that be possible. The trees will be benefited by supplies of liquid manure, and should be afforded every facility for thorough but not hurried ripening of the wood. Any hastening of this process of wood maturation would lead to the trees making autumn growth, a process that is always attended with ill results. Thin out, or prune away weak barren shoots, and those which have borne fruit this season, and which possess a young shoot at their bases, laying in the latter. If this system of summer pruning be carried out, there will be but little winter pruning to do, and it is much the better plan. The foliage will be sufficiently thinned by this pruning, as to admit of the sun's rays reaching the borders in many places, also an advantage. Dryness at the roots from now onwards, is the sure precursor of bud dropping in the spring, and should never be allowed. If fruit is wanted to send long distances, it must be gathered when rather under than over ripe, and various methods will suggest themselves by which awkwardly situated fruit may be detached without injury. Fruit carefully gathered is capable of being kept in good condition for a week in a cool room if put on trays lined with tissue paper and cotton wool or elastic dry moss. A few remarks on packing Peaches may here not be out of place. I consider dry elastic wood moss the best material when it is gathered and prepared in the winter, and the dust beaten out of it, and all hard substances removed by hand. Such moss does not heat, and remains always elastic and soft. Each Peach should be wrapped first in tissue paper, four inches square, and the boxes, which may carry one or two dozen, should be corded together when packed. The boxes should be lined with moss, and each Peach arranged firmly in its nest of moss, in which it will travel by rail or road safely. We use this same kind of moss for packing Figs, Grapes, Melons, Pines, &c., and it may be confidently recommended as being superior to anything else. There is in moss no objectionable odour to be imparted to the fruit, which cannot be said of other substances. Even deal, if strongly impregnated with turpentine, has been known to give a flavour to ripe Peaches which were packed in boxes made of it. Finally thin the late Peaches, and do not leave one shoot more than is necessary; expose every fruit to direct sunlight, and bring them up on to the trellis by pieces of lath placed beneath them; give manure water to the roots, and mulch the borders to check evaporation. Look out for insects, and immediately apply remedies; and afford the trees a genial temperature, with some small amount of front air at night. *W. Crump, Madresfield Court, Malvern.*

The Kitchen Garden.

The various crops are now growing apace, and need a great deal of attention as regards keeping the surface of the soil frequently stirred with the hoe, and thinning the plants as soon as strong enough, taking advantage of showery weather whenever possible for the latter operation.

Onions should be thinned when a few inches high, notwithstanding the fact that if they were left till a later period, they would be more serviceable in the kitchen. It is always better to remove some when quite small when very much crowded in the rows, and use them in filling up the vacancies elsewhere, or even bed them apart if the supply is not a very good one. Sow thickly for salad purposes a bed of any kind of Onion. In thinning out the main crop, plants at 1 inch apart at this early stage will suffice, and at the final thinning allow 4 inches between the bulbs. Employ the Dutch hoe between the rows as soon as the thinning has been finished for the purpose of stirring the surface, and filling up holes about the plants, which, if dry weather set in, would be injurious to them. The free use of fresh soot on dewy mornings, where maggot is troublesome, should be practised.

Carrots, Parsnips, Salsafy, Scorzonera, &c.—These root-crops will be large enough to be thinned, and, with the exception of Parsnips, which may be left at 10 inches apart, 8 inches will be a suitable distance to leave the plants. The Early Nantes Carrot may be left thickly in the beds, and thinned when drawing for use.

Vegetable Marrows and Ridge Cucumbers.—Plants may now be put out on prepared beds, before doing so making sure that the ball of earth is thoroughly moist. In planting, some fine soil should be placed about the roots and made firm, and sufficient tepid water afforded to settle the soil. The bines should be pegged to the ground at equal distances apart. If handlights are available, these may be placed over the plants for a few days, and failing these a few branches of evergreens may be stuck in the ground on the exposed sides.

Jerusalem Artichokes. — These require similar treatment to Potatos, and to have the tubers large in size a change of soil is equally essential. The spot chosen should be open to the sun. When the plants are 6 inches high the hoe should be run down the rows to eradicate weeds, and when 8 inches high they should be earthed up as Potatos are earthed up.

Leeks.—Transplant the early plants on to heavily manured land, or into trenches prepared as for Celery. The manure should be thoroughly rotten. Leeks require plenty of space to develop fine stems, and 10 inches apart is not too much for The Lyon and Ayton Castle varieties, but the smaller growers may be planted much nearer together. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are also solicited.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

WEDNESDAY, JUNE 4—Reading. Bath and West of England (till the 10th).

SALES.

TUESDAY, JUNE 3—Orchids, Imported and in Flower, at Protheroe & Morris' Rooms.

FRIDAY, JUNE 6—Imported and Established Orchids, at Protheroe & Morris' Rooms.

SATURDAY, JUNE 7—Greenhouse and Bedding Plants, at Stamford Hill Nursery, Amhurst Park, N., by Protheroe & Morris.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—59°.1.

The Temple Show.

It is satisfactory to have to congratulate the Royal Horticultural Society on having scored a success in the matter of the Temple Show. The Society has had a terrible ordeal to go through, but, thanks to the indefatigable energy of its officers and Council, we may now fairly say that it has weathered the storm, and we hail with delight every fresh instance that it is again winning the confidence of the public. It amply deserves it, for even during its days of deepest humiliation it endeavoured to keep up the old traditions, and demonstrated that the holding of flower shows and the encouragement of rival exhibitors, was not the be all and end all of horticulture. If it has failed fully to realise the ideal, it must be remembered what difficulties and dissensions it has had to contend with, and that it is a very human institution after all. Being human, it must still take cognisance of the rivalries and emulation of the exhibition tent, and of the legitimate requirements of the commercial sections; but it must always be borne in mind that these are really only incidental to the main object—the promotion of horticulture.

At present the general public hardly recognise what horticulture really is. They look upon it too much in the light of a mere recreation and a gratification of the senses—but it is far more than that. Intellectually it ranks as an applied science, demanding for its study the highest powers of the mind. Economically it is of the greatest importance as an industry, in which vast capital is sunk, providing occupation for an army of workers, enlarging and improving the food-supplies of the nation, whilst nothing is more certain than that the agriculturists of the future must study the methods and practices of their horticultural brethren if they wish to turn the land they occupy to the best advantage.

These are the lessons which the Royal Horticultural Society has to impress upon the public, and it does so by its experimental gardens, in the work of its Committees, in its publications, and in its most useful Conferences. But there must be some "cakes and ale" for the public, the ordinary fellows must have something for their money, exhibitors must have an opportunity of displaying their merchandise, and the healthy stimulus of competition must not wholly be ignored; and thus it happens that such things as "Temple Shows," though by no means of primary importance, are a necessity.

A specially interesting feature and wholesome indication was afforded by the number of provincial exhibitors. The magnificent Filmy Ferns of Messrs. BACKHOUSE, of York; the Ferns of Messrs. BIRKENHEAD, of Manchester; the Clematis of Messrs. SMITH, of Worcester; the Pæonies of Messrs. KELWAY, of Langport; the Orchids of Mr. CYPHER, of Cheltenham; the Pansies of Messrs. DOBBIE & Co., who hail from as far off as Rothesay, are instances in point. These are excellent indications of the influence which the Society is regaining in the provinces, and which it should never have lost.

If these shows on a large scale are to be repeated in future, it will be desirable to make them more interesting to connoisseurs by the exhibition of a greater variety of plants, and especially of new plants, which were almost wholly wanting on this occasion. It may, however, be urged that the fortnightly meetings are more appropriate for such exhibits, which can be more carefully examined on those occasions than in the crush of a "big show." A similar argument, however, cannot be maintained against the introduction of fine foliage plants, Palms, Cycads, Tree Ferns, and specimen plants generally arranged in pictorial groups. These are things, the beauties of which could be much more readily appreciated by the public than the differences between one Orchid and another. For instance, the reporter of one of the daily papers expresses his astonishment at experts for seeing any resemblance between Cymbidium Lowianum and a Cattleya!

The exhibition on Wednesday and Thursday last was fortunately held in fine weather. The show was excellent, as will be seen by the details given in another column. It was numerously attended; while the fact that it was opened by His Royal Highness the Prince of WALES gave an added *éclat* to the proceedings.

In addressing the Prince, the Secretary, Rev. W. WILKS, said:

"May it please your Royal Highness,—

"The Council of the Royal Horticultural Society desire to tender to you, on behalf of the Fellows of the Society, and the horticulturists of the kingdom, their grateful thanks for your presence here to-day. The Royal Horticultural Society was founded in the early years of the present century. It has been honoured with the gracious favour and support of Her Majesty the QUEEN, and her predecessors, and was presided over for several years by the PRINCE CONSORT. The Council believe that the Society has, during the eighty-six years of its existence, conferred incalculable benefits upon the kingdom, by directing and fostering a love of horticulture, and by the introduction and acclimatisation of a vast number of trees and shrubs, fruits and flowers, which beautify all parts of our country.

"The Council are aware of the great interest taken by your Royal Highness in the work of the Royal Agricultural Society, and they are anxious to secure your interest in the work of the Royal Horticultural Society. This work they believe to be under the altered conditions of agriculture, of great national importance, in that it encourages the application of horticultural methods to agriculture, enlarges the field of profitable cultivation of the soil, and varies and increases the food supply of the people.

"The Royal Horticultural Society, in addition to its ordinary work, is now devoting its energies to the provision of a great national want—a central Metropolitan hall or home for the horticulturists of the kingdom. Such buildings exist in the chief European capitals and in the United States, and the Council have ample evidence from amateurs, and the very important trade engaged in horticulture, that they are urgently required in London.

"We earnestly trust that the aims and objects of the Society may recommend themselves to your Royal Highness's support."

His ROYAL HIGHNESS replied as follows:—

"Sir TREVOR LAWRENCE, Ladies, and Gentlemen,—I am very much gratified by the address I have just heard, and I beg to assure you that I have visited this exhibition with the greatest possible pleasure and interest. I have always taken a great interest and pleasure in horticulture, and I must say I have never seen a more beautiful show than that we have witnessed to-day, or one better arranged. The best proof of the success of the Society is the fine show we have all witnessed to-day. You have alluded to a great want, that of a central Metropolitan hall. I sincerely hope your labours in that respect may be successful, for I feel sure that such a hall will be of the greatest use and advantage. Let me thank you again for the address, and once more assure you of the pleasure I have had in being present."

DENDROBIUM DEVONIANUM.—This fine species, originally discovered by GIBSON on the Khasia Hills over fifty years ago, and since frequently imported from many localities in Northern India, was, with D. Falconeri and others of its class, long thought to be unmanageable under cultivation, and always, until now, while one cultivator will succeed to his heart's content with it, a far greater number will not succeed in growing it satisfactorily, and hence it has from time to time, when importing has been relaxed, become comparatively rare. When once its culture is understood, however, it is a very easy plant to manage—the proper method being to give it a good growth from the present time or at least from the time its flowers go off, until the growths are well made up, and afterwards a good long rest in a cooler and more airy house, where its deciduous leaves may fall, and the pseudobulbs be thoroughly ripened and prepared for flowering the following spring and early summer. In several collections we have this month seen fine specimens—one of them in Mr. CYPHER'S collection exhibited at the Temple Show—but none equal to that the subject of our illustration, a photograph of which we received from Mr. BROWN, gr. to R. B. WHITE, Esq., Arddarroch, Gareloch Head, N. B. The specimen in question had 864 flowers. Properly its stems are pendulous, and consequently it is best suspended, but before flowering they are often trained upright, as seen in our illustration. There are a few marked variations of the species; one named D. D. rhodoneurum having smaller flowers streaked with purple-rose, and in Sir TREVOR LAWRENCE'S collection there is a very beautiful white form. The plant represented in our supplement this week is in the possession of R. B. WHITE, Esq., Arddarroch, and carried, as Mr. BROWN, the gardener, informs us, at the time it was photographed, 864 blossoms.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We remind our readers that the fifty-first anniversary dinner of this Institution will be held on Tuesday, June 12, at the "Albion," Aldersgate Street, E.C., when the Treasurer, Mr. H. J. VEITCH, will preside, and, we trust, will be well supported.



DENDROBIUM DEVONIANUM GROWN AT ARDARROCH.

THE LINNEAN SOCIETY.—The anniversary meeting of this Society was held on Saturday last, when the retiring President, Mr. CARRUTHERS, gave an excellent address dealing specially with the history of the British Flora. The facts relating to British fossil plants and to the history of those now existing were marshalled with great skill, and justified the warm eulogium passed on the address by Sir JOSEPH HOOKER. The Linnean Medal was presented to Professor HUXLEY, who stated that one of the principal objects of his career as a scientific man had been to show the close relations between plants and animals, and the underlying unity of their life-processes. He had used hypotheses and theories as scaffoldings which enabled a better view to be had of the structure, but he was always ready to abandon them when no longer serviceable, his object being the search for truth wherever it was to be found, and its pursuit without reference to incidental side issues.—At the evening meeting, to be held on June 5, at 8 P.M., the following papers will be read:—1. "On a Collection of plants from Madagascar," by Mr. G. F. SCOTT ELLIOT, F.L.S.; 2. "Dr. Weismann's Theory of Heredity applied to Plants," by Professor G. HENSLOW; 3. "Teratological Evidence as to the Heredity of Acquired Conditions," by Professor B. C. A. WINDLE.

SURVEYORS' INSTITUTION.—The annual general meeting of the Institution, to receive the report of the Council, and the announcement of the result of the election of officers for the ensuing year, will be held on Monday, June 2, at 3 o'clock. The prizes awarded to successful candidates, in connection with the recent professional examinations, will be presented by the President at the annual general meeting. The annual dinner of the Institution will take place at the Holborn Restaurant (Venetian Room) on Monday, June 2, at half-past 6 o'clock precisely.

LILY FLOWERS.—Under this name, a large trade is carried on at most of the Chinese ports in the dried flowers of Hemerocallis graminea and of Lilium bulbiferum, they are usually twisted into lengths of 4 or 5 inches; the colour is of a dark brownish-yellow, covered by a whitish bloom. They are of considerable repute as a medicine in pulmonary affections, and also largely employed in cookery, as a tonic or relish with meat dishes. They are largely produced in the northern province of Shantung, and sell at 7 dollars the pecul (about 28s.), or hundredweight and a quarter. In some of the large ports the trade in these flowers reaches 18,000 to 20,000 cwt. in the year. They appear in the trade returns of Amoy, Canton, Chefoo, Foochow, and Hankow.

WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—This Society, having completed its first session, we may review briefly the work that it has done, and is in contemplation. Fortnightly meetings have been held since last December; a paper was read at each meeting, and some interesting exhibits have added to the success of the gatherings. On May 6, a meeting was held, at which (Mr. W. M. ALEXANDER presiding) a paper was read by Mr. C. ANDERSON on "Poinsettia Culture." On the 20th, a well-attended meeting was presided over by the Rev. A. E. W. LOUIS, to hear a paper on "Plants for Decorative Purposes," by Mr. J. B. RIDING. A lengthy discussion followed, and the meeting terminated with the usual votes of thanks. During the next four months the meetings will be held monthly.

DEATH OF A FRENCH ARBORICULTURIST.—We regret to hear that M. ALPHONSE DU BREUIL has recently died at Avranches, at the age of seventy-nine years. M. DU BREUIL was born at Rouen in 1811, at the Jardin des Plantes, of which his father was the manager. He was for many years engaged in his native town in teaching arboriculture, and in 1853 the Minister of Agriculture appointed him to give instruction in his favourite study in the Departments of France, and for six months in every year he travelled through the different Departments, giving personal instruction and appointing local professors of arboriculture. In addition to founding numerous technical schools, delivering his much appreciated and successful lectures, he was for a short time editor of the *Revue Horticole*, and was the author of more than one book, and of many articles in various periodicals. One of his books, "The Scientific and Profitable Culture of Fruit Trees," has been translated into English (Lockwood & Co.). Some time previous to his decease, he was forced, by failing health, to resign his professorship. At his death the lectures on fruit culture, which were given in Paris, were abolished in favour of a course on the planting of trees in towns as more suited to the requirements of the gardens and promenades of a city.

FLOWER SERMONS IN LONDON CHURCHES.—One of the prettiest sights in London, says the *Daily Telegraph*, is the display in connection with the annual Flower Sermon at St. Catherine Cree. It is said that the rector, the Rev. W. MEYNELL WHITTEMORE, was the first to preach a flower sermon, in the year 1853; this, therefore, is the thirty-eighth celebration of the kind. The good example has been followed far and wide, and it is now a recognised institution, not only in England, but also in Australia, Africa, and other parts of the world. The congregation was a large one, including many regular Whit-Tuesday attendants, and the floral offerings brought were afterwards distributed in worthy channels. The discourse was of a homely and simple character, the Saffron-flower being chosen by the preacher as the basis of his address. Shoreditch parish church was the scene of a curious and ancient celebration, when the Rev. T. G. BONNEY, Professor of Geology in University College, delivered the 160th Fairchild lecture. THOMAS FAIRCHILD was a pious gardener, of Hoxton, who, in 1728, made a will by which he vested £25 in the churchwardens for the delivery every Whit Tuesday of a lecture "On the Wonderful Works of God in Creation," or "The Certainty of the Resurrection of the Dead proved by certain changes in the Animal and Vegetable parts of Creation." Dr. JOHN DENNE began the series on May 19, 1730, and Professor BONNEY took the same text, Matthew vi., 28-30, the theme being the illustration of Providence supplied by the Lily and the sparrow; in particular the learned preacher dwelt upon the marvels of the floral creation, and the perfection of the Divine workmanship, as seen in the tiniest and most insignificant of flowers.

M. BUYSMAN'S PREPARATIONS.—We have received for publication the following appeal to all interested in botany and teaching:—For several years I have published a general analytical herbarium of useful plants, chiefly for teaching purposes. This publication has been very favourably spoken of in the following papers:—*Journal of the Grecian Botanical Society*, November 27, 1885; *La Belgique Horticole*, 1885, p. 247; the *Journal of Botany*, March, 1886; the *Botanische Zeitung* (of Professor de Bary, 1887, p. 158; the *Oesterr Bot. Zeitschrift*, 1887, p. 211; the *Revue Horticole*, 1888, p. 117; the *American Garden*, 1888, p. 207, as well as by the following botanists:—The late Prof. Morren, of Liège; Prof. de Bary, of Strasbourg; Prof. Engler, of Berlin; the Linnean Society of London; Prof. Willkomm, of Prague; Prof. Henriques of Coimbra, Portugal; Prof. Oudemans, of Amsterdam; Prof. Rauwenoff, of Utrecht; and Prof. Saringar, of Leyden. The plants made use of in this publication are mostly cultivated by myself; the tropical species I got from my correspondents in India. Now my garden is too small for the wants of my subscribers, and I must endeavour to get a larger one, and as many botanists have advised me to lay out a garden sufficient for all wants, I have appealed for assistance to several countries, and got promises of contributions from Germany, Austria, France, Holland, and the United States. To get the garden and the necessary buildings I want about £3000. This garden I would lay out in a part of Holland best suited to the purpose, and under the guidance of botanical authorities. As for the usefulness of my herbarium, the favourable criticisms of so many botanists may be sufficient proof, besides, the Linnean Society will give the necessary information to all desiring it with regard to the preparation of my specimens. The latter are really an indispensable material to all studying botany, and especially to students, pharmacists, and medical men. The editor of this paper will receive any contribution that may be sent to his address. *M. Buysman, Middelburg, Holland.*

TEMPLE HILL AND MR. HARTLAND.—We have been informed that in consequence of a clause in the lease of Temple Hill, Cork, Mr. HARTLAND has been obliged to remove all his stock to Ard-cairn. The change was of little moment, inasmuch as the position is equally well sheltered, and better still, it adjoins Temple Hill. The soil at Ard-cairn is a deep, rich, hazel loam, and has been a sheep pasture for 150 years, and is well adapted for growing Tulips and Daffodils.

FLOWERS FROM IRELAND.—We have received a few grand blossoms of Roman Ranunculuses (Milladores), and a new white Anemone. Of the first, we may say that they rivalled pompon Dahlias for size and symmetry, whilst the pose and delicacy of tints surpassed them. We wonder gardeners still pass these flowers by. All Ranunculus are pretty for beds and patches in the borders, and the flowers last long when cut. The white Anemone was very pure and semi-double, an acquisition. A fine yellow Tulip, T. carinata lutea, comes from Mr. BAYLOR HARTLAND. It is long-petalled, flower of a soft clear tint, and grows, we are told, to a height of 2½ feet.

A FRUIT GROWER'S GRIEVANCE.—Sanguine fruit growers, writes a correspondent, may be pleased to know the price of new Black Hamburgh Grapes, as sold by one of the leading Covent Garden salesmen, May 22, 1890. Also that of Strawberries, fine and fresh Nobles:—

12 lb. Grapes, 2s. ...	...	...	£1 4 0
1 lb. Strawberries ...	...	...	0 4 0
			1 8 0
Deduct charges, 3s. 1d. Fare and time of messenger, 2s. 11d.	...	...	0 7 0
Net balance ...	...	...	1 1 0

THE USE OF INSECTICIDES.—The following details are taken from current American publications:—Professor LAKE'S experiments upon spraying Apples and Pears with London Purple for the Codlin moth, give some interesting results. Four sprayings were given, the last one being August 12. The treatment had a decided benefit until "the latter part of August, but from that time to the date of picking (October 1), the affected fruit increased so rapidly, that the final results on some trees of both sprayed and unsprayed were about the same. We had considered it unsafe to spray later than August 12, but the results would indicate that had we omitted the first spraying, and given another in the latter part of August, effective work would have been done." The first spraying immediately after the falling of the blossoms, seemed to accomplish little or no good, as "observations made for two weeks after the first spraying failed to give any indications of the moth's work in the fruit of either sprayed or unsprayed trees." The Codlin moth must behave differently in Oregon than in the eastern states. The summary of the season's work is as follows:—"1. Early spraying—just after the blossoms fall—is useless. 2. A mixture of 6 oz. of London Purple to 100 gal. of water is better than a stronger one. 3. The mixture should be kept thoroughly stirred while being used. 4. Young and vigorous foliage is more susceptible to injury by burning from the application of arsenities than is older or less vigorous foliage. 5. Spraying as late as September 1, or even later on winter Apples, is desirable as far as fighting the moth is concerned. (There may be some danger in such late spraying, however, and this is one phase of the subject for next

year's work.) 6. All fallen Apples that are affected should be destroyed daily. 7. The cost per tree for each spraying will average, in small orchards, about 3 cents. In larger orchards it would be less." *Bulletin No. 3, Oregon Experiment Station.*

Woolly Aphis.—Woolly aphis upon Apple trees was destroyed by a spray of lye-water—1 lb. of concentrated lye to 3 gal. of water. Kerosene emulsion was not found to be a satisfactory remedy. *Bulletin, Oregon Experiment Station.*

Fighting Codlin Moth in Iowa.—Mr. Gillette controlled a small and isolated plantation of Duchess Apples, upon which careful experiments were made with London Purple and water, Paris Green and plaster, and carbolised plaster. In every case treated trees gave better fruit than untreated trees. The poorest results were obtained from the use of carbolised plaster, there having been a saving of 34 per cent. of fruit liable to injury. "This remedy could hardly be recommended, even if very good results were obtained, as it does not kill the insect in any of its stages, but simply repels the moths, which seek the fruit of neighbouring trees, on which to deposit their eggs." Next best results were obtained from the London Purple, which saved about 80 per cent. of the fruit. One pound of poison was used with 128 gallons of water; some of the trees were sprayed once, and some twice. Best results followed the application of Paris Green and plaster. This saved 94 per cent. of the fruits liable to attack. "I believe that no one has ever reported on a remedy for the Codlin moth, which, by careful counts, has shown as good results as this." One pound of Paris Green was used with 100 lb. of plaster. This was thoroughly dusted over the trees, from once to three times. Mr. Gillette thinks that two applications are ample. "Poisons cannot be applied by this method as rapidly or easily as by means of a force-pump, but it has the advantage of costing nothing for apparatus, and the trees can be dusted quite rapidly from a waggon, by driving on the windward side of the row. This method of applying the poisons would be specially useful where only a few trees were to be treated, and where it is thought that a pump cannot be afforded." These results with the dry poison are certainly remarkable, and they indicate that a distributing-machine like the lately perfected Strawsonizer, of England, may yet find use and favour in our orchards. At all events, these experiments afford a new proof of the efficacy of arsenites in the combatting of the Codlin moth. *Bulletin No. 7, Iowa Experiment Station.*

Thorn Embedded in a Hornbeam.—Our sketch, fig. 114, represents the union of a Hawthorn with a Hornbeam, and was taken from a tree in Richmond Park, where we have known it for more than a quarter of a century. The Hawthorn twines round the Hornbeam, which has grown over the Thorn to such an extent that it is almost completely embedded in it. In the head of the tree the branches are intermingled, and in early spring the rich full green of the Hawthorn contrasted remarkably with the fawn-coloured tint of the Hornbeam. We have never seen a more complete junction than this—we can hardly call it union — as there can be no organic union between the two, nor any passage of sap from one to the other. Charles Waterton satirically likened such unions to that between Church and State!

Home Correspondence.

Early Strawberries.—Apropos of what has been written in your columns during the last few weeks concerning Strawberry forcing, and the merits of the different varieties now in cultivation, perhaps you would kindly allow me to give my experience of a recent visit made to Glassingal, near Dunblane, N.B., and of the varieties grown there. Having been much interested in the forcing of this fruit for some years past, and last year, having heard how wonderfully successful Mr. McAra had been with his early Strawberries, I was determined to see them for myself, and find out what varieties were grown. I did not, however, expect to see such magnificent fruit so early in the year. Vicomtesse H. de Thury is here extensively grown, and grown to some purpose; the number of fruit averaging two dozen to a pot—some pots had over three dozen, all of which were fit for the table. Laxton's Noble is also grown, is found to set freely, and the fruit shown me were really grand as regards size (one fruit measuring 7 in. in circumference) and appearance; but the flavour, in my opinion, is decidedly against it coming into general favour as an early forcing variety. Sir J. Paxton, and Keen's seedling are also grown, but are found not to be as vigorous as could be desired, and though the fruits of both varieties were fine, Mr. McAra is most in favour (for general forcing work) of Vicomtesse, the fruit on that variety weighing from 6 to 10 ozs. on each pot, and the flavour all that could be desired. Altogether Strawberry forcing is a success at Glassingal, and, like the other departments over which Mr. McAra rules, is well worth a visit, from which not only profit, but much pleasure, will be derived. *M. A., Chelsea.*

Æcidium Glaucis.—The various heteroecious Æcidia are one by one having their life-histories worked out. I am pleased to be able to report upon the affinities of the pretty little Æcidium which Mr. Peake found a few years ago, for the first time in Britain, upon Glaux maritima. Last August Mr. Peake, jun., conducted me to its original habitat on the banks of the Humber, a few miles from Hull. After a short search we were rewarded by finding a uredine upon Scirpus maritimus, which microscopic examination showed to be the teleutospores of a Uromyces. These were carefully preserved during the autumn and winter, after the manner described in the *Yellow Book*, and at the end of April of this year were induced to germinate. Healthy plants of Glaux maritima, from near King's Lynn, where the Æcidium does not occur, were infected with these spores, and in ten days spermogonia appeared, followed in due course by the Æcidium. The Uromyces on Scirpus maritimus is distinct from the Puccinia on S. lacustris, and may conveniently be known as U. maritimæ. Mr. H. J. Soppitt has found the same species this year at Cleethorpe, Lincolnshire, so that subsequent search will no doubt discover the Æcidium glaucis at this place as well. *Charles B. Plowright.*

Powderham Castle.—Mr. Powell, in his communication to your columns last week, mentions the Camellias in the open air at Powderham, some of which are nearly 150 years old, and were brought thither by Sir Joseph Banks, but he has never a word for the magnificent Eucalyptus coccifera there, 62 feet high. All who have seen the tree would be glad to read yearly bulletins of its well-doing. It stands in what is perhaps the prettiest part of the Powderham Castle grounds, where a gentle little river laps a grassy sward trending upward to high Beech groves. This stream, dear to the herons, over which ancient Cedars of Lebanon cast long gaunt furrowed arms, has in full measure that peaceful face and bosom so dearly loved by Izaak Walton. By the planting of the sheltered sloping bank, Mr. Powell has increased the wonderful natural beauty of the place. One of his best ideas was to place the glancing light green of Taxodium distichum near a Purple Beech. *C. A. M. Carmichael.*

Opinions Differ.—I have recently had occasion to refer to descriptions of a large strong-scented Agaricus named A. macrorhizus. Fries, in his last work, says it smells like a corpse! Dr. Cooke, in his last work, says the "odour" is like Lilium auratum! Whilst in my own notes I find I have written, "smells like plum-cake"—"smells like a doctor's shop." *W. G. S.*

Wireworm and Oilcake.—When pasture land is taken into a garden there is usually trouble from wireworms. A Primrose bed at Wisley was much injured by them. A good gardener told me that, if bits of oilcake were sunk in the ground, they ate and burst; and a great gardening authority said that it killed them. My gardener put a number in a box with some oilcake, but, so far, they seem none the worse; but it is a most effectual trap. Pieces about the size of a hen's egg, sunk 3 inches in the earth, with a stick to mark the place, and taken up after three or four days, will be found to have wireworms embedded in them, eight to twelve to a piece of cake. We have killed many hundreds. Old stagers know the use of oilcake, and gas-lime is said to be effectual, but with plants in the bed this would be dangerous. I think some of your readers may not know oilcake as a trap, and be glad to try it. *George H. Wilson.*

East Lothian Stocks.—Nowhere do East Lothian Stocks show to better advantage, nor are more useful, than in the herbaceous borders, which they brighten up during the months of May and June, and the perfume from them night and morning too is much appreciated by garden visitors. As a rule about half the plants obtained from a packet of seed produce double blossoms, which are usually better liked, and at any rate are more showy, being brighter, than the single flowered. The great point in the culture of these Stocks, when they are intended solely for flowering out-of-doors, is to get them thoroughly established in their flowering positions before the rains and frosts of winter come; especially is this the case where the garden is on heavy soil. In sandy and light soils, on the contrary, planting can be done at almost any time. It is well to remember that large plants will not bear replanting late in the autumn, and they seldom do any good when so planted. The best way to grow them in cold soils is to sow the seed in beds out-of-doors, during the first week in June, covering the seed with some finely sifted refuse soil from the potting-bench. Should the weather be dry at the time, it is a good plan to thoroughly water the soil the day before sowing, thereby assisting germination considerably; and instead of watering the beds in the case of continued drought, it is better to lay a mat over the bed, and fastening it down, as watering the soil usually causes caking and cracking of the surface. Directly the plants are large enough to be handled, they should be transplanted to the position in which they are to flower, choosing a showery day for the work. Stocks being impatient of drought and bright sun, whilst being removed. I find that this method is much better than that of pricking off the seedlings into beds for awhile, before finally transferring them to their flowering stations. In cottage gardens the Stock is often seen in capital condition, which is mainly owing to the fact that the plants obtain a long season of growth in the spot they are to flower in, as seldom indeed do they get pricked out from the seed-beds preparatory to final planting, oftener is the seed sown in the place they flower in. I send a few spikes of bloom for your inspection from our plants, some of which measure 2 feet across and are covered with blossoms, with this note. *E. Molyneux.* [Beautiful spikes of these fragrant flowers, of varied colours, pure white, crimson, pink, purple, and others. Ed.]

Choisya ternata.—It cannot be generally known that this beautiful shrub will thrive outside in many of the south and south-eastern counties, or surely we should meet it more frequently than is the case at present. Fig. 107, p. 645, of *Gardeners' Chronicle*, gives a good idea of the flowers and leaves. In planting where the climate is somewhat ungenial, it should be trained to a wall in a sheltered spot. In these gardens it flowers and grows vigorously planted against a wooden fence in rather an exposed westerly aspect, and the dark green foliage generally becomes a little tinged in consequence during winter. Plants are very serviceable for greenhouse or conservatory decoration, especially when young and vigorous. They should be potted in good rich loam, and turned outside to ripen their growth during summer. Cuttings taken now or later on root readily if placed within a close case. It is a member of the Rue family, and grows some 6 feet in height. Native of Mexico. *W. Harrow, Cambridge.* [Near London it was killed even on a wall in the last severe winter. Ed.]

—— The illustration given in the *Gardeners' Chronicle*, p. 645, faithfully represents this spring-flowering shrub, which is equally good either under glass or out-of-doors. Perhaps the best place for the plant is at the foot of a south wall, and in such positions the largest quantities of flowers are obtained. It is not particular as to the kind of soil in which it grows, but some manure should be added at the time of planting, to promote freedom of growth, and its consequent profusion of flowers. The great point is to have the wood thoroughly ripened, and unless this is effected, abundance of flowers are looked for in vain. In some kinds of soil the foliage is of a pale green colour, but a few applications of liquid manure will deepen their colour—a decided gain at flowering time, as affording a better contrast to the flowers. If the growth is allowed to grow unrestrained, a much better effect is produced than when it is close trained, the trusses of blossom showing to greater perfection. Low bushes of Choisya planted in the front parts of the shrubberies in sunny places look well when in

flower. We have the plant covering a wall in an unheated corridor, and nowhere else does it show to more perfection. The leaves are of a dark tint of green, owing to the liberal quantity of manure that it receives. In the early part of last April this plant was covered with its sweet-scented blossoms. As a vase flower it is much admired. Shoots 1 foot long are sometimes made in a season, and, owing to this rapidity of growth, it is a valuable plant for covering a bare wall in a short time. Grown in 6-inch pots, nice bushes may be obtained which are useful decorative objects in March and April. The great points to pay attention to are that the plant makes substantial growth after flowering, and these are well ripened out-of-doors. Cuttings of the half-ripened shoots strike freely in a gentle bottom-heat during June, and, as the young plants grow, the points of the shoots should be pinched out to induce bushiness of habit. In a pot the roots are liable to get unduly dry if abundance of water be not given to them, and this attracts red-spider. *T. M.*

BOTANICAL FIGURES.—I have been lately, for purposes of teaching, procuring a number of elementary botanical books. There must, of course, be a great sameness in the figures, but it is a little past quiet enduring that nearly every one should have the same woodcuts as Sachs and Prantl. A great number of the figures are subscribed "after Prantl," whereas the true description should be the same as Prantl. One book, the cost of which was 6*s.*, with an attractive title, had not an original illustration in it. When there is such great similarity in the treatment of the subject, publishers should be liberal enough to provide original illustrations and figures. It must cramp an author to write up to old illustrations. *C. A. M. C.*

LILY OF THE VALLEY.—We have been gathering large quantities of this flower for the last week or two, and which have not had the least protection whatever; some of the spikes have carried as many as twenty-two bells. I do not mention this as anything extraordinary, but simply to persuade any who may be growing the old English variety not to do so, but to get some of the strong crowns, so much advertised, at the proper time—say, from November to April. Any who may have crowns that have been forced, either in pots, boxes, or any other way, would do well to plant them out now, under a north wall, if possible, but whatever the aspect, endeavour to have the soil pretty stiff; in fact, our beds have all been formed with crowns that were forced, and afterwards planted out in May. The system I follow is to thoroughly enrich the border, then to chop a small trench wide enough to lay the roots out flat, and the crowns are covered to the depth of an inch. The ground is mulched heavily with well-decayed manure, and water is afforded occasionally in very dry weather. In the case of beds that are to remain for picking from, we plant the rows 6 inches apart, and 4 inches between the crowns; and in the course of two years, the bed so planted becomes one mass, and then, if required, might be taken up, and the largest and plumpest crowns used for forcing. *G. Woodward, Barham Court, Maidstone.*

DORONICUM PLANTAGINEUM EXCELSUM. — I fully endorse what Mr. Sheppard says (p. 577) regarding this being one of the best early-flowering hardy plants, and deserving of being planted in every garden, though I cannot agree with him in saying it is "about 15 inches high," for with only ordinary cultivation it will grow fully twice that height. When well grown the plant attains 3 feet in height, and its individual blossoms are fully 4 inches across. This is its behaviour in our light, well-drained soil; but in moister and stiffer soils it grows still stronger. It is without doubt one of our very best perennials, and an excellent subject for large beds. The dwarfer forms, *e.g.*, austriacum, Clusii, and caucasicum are even taller than Mr. Sheppard has stated D. excelsum to be. This plant (D. excelsum) commences flowering early in March, therefore I do not consider early spring the best time for replanting it, as notwithstanding its accommodating qualities, the operation would not improve its flowering. To do it justice, it should be divided and replanted either in early autumn, or better still, from the middle to the end of May, after its first flowering is past. I much prefer the latter time, as finer plants and abundance of handsome flowers result. The height given by Mr. Sheppard is, no doubt, the result of dividing and replanting at an improper moment, thereby sacrificing at least one half its grandeur. I think if your correspondent would try May planting in good rich ground, and see the difference between the handsome flowering of well-established clumps against those only divided a week or two prior to the expanding of the first blooms, he will receive a most pleasant surprise. *E. Jenkins.*



Fig. 114.—THORN EMBEDDED IN HORNBEAM, IN RICHMOND PARK. (SEE P. 682.)

ONIONS AT THE VEGETABLE CONFERENCE.—Possibly an "Enquirer" was not present at the Vegetable Conference, held at Chiswick, nearly six months since, or he would, if he then saw reasons for objecting to the Onion selections of the censors of those bulbs, have at that time raised the complaint he has just now made. On the other hand, it is possible that, having seen the samples of the various sorts of Onions referred to as selected types, he would have understood that the selection was due to fine appearance of the samples in question, and that, in so regarding them, there was no intention to exalt those so specially mentioned above other popular standard varieties. It is doubtless the case that "Enquirer" did not attend the Conference, and draws his information, as well as his conclusions from the report of the Conference, undoubtedly excellent in its kind, so tardily issued in the *Journal of the Royal Horticultural Society*. The censors, who so kindly undertook the labour of classifying the various vegetable exhibits, were specially requested to select the best samples in the various sections as types, and to classify all others as nearly approaching to those select types as possible. Onions vary so much in shape, and yet in many cases so infinitesimally, that it is very difficult in some cases to say whether a variety is really round or flat, but there is a distinct line to be drawn between flat and oval, or globe-shaped. Ailsa Craig is the very finest of the globe-shaped form yet produced, and the samples shown at the Conference justified such selection. It is true they were produced under exceptional methods of culture, and some other older globe forms, such as Excelsior, James Keeping, and others might, if so specially treated, do nearly as well. However, the Conference censors took the finer examples before them, and of the Globe type they found them in Ailsa Craig. Precisely the same may be said of the Anglo-Spanish variety as a fine select flat type; although I prefer Rousham Park Hero as a model flat Onion. Still, the first named is a flat Onion, if a little deeper in the bulb than the other. Possibly this distinction explains a further criticism made as to the classing of Giant Rocca with flat Tripolis. The difficulty seems only to be got over by having sections of flat, round, and oval; but the distinctions in some forms must be exceedingly minute indeed. With respect to Certificates, the instructions of the Conference committee to the censors were, that certificates were to be awarded to all samples showing excellence of quality or cultivation. The Certificate might in some cases have been granted to sort, but it was specially desired it should be granted to quality as found in the exhibit. The chief object of the Certificate was to reward exhibitors for cultural excellence, but the award was intended for the sample only, and was not given because shown by this or that individual. "Enquirer" admits that upon this supposition the awards were comprehensible. Just so. Further, it is hoped they were comprehensive, and that no meritorious sample was overlooked. It is to be deplored that soon after the Conference the committee were not called together to discuss methods of improved action in future vegetable conferences. To have done so when the whole subject was fresh in our minds would have proved most useful; now nearly all suggestions are forgotten. There is no practice like striking whilst the iron is hot. *A. Dean.*

PLANTS THAT REQUIRE A MOIST AIR.—It is a common complaint amongst gardeners that here, in the south, Polyanthus, Violets, Primroses, Violets, Iris Kæmpferi, and Pansies, will not grow with the same degree of vigour as in the northern parts of Britain; and this is very properly laid to the greater amount of heat by day, and the drier air prevailing. As a matter of fact, the sun is longer above the horizon in northern parts than in southern, and the accumulated heat of the longer days has a marked influence on vegetation, the growth of plants being very rapid; but owing to the deep inlets of the sea on both sides of the country, and its many lakes and tarns, the moisture taken up by the sun is considerably in excess of what occurs in the south. In a small way we might imitate this moisture-laden air about such of our plants as suffer by the want of it, by having some kind of device for holding water for evaporating

ends. We do it in the case of filmy Ferns, Orchids, &c., under glass, and we could also improvise something in the open air. I would suggest that around clumps of those plants which suffer from dry air, to make shallow channels of puddled clay—say, 7 or 8 inches wide—or place among them broad garden-saucers, or half-round drain pipes made water-tight at the joints with clay or cement. These devices might be kept filled with water, which would entail but little extra labour, and this little would be readily undertaken by the florist who was an enthusiast; and what florist is not? Whatever is employed as a water-holder should for appearance sake be sunk to the rim in the soil, and should only be allowed to get partially hidden with the foliage; and when autumn arrives, be emptied or cleared away. *A. F. E.*

SOCIETIES.

ROYAL HORTICULTURAL.

The show held in the gardens of the Inner Temple on Wednesday and Thursday, May 28 and 29, was, to a large extent, a repetition of the fine show held in the same place last year, and worthily fulfils the promise then made.

Both days were fine, not unpleasantly warm, and visitors were numerous in consequence. His Royal Highness the Prince of Wales arrived punctually at 1 P.M., and, accompanied by Sir Trevor Lawrence, the President of the Society, Baron Schroder, members of the Council, and other gentlemen, made an inspection of the various tents in which the exhibits were displayed, and, after listening to a short address on the work, aims, and claims of the Society (see p. 680), made an appropriate reply, and declared the exhibition open.

The Orchids.

As anticipated, a magnificent display of these was got together, the centre of the large tent set apart for them being entirely occupied by these royal plants, while the sides were decorated with groups, in which the Orchids were the leading feature. Facing the entrance a gigantic specimen of Cymbidium Lowianum, with twenty-nine finely developed spikes, from Baron Schroder's collection, gave the visitors a noble example of what an Orchid could attain under such culture as that which Mr. Ballantine gives to the Dell collection. Continuing down one side of the centre staging were Baron Schroder's grand exhibits, all of the highest order of merit: Cattleyas, Lælias, and Odontoglossums especially fine, and among the last named some phenomenal varieties of spotted O. crispum of the apiatum and Veitchianum class. Among these also were some beautiful forms of O. Andersonianum, a very large O. excellens, and among other species that splendid form O. Hallii magnificum, with its ample-spotted labellum; O. H. leucoglossum, O. Schillerianum, the fine white and purple O. ramosissimum; the forms of Miltonia vexillaria were also good.

Among the Cattleyas were a richly-coloured C. Skinnerii with over forty spikes, and many suberb Cattleya Mendelii, the beautiful C. M. Rothschildiana, one of the best; also a delicate pale rose coloured variety of C. Lawrenceana, named delicata. Of Cypripediums, Mr. Ballantine staged many good specimens, such as C. selligerum majus ×, with sixteen flowers, C. marmorophyllum ×, C. Lawrenceanum Hyeanum, that rare albino, if we may give the term to a flower with so much pale green in it; Cattleya Lawrenceana, the richly-coloured Masdevallias, and Dendrobes, also showed prominently in the Baron's group, which, like most of the other exhibits, were well arranged with Palms and Maidenhair Ferns, and in it, too were many things of botanical interest, such as the very curious Sarcopodium Dearei, with its hinged labellum.

Next came the display sent by Sir Trevor Lawrence, Bart., M.P., the President of the Society, and in importance it seemed equal to that from The Dell. Curious plants are always in force in the Burford collection, and among the more massive and showy things the curious little Bulbophyllum barbigerum, with its feather-like labellum, sensitive to the slightest breath of air, attracted its full share of attention. Dendrobium revolutum is another curious species with ivory white flowers, and among the group were many rare plants, which could only come from Sir Trevor Lawrence's collection. Here the specimens of Cypripediums were large and well bloomed; C. Swanianum × had sixteen flowers, and C. Lawrenceanum, C. superciliare ×, C. selligerum majus, and others were equally good. The Cattleya Lawrenceana, C. Mossiæ Massangeana, and C. Mendelii were well represented, and also a plant of the rare C. Schröderiana, a supposed hybrid; and among the glowing collection of Masdevallias, we noted M. Shuttleworthii, M. xanthocorys, and M. Gelengiana ×, the latter with curiously twisted tail-like appendages. Thunia Bensoniæ and T. Marshalliana were also finely exhibited, and the pretty Bifrenaria Harrisoniæ Buchaniana, Dendrobium Jamesianum, with fifteen flowers on a stem; many fine Odontoglossums, and two potfuls of the curious brown native parasitic Orchid, Neottia nidus avis.

H. M. Pollett, Esq., of Fernside, Bickley, staged a good group, in which the Odontoglossums, both species and hybrid, were remarkable. A few of the rarest were O. crispum Bickleyense, with cream-white flowers, heavily blotched with brown; O. elegans, an O. cirrosum hybrid, and the same noble form of O. Hallii magnificum as that seen in Baron Schröder's collection. There was also a fine example of O. Corradinei, an O. Oerstedii, with forty flowers, and the best form of Cypripedium Sanderianum we have seen.

T. B. Haywood, Esq., Woodhatch, Reigate (gardener, Mr. Salter), had a beautiful arrangement of Orchids with Maidenhair Ferns, his forms of white and blush Odontoglossums being the best in the show; so also his O. Pescatorei, with three fine spikes; these were well set off with specimens of scarlet and purple Masdevallias. Mr. Haywood also had a grand example of Cattleya gigas with five flowers on a spike, and a lesser plant of Odontoglossum Harryanum, both of these we believe the only representatives of their kind staged at this show.

From the Duke of Northumberland's gardens, Syon House, Brentford, Mr. Wythes staged a group in which numerous plants of the best form of Cypripedium barbatum were conspicuous, also some good Anthurium Schertzerianum and the fine old Oncidium sphacelatum; and F. Wigan, Esq., Clare Lawn, East Sheen (gr. Mr. W. H. Young), had a pretty arrangement, in which, among many handsome Cattleyas, were a fine form of Vanda teres, some good spikes of Phalænopsis, Aërides Fieldingii, Cypripedium Dayanum, and C. Curtisii, and plants of Lælia majalis, each bearing several large flowers, all the more welcome for that they are seldom seen.

Returning by the other side of the centre staging occupied by the nurserymen's exhibits, we found a princely display, extending some 40 feet, from Messrs. F. Sander & Co., all the things usually seen at this season being contained in it, and many of them very large specimens. Among the new or rare species in this group were Miltonia Bleui splendens ×, a hybrid between Vexillaria and Roezlii white with central lake lines. The characters of the two parents were well combined. The general appearance of the flower is that of Vexillaria, but the markings those of Roezlii, a really pretty thing; M. vexillaria Fairy Queen, a charming pure white, with lemon centre, certainly unique and lovely; Cattleya Mendelii Prince of Wales, of fine shape, and with the richest glowing crimson lip which has appeared; Odontoglossum excellens Prince Albert Edward, with distinct labellum blotched with red. O. crispum Youngii, white, spotted thickly with brown and a yellow spotted hybrid named O. c. Rothschildianum. Also remarkable in Messrs. Sanders' group were large specimens of the pretty Phaius Humblotii, and its variety P. Henryii; a fine Vanda suavis, with twelve spikes; Dendrobium Dearei, with fifty or so; Lælia grandis, with a dozen; Lælia purpurata, with over thirty flowers; Ornithocephalus grandiflorus, Aërides Sanderiana, several large Dendrobium thyrsiflorum; Oncidium roraimense of the sessile group with a number of bright yellow flowers, the petals and sepals having a few pale brown spots, Cattleya Wagnerii, and Calanthe vestita gigantea. A Cypripedium named Volonteanum was also shown, it greatly resembles C. Hookeræ, but the petals are broader and spotted, the lip large and greener. In Messrs. Sander's collection also was the new white Anthurium album maximum, one of the finest and latest efforts of M. de la Devansaye of Angers; the spathe is large, creamy white, with a red tip.

At the other end of the staging, Mr. Cypher, Exotic Nurseries, Cheltenham, had a similar display, notable for the large size and excellence of the varieties of Lælia purpurata, the white one with two purple blotches on the side lobes of the labellum being superb, and L. p. gigantea and another dark one very distinct. Some standards placed in front of Mr. Cypher's group were hung with Dendrobium Bensoniæ, D. Falconeri, &c., and were very effective; among the D. Falconeri being one of the first variations of the species known—D. F. delicata. Dendrobes were fine in this collection—D. Dalhousianum, D. Parishii, D. Devonianum, D. Bensoniæ alba, &c., and Cattleyas and Odontoglossums exceptionally good.

From Messrs. Hugh Low & Co., Clapton Nurseries, a very extensive, varied, and interesting collection was staged, the centre occupied by a yard or so of plants of the beautiful leaved Anæctochilus Lowii, backed by noble plants of Cypripedium Lawrenceanum, C. Elliottianum, C. hirsutissimum, C. Godefroyæ, C. caudatum, C. bellatulum, &c. Here were many spikes of Phalænopsis gloriosa, P. amabilis and other species, Vanda cœrulescens Boxallii, plants of their fine strain of Cattleya Mossiæ, C. Mendelii, &c.

Mr. G. T. White, of Winchmore Hill, also staged an effective group, with a plant of the rare Amaryllis solandræflora conspicua in the centre, a large Lælia purpurata, and many other good Cattleyas and other Orchids.

Grouped on the grass at the side of the tent was an extensive display made by Messrs. B. S. Williams & Son, of Victoria and Paradise Nurseries, Upper Holloway; prominent were the species of Vandas for which the firm is noted; also V. Denisoniana and V. teres Auroræ, a pretty blush-white form. That fine old show plant Calanthe veratrifolia also showed up well in Mr. Williams' group, and Calanthe Williamsii, Anguloa Clowesii, some finely-coloured Masdevallias, some large Oncidium concolor, O. stelligerum, O. macranthum, Odontoglossum citrosmum, Epidendrum vitellinum, Lælia cinnabarina, Masdevallia Veitchii, with thirty flowers; Cypripediums, Cattleyas, and other species were effectively displayed.

Mrs. Studd, Royal Crescent, Bath (gr., Mr. Geo. Cypher), also sent a new lavender-coloured form of Sobralia macrantha, very pretty, and Dendrobium MacCarthiæ, well-bloomed; and good Orchids also appeared in the groups of Messrs. John Laing & Sons and Mr. Peed; and beside their fine collection of Filmy Ferns, Messrs. James Backhouse & Son exhibited a fine example of the handsome rosy-red Disa racemosa.

The Ferns.

Seldom has it fallen to the lot of visitors to a flower show to see such a superb collection of Filmy Ferns as that sent by Messrs. Jas. Backhouse & Son, of York—the only firm, indeed, who could send anything like such a collection. There were about one hundred specimens, and over fifty species, some of the plants being 2 feet or so across, and all invested with that peculiar charm and additional attraction which beautiful plants rarely seen cannot fail to possess. It is no small matter thus to exhibit these plants, many of which are unique, and some of them representing the growth of twenty-five years; some, indeed, if lost, could not possibly be replaced. Looking through the collection, we were much impressed by the beauty of all, but especially by the large masses of Trichomanes Luschnathianum, 3 feet in height on Tree Fern stems, and its priceless variety, T. L. prælongum. Trichomanes Borneense is a very handsome species, and the Killarney Fern is represented by several varieties, ranging from the largest form of T. radicans to the pigmy T. r. alabamensis, a neat little gem of a plant. Trichomanes meifolium is a noble species, with the habit of Todea superba; T. reniforme here appears 2 feet across, T. venosum has cut foliage like some of the seaweeds, T. v. superbum is a Trinidad species of stately form, and T. pyxidiferum of elegant growth. Among the Hymenophyllums the range is equally wide, from the hair-like fine divisions of some of the tropical representatives of the H. tunbridgense section to the more ample frondage of the H. demissum class, which approach to the Killarney Fern in size. Among them we noted as specially attractive Hymenophyllum dilatatum, H. demissum, H. obtusatum, H. scabrum, H. bilabiatum, H. magellanicum, and other fine species. To the entire collection too great praise cannot be given, for while giving a great treat to Fern lovers, they could not fail to attract great attention from all visitors by reason of their exquisitely arranged frondage and general uncommon appearance.

Messrs. W. & J. Birkenhead exhibited in that excellent manner peculiar to the firm whenever we are favoured with their presence in London. They staged some 500 specimens, embracing a fair representation of each class, and also of Ferns generally.

The group was arranged in sections as much as possible—the Adiantums together, the Asplenıums, Gymnogrammas, and other large genera placed conveniently for comparison; the exotic species together and the hardy kinds at the end. Among the hardy we noted the elegant Anthurium plumosum elegans and A. f. f. Frezelli cristatum nanum, A. f. m. fimbriata cristata, elegantly fringed and crested; the Scolopendriums cristatulum and grandiceps were remarkable, and the well-known but pretty Asplenium septentrionale and A. germanicum were among the dwarfest. Among the exotics were a group of all the species of Lygodium, and the allied Lygodictyon Fosterii; a fine lot of Cheilanthes and Nothochlanas, some of the new Onychium auratum, Lomaria fluviatilis, Davallia parvula, and a group of Filmy Ferns, including the new Todea grandipinnula.

Mr. H. B. May, of Edmonton, occupied the other side stage with an equally extensive lot of Ferns, effectively set up with coloured Crotons, Dracænas, &c., the Ferns being chiefly those adapted for market work, a question which Mr. May is well qualified to settle.

big clumps than when too much mixed. The pure white Lupinus grandiflora alba, and the pretty dark blue and white Foxi, were very pleasing. Of the Delphiniums, Autolycus, semi-double, large and rich violet, was striking. A rich carmine single Pyrethrum was seen in Clemence, and a good double white in Carl Vogel. A few very good Amaryllis were included with the general collection. Following these came a remarkably light and pleasing group, staged by Messrs. Barr & Sons, King Street, Covent Garden; these were much less formally grouped, and presented a most varied and attractive assortment; Pæonies in variety, double and single Pyrethrums, Poppies, including the pretty Icelandic forms, Irises, Lupins, Aquilegias, Ixias; Asters, including a large mauve-coloured one named Alpinus speciosus, also shown by Mr. Ware, with many other interesting and pleasing if less effective flowers, made up this collection.

On the opposite side, Mr. T. S. Ware, of Tottenham, made a brave show; Papaver orientale and bracteatum, standing out in clumps with fine effect; superb flower, some large bunches of Dodecatheon Meadia elegans, various early Gladioli, &c., made the collection one of exceeding interest. In the same tent, Messrs. B. S. Williams & Sons, Holloway, had a big collection of Ixias, and Messrs. Cheal & Son, Crawley, had a small lot of hardy flowers in variety.

One of the most striking exhibits was a huge tuft of Puya chilensis, from the Abbey gardens, Tresco, Scilly Islands. The leaves are like those of an Agave, and from their centre rises a tall flower-stalk, terminated by a dense head of flowers of a lovely shade of blueish metallic-green, which defies description in words, and which could not be exactly matched in any colour-box, nor reproduced by any artist. This beautiful plant is a native of Chile, and is one of the Bromelia family, allied to the Pine-apple. Our illustration (fig. 115) represents the plant as growing out-of-doors in the Scilly Isles. This and similar species may be seen in the Succulent-house at Kew.

Hardy Shrubs.—With these Messrs. J. Veitch &



Fig. 115.—Puya chilensis.

Among the varieties staged were several forms of May's Crested Pteris, also their Davallia exaltata plumosa, and the N. rufescens tripinnatifida of Messrs. Veitch; Nephrolepis davallioides furcans, and other Davallias; Lastrea lepida, a collection of Gymnogrammas and Nothochlænas, and some rare Davallias, such as D. ornata, the whole arranged in a careful manner.

Hardy Flowers and Shrubs.

Lovers of hardy border flowers must have revelled in the wonderful wealth of these furnished to them in the various tents. They presented probably the finest display of their kind seen at any similar show in London. Where all were so good, as well as so varied, it is not for us to determine precedence, but the largest exhibitors, perhaps, were Messrs. Kelway & Sons, Langport, Somerset, whose flowers, set up in masses in large boxes, staged three deep in one of the long tents, made a show of colour difficult to excel, backed by Giant Poppies, Irises in variety, double and single Pæonies, Lupins, and Delphiniums, with in front myriads of double and single Pyrethrums; the effect was very striking, and showed how much more telling hardy flowers are in

with these were grouped in good quantities large crimson, red, rose, white, and other various coloured Pæonies, in rich profusion; clusters of white perennial Lupins, Anthericums, Spiræas, double white Narcissi, with an infinite variety of Aquilegias, Centaureas, Pyrethrums, the pretty mauve Aster alpinus, various Japan Primulas, Erigerons, and many other charming flowers.

The very pretty group from Messrs. Paul & Sons, Cheshunt, included a cluster of the orange-red Geum miniatum, some noble Solomon's Seal, Trollius japonicus plenus, Ranunculus acris plenus, Iceland Poppies, beautiful Violas, set up in spray fashion, Pansies, Pæonies, among which was P. conchiflora, which seems to be the same as P. lobata, and with these a wealth of other flowers, as previously mentioned. With the group was a further one of hardy alpines and rock plants, in pans, amongst which were Dianthus alpinus, the white and blue Ramondias, creeping Phloxes, Thrifts, and other pleasing flowers. In the fruit tent, Messrs. Jas. Veitch & Sons, Chelsea, had a somewhat formal but wonderfully telling collection of hardy flowers in big lots. Ixias, Irises, Pæonies, Poppies, Ranunculus, in wondrous profusion and

Sons made in the large tent a delightful group, one that could for beauty well compare with those produced by house plants. Here were standard Rhododendrons, beautiful Azaleas, pretty Acers, Hydrangeas, the charming Clethra alnifolia, Spiræa astilboides, Cercis Siliquastrum, big baskets of Gladioli, all fronted with boxes of Rhododendrons, making a beautiful collection. Very striking, also, were the Rhododendrons from Messrs. Lane & Sons, Berkhampstead, which suffered somewhat from being in a dull corner, but the plants were well bloomed.

Clematises.—Grandly flowered plants of these came from Messrs. R. Smith & Co., Worcester, fine specimens, ranging from 3½ to 4½ feet high, and as proportionately thick, all superbly flowered. Very striking were Sensation, Madame Lefebvre, Excelsior, and Duchess of Norfolk. These were one of the striking features of the show, having some of the fine old specimen plant form, as well as superb quality of bloom, to render them specially attractive.

Rhododendrons.—From Messrs. W. Paul & Sons, Waltham Cross, came a striking collection of cut blooms of Rhododendrons in great variety, all the best forms in commerce and at present in bloom being represented. With these also were trusses

of seedling Azalea mollis, the rich red and orange tints of which were very beautiful, and were in striking contrast to the deeper hues of the Rhododendron flowers.

Florists' Flowers, &c.

Only two groups of Calceolarias were furnished, the one staged in the big tent being from Farnham Royal, and the other in a long tent from Swanley. Mr. James, whose reputation for Calceolarias has never faded, exhibited a large number of fine plants grandly bloomed, some indeed having flowers of such inordinate size, and yet fully expanded and well-proportioned, that they measured fully 5 inches round. The colours and markings were intensely rich and varied, whilst habit was all that could be desired. Mr. Cannell had more plants also of a dwarf and compact strain, all very pleasingly bloomed, but the flowers were not of unusual size. Both collections were greatly admired.

Messrs. Cannell also showed a collection of Begonias of much merit, and in a great variety of colours. Yellows came out well, too; a variety named Rev. W. Wilks was striking—it is a double flower, of good form, rose colour, and a darker Picotee edge; D. T. Fish, bright rose self, full double; and Lady Blanche Baillie, old gold shaded, is a single flower of a good order; Primrose, a pale yellow, single, is also distinct.

Another lot of tuberous Begonias was from Messrs. J. Laing & Sons, Forest Hill, S.E., this firm's plants being most attractive, and many worthy varieties were included, among them being Enchantress, scarlet carmine, with a pure white eye, single; Leviathan, measuring 7 inches across, rich rose—a large flower, but lacking form; which, however, is got in Gigantea, a flower more of a pink colour, and a little smaller; Henshaw Russell is a rich scarlet double; and Negro Boy, a dark red double, of moderate size, the guard petals prominent; Duke of Edinburgh, a somewhat old variety, rich carmine-red, is one of the best yet; Juarezii is a rich carmine-red single flower of fairly large size, with undulate petals and sepals quite distinct and novel.

Mr. Rupert Miller, of Shoreham, set up a group of a pure white regal Pelargonium, said to be a sport from Madame Thibaut. It was very good in the group, but individually not equal to the best varieties. It was named Pearl. Beside this group was placed, in striking contrast, a quantity of the lovely blue-flowered Leschnaultia biloba major from Messrs. W. Balchin & Sons, Hassock's Gate, Sussex. This blue bank attracted considerable attention, and most deservedly so.

Pelargoniums were not numerous. Mr. F. Perkins, Leamington, sent two decorative varieties, named Princess Beatrice, a blush flower, and very effective; and Prince Henry, rosy-carmine, with white edge and eye. However, a grand lot of specimen plants came from Mr. C. Turner, Slough, show, fancy, and decorative all being shown. There were well-flowered examples of Rosy Morn, Rosetta, East Lynne, Phyllis, Gold Mine, Madame Thibaut, Magpie, Excellent, Lady Isabel, Fireball, and Madame Marie Knecht. Mr. Turner also had a few Carnations, including Ellen Burrows, a flower of a pleasing rosy-salmon tint.

Messrs. Dobbie & Co., of Rothesay, Scotland, staged a very good collection of Pansies and Violas, showing about 100 bunches of bloom, and 30 plants in pots; the Viola Duchess of Fife, very pale yellow with a mauve edge, is distinct and novel; Ada Adair, claret, with a dark eye; York and Lancaster, mottled mauve, purple, and white, were also noticeable, while The Mearns, Countess of Kintore, and Archibald Grant are worthy varieties. The fancy Pansies were also showy. Mr. F. Hooper, Bath, was another exhibitor in this class, and Messrs. H. Cannell & Sons also had a few samples, both firms making a satisfactory display. Messrs. Chambers, Isleworth, showed a bank of their white bedding Viola Snowflake, backed by White Swan Phlox, an early free-flowering variety of much merit.

The display of Gloxinias made by Messrs. Sutton & Sons, Reading, was very showy; the vigour of the strain being well illustrated by the varieties shown; there were about a hundred plants, of which we select Her Majesty, pure white, with just a trace of red; Princess of Wales, delicate shaded rose, white tube; Prince of Wales, carmine, with white outer band and throat; Empress of India, violet-purple; and also the new netted strain, the colour of the lobes of the corolla being netted with white.

A smaller lot, and the plants of a more dwarf habit, and having more bloom, was that shown by Messrs. J. Veitch & Sons; a great range of colour was embraced, and the reds were specially noticeable, and mostly so the new variety, Mrs. J. Donaldson, intense scarlet-carmine self.

Groups.

The most important item under this head is the groups of Roses. Messrs. Paul & Son, Cheshunt, Herts, contributed a collection of capitally-flowered specimen pot plants of popular varieties, such as Juno, Charles Lawson, Her Majesty, Cheshunt Hybrid, Centifolia rosea, Merveille de Lyon, and Madame de Watteville. Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, N., set up a charming and novel arrangement. He had fourteen plants of Niphetos well laden with flower, arranged so as to form a semi-circular group backed by Palms, and edged with Adiantum, Pandanus Veitchii, &c.

Messrs. W. Paul & Son, Waltham Cross, Herts, had an extensive collection of Roses numbering about forty pot plants, and a dozen boxes of cut blooms in addition. This was a highly attractive display, and embraced some of the best varieties. The plants were of medium size. Merveille de Lyon was shown in abundance, and others were Marie Finger, Alfred Colomb, François Levet, Albert de Blotais, Queen of Queens; and of cut blooms in addition, Garden Favourite, Madame G. Luizet, Mabel Morrison, Crown Prince, Senateur Vaisse, and Maréchal Niel.

Messrs. J. Laing & Sons had a carefully-arranged and effective group of various foliage plants enlivened by the admixture of a few Orchids, Odontoglossums and Lælia purpurata chiefly, and also plants of Lilium Harrissii, and Saxifraga Macnabiana, with flowers of white with rose spots.

The fine specimen Palms seen last year were absent from this display, but Mr. Iceton, Putney, showed a number of grand plants of Kentia Fosteriana arranged with Dracæna Lindeni, Eurya catifolia variegata, and a few flowering plants.

A group of a dozen specimen plants of Caladiums was staged by Mr. C. Simmonds, gardener to F. W. Wiltshire, Esq., South Norwood. The plants were of fairly large size and in capital condition. Luddemannii, Mrs. Laing, Candidum, and Triomphe de l'Exposition being the best represented.

Messrs. J. Peed & Sons, Roupell Park, S.E., had a large lot of Anthurium Schezerianum and varieties, with a few Sarracenias, not arranged with the greatest display of taste. One variety of Anthurium was noticeable for its large spathe. Mr. Pettit also sent an example of Anthurium having A. Andreanum with five spathes.

A collection of specimen Palms and greenhouse decorative plants, such as Azaleas, Aphelexis, Dracænas, Metrosideros floribunda, Darwinia and Leschenaultia biloba major, were contributed by Messrs. W. Cutbush & Son, Highgate, N.

Fruit and Vegetables.

The exhibits in this section were not numerous. Perhaps the most noteworthy was the collection of fruit and vegetables in market baskets, as received for sale, Mr. G. Munro, Covent Garden, being the exhibitor. There were fine Strawberries, Figs, Grapes, Tomatos, Beans, Peas, Mushrooms, Melons, and Cucumbers.

Messrs. J. Veitch & Sons, Chelsea, sent a collection of about forty dishes of Apples—very fine examples of late keeping, and all solid and plump, Annie Elizabeth, North End Pippin, Ribston, King of Tomkin's County, Melon, Barnack Beauty, Alfriston, Rymer, and Harvey's Wiltshire Defiance being among the best. A Fig called St. John, of much merit, was also shown—the habit is compact, and the fruit is borne well on the old wood.

A collection of Apples of about the same extent was staged by Messrs. G. Bunyard & Co., Maidstone, the fruits being in fairly good condition, Bess Pool, Calville Rouge, Belle Dubois, Lane's Prince Albert, Cox's Orange, Newton Wonder, and Rambour d'Hiver being the best.

Messrs. J. Cheal & Son, Crawley, Sussex, also had a few fruits, Curltail, Norfolk Beaufin and Betty Geeson being the best.

There were a few good examples of Grapes. J. F. Campbell, Esq., Woodseat, Uttoxeter (gr., Mr. J. Hollingworth), showing remarkably finely finished bunches of Black Hamburgh. Some bunches of Foster's Seedling from the same source were also very fine, but in both instances the bunches themselves were only of medium size.

Muscats came from Mr. M. E. Peters, gr. to J. L. Mansell, Esq., Somerset Terrace, Guernsey, and were large in berry and well finished. Mr. G. Wythes, Syon Gardens, Brentford, showed fruits of Auguste Nicaise Strawberry and a seedling Melon.

Mr. J. Maher, Stoke Court Gardens, Slough, had a dish of Nectarine Violette Hâtive, and one of Peach Stirling Castle, both of good quality; but the fruits of the same variety of Peach from Mr. J. W. Reed, gr. to E. Pettit, Esq., Broadlands, Oatland's Park, Weybridge, were excellent; a dish of Tomato Perfection and bunches of Black Hamburgh and Buckland's Sweetwater Grapes were also evidences of good cultivation. Black Hamburgh Grapes and a dish of fine Tomatos were also sent by Mr. J. R. Featherby, The Vineries, Gillingham, Kent. Mr. Miller, gr. to Lord Fowley, Ruxley Lodge, Esher, had a dish of Peaches and a basket of Mushrooms. From the Royal Horticultural Society's Gardens at Chiswick came a large collection of Radishes, which had been grown for trial, and the following short varieties were selected:—White Turnip, Early Scarlet Forcing, Scarlet White-top, Scarlet Olive-shaped, Improved French Breakfast; of long varieties, Wood's Long Frame and Long White. A dozen varieties of Rhubarb were also sent.

Horticultural Novelties, &c.

These, in the form of manures, insecticides, all sorts of utilitarian objects, &c., were largely shown by Messrs. Wood & Sons, Wood Green, who also had capital samples of peat and other soils.

Messrs. C. Toope & Co., Stepney, showed samples of boilers in small form, and various methods of heating, &c. The common forms of horticultural sundries were markedly absent at this stand. They also showed an ingenious method of ventilating a glass-house by passing the air entering by ventilators near the ground-level through chests filled with sticks of charcoal in tiers, and thence onwards to the heating apparatus. The roof is furnished with a longitudinal outlet pipe running along at the apex, that is fitted with capped openings, which show on the outside of the roof. The air is thereby rendered sweet, and is freed from all noxious fumes, the constituents of town fog, and other impurities, and the ventilation of the house is perfect, and it is, moreover, always in working order, and admits of regulation to suit various kinds of plants. Vines, &c.

Mr. G. Phippen, Reading, had a large lot of elegant floral decorations carried out in a rather novel style, and Mr. Perkins, Coventry, showed bouquets of choice flowers arranged with much taste. Decorations made of the red Seaweeds were shown by Mr. Smout, Hastings. Messrs. Walters & Co., Leytonstone, had Orchid baskets, and Messrs. E. P. Dixon & Sons, Hull, showed their patent flower tubes and label holders; from Mrs. Hodgkins, Withington, came elegant screens, &c., of skeleton leaves and seed-vessels.

The following are the awards:—

Silver Gilt Flora Medals.

To Messrs. Peed & Sons, for Anthuriums.
To Messrs. James & Son, for Calceolarias.
To Mr. C. Turner, for Pelargoniums.
To Messrs. J. Veitch & Sons, for Gloxinias.
To Messrs. Sutton & Sons, for Gloxinias.
To Mr. Iceton, for Palms.
To Mr. Wiltshire, for Caladiums.
To Messrs. Cutbush & Sons, for foliage and flowering plants.
To Messrs. Cannell & Sons, for Begonias.
To Mr. Ware, for herbaceous plants.
To Mr. Monro, for fruit and vegetables.
To Mr. T. B. Haywood, for Orchids.
To Messrs. R. Smith & Co., for Clematis.
To Messrs. H. Low & Co., for Orchids.
To Messrs. Kelway & Son, for herbaceous plants.
To Messrs. Barr & Son, for herbaceous plants.
To Messrs. Paul & Son, for herbaceous plants.

Silver Flora Medals.

To Messrs. J. Laing & Son, for Rhododendrons.
To Messrs. Cannell & Sons, for Calceolarias.
To Messrs. J. Veitch & Sons, for Apples.
To Mr. Wythes, for Orchids.

Silver Banksian Medals.

To Mr. W. Rumsey, for Roses.
To Messrs. Paul & Son, for Alpines and Herbaceous plants.
To Messrs. Balchin & Sons, for Leschenaultias.
To Messrs. J. Veitch & Sons, for Herbaceous Plants.
To Messrs. Dobbie & Co., for Pansies.
To J. F. Campbell, Esq., for Grapes.
To Mr. J. R. Featherby, for Grapes and Tomatos.
To E. Pettit, Esq., for Grapes, Peaches, and Tomatos.

To J. L. Mansell, Esq., for Grapes.
To Messrs. Bunyard & Co., for Apples.
To F. Wigan, Esq., for Orchids.
To Mr. G. Phippen, for Bouquets, &c.

Cups.

To Baron Schröder, for Orchids.
To Sir Trevor Lawrence, for Grchids.
To Messrs. F. Sander & Co., for Orchids.
To H. M. Pollett, Esq., for Orchids.
To Mr. J. Cypher, for Orchids.
To Messrs. Paul & Son, for Roses.
To Messrs. Backhouse & Son, for Ferns.
To Mr. H. B. May, for foliage plants.
To Messrs. W. & J. Birkenhead, for Ferns.
To Messrs. J. Laing & Sons, for foliage and flowering plants.
To Messrs. Wm. Paul & Son, for Roses.
To Messrs. Perkins & Sons, for bouquets.
To Messrs. J. Laing & Sons, for Begonias.
To Messrs. R. S. Williams & Sons, Orchids.

First-class Certificates.

To Saxifraga McNabiana, from Messrs. J. Laing & Sons.
To Pæonia conchiflora, from Messrs. Paul & Son.
To Lastrea f.-m. cristata, from Messrs. W. & J. Birkenhead.
To Aster alpinus var. speciosa, from Messrs. Barr & Son.
To Aster alpinus var. speciosa, from Mr. T. S. Ware.
To Dendrobium MacCarthei, Mr. G. Cypher.
To Miltonia Bleui splendens ×, from Messrs. F. Sander & Co.
To Cattleya Mendelii Prince of Wales, from Messrs. F. Sander & Co.
To Miltonia vexillaria Fairy Queen, from Messrs. F. Sander & Co.

Awards of Merit.

To Begonia Enchantress, from Messrs. J. Laing & Sons.
To Begonia Henshaw Russell, from Messrs. J. Laing & Sons.
To Begonia Negro Boy, from Messrs. J. Laing & Sons.
To Gloxinia Mrs. J. Donaldson, from Messrs. J. Veitch & Sons.
To Pyrethrum Clemence, from Messrs. Kelway & Son.
To Pyrethrum Carl Vogel, from Messrs. Kelway & Son.
To Lupinus Foxi, from Messrs. Kelway & Son.
To Delphinium Autolycus, from Messrs. Kelway & Son.
To Pelargonium Prince Henry, from Mr. F. Perkins.
To Gloxinia Her Majesty, from Messrs. Sutton & Sons.
To Gloxinia Prince of Wales, from Messrs. Sutton & Sons.
To Gloxinia Princess of Wales, from Messrs. Sutton & Sons.
To Gloxinia (strain) netted, from Messrs. Sutton & Sons.
To Begonia Rev. W. Wilks, from Messrs. H. Cannell & Sons.
To Anthurium album maximum, from Messrs. F. Sander & Co.
To Lælia purpurata Empress, from Mr. J. Cypher.
To Dendrobium Bensoniæ alba, from Mr. J. Cypher.
To Dendrobium Falconeri delicata, from Mr. J. Cypher.
To Sarcopodium Dearii, from Baron Schroder.
To Cattleya Lawrenceana delicata, from Baron Schroder.
To Cypripedium Volonteanum, from Messrs. F. Sander & Co.
To Oncidium roraimense, from Messrs. F. Sander & Co.

ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

Whitsun Exhibition.—Manchester has once more been well to the fore, and the twenty-fourth exhibition, which opened on the 23rd inst., was in every way worthy of the occasion. It is true that the large specimen plants of Mr. Schloss, Mr. H. L. Nicholls, and others, are no longer to be found there; but their place is occupied by other features, and especially by illustrations of superb grouping, which, seeing how much they are appreciated, and the admirable teaching they supply, appears to be a change for the best. Lord Zetland, Mr. James Cypher, and others still supply fine examples of stove and greenhouse plants; noble Palms and Ferns come from several quarters, and the large specimens Mr. Bruce Findlay has in the gardens come in very useful indeed in working out bold and striking features in the annexe. The weather, on the two first days especially, was gloriously fine, and a good attendance rewarded the efforts of the promoters.

Groups Arranged for Effect.—The leading class was for a group of any extent, Orchids to be a leading feature. These were arranged on the east side of the exhibition house, and the five that competed occupied a large space. Two were at once singled out as showing great excellence in the arrangement: one was from Mr. Blair, gr. to the Duke of Sutherland at Trentham; the other was from Mr. Cragg, gr. to A. Heine, Esq., Fallowfield, Manchester; Mr. Blair's arrangement secured the 1st prize. There was a background of elegant Palms, and next them flowering Orchids and other plants; in the centre came mounds of Fern, from which issued lovely Orchids, each surmounted by an elegant Palm. The foreground was formed of dot-plants, rising out of a bed of moss; fine pieces of Masdevallia rosea and Cypripedium bellatulum being especially noticeable; but no description does justice to this remarkable piece of the decorator's art. Mr. Cragg had a superb group also, most elegant and rich in Orchids, intermingled with Palms and other plants. Mr. J. McIntyre, gr. to Mr. J. Gurney Pease, Woodside, Darlington, was 3rd; and extra prizes were awarded to Mr. R. Elphinstone, gr. to C. M. Royds, Esq., Rochdale; and Mr. J. Currey, gr. to Colonel Pepper, Surrey.

The groups, occupying a space not exceeding 200 square feet, were in the annexe, and here Mr. S. Baerlin, Oak Dene, Didsbury, was 1st, with a very fine group indeed, arranged on somewhat similar lines to the preceding one; Mr. Elkin, gr. to Mr. Thomas Agnew, Eccles, being 2nd.

In the nurserymen's class for a group consisting of Orchids and other plants, Mr. J. Cypher was 1st, with a very fine arrangement, the Orchids being singularly fine and effective. Mr. J. Robson, nurseryman, Altrincham, was 2nd.

Orchids.—If these were not so numerously shown as in past years, they were very fine and effective. The best ten came from the fine collection at Blenheim, Mr. Whillans, the Duke of Marlborough's Orchid grower, bringing down some superb plants, which gained the 1st prize. They were, Lælia purpurata, with eighteen flower-stems; Cattleya Skinneri, C. Mossiæ, a very fine C. Mendelii, Dendrobium thyrsiflorum, D. Falconeri, and D. Dearii; Cypripedium caudatum, a fine piece with something like fifty flowers; C. barbatum, C. selligerum majus, very fine, and C. lævigatum, and the bright-coloured Epidendrum vitellinum. Mr. Blair, Trentham Gardens, was a good 2nd, having fine pieces of Cœlogyne cristata, Odontoglossum Alexandræ, O. Pescatorei, Cattleya Mendelii, C. Mossiæ, Miltonia vexillaria, three fine varieties of Lælia purpurea, &c. Mr. Hodgkinson, High Lawn, Bowdon, was 3rd.

With six Orchids, Mr. Blair was a good 1st, with admirable specimens of Oncidium ampliatum majus, Cattleya intermedia, C. Mossiæ, Lælia purpurata, Cypripedium caudatum, and Dendrobium Dearii; Mr. A. Johnson, gr. to Thomas Slatter, Esq., Whitefields, Manchester, was 2nd, with Odontoglossum crispum, O. Rossi majus, O. Pescatorei, Lælia grandis, L. purpurata, and Dendrobium thyrsiflorum; Mr. Hodgkinson was again 3rd.

With ten Orchids, *bonâ fide* specimens, Mr. A. Heine was 1st, with excellent examples of Dendrobium Dalhouseanum, D. nobile, D. thyrsiflorum, Vanda teres, Cattleya Skinneri, C. S. alba, Phalænopsis amabilis, Lælia purpurata and its white variety, and Calanthe veratifolia; 2nd, Mr. Blair, his leading plants being Cattleya Skinneri, C. Mossiæ, Lælia purpurata, Cœlogyne cristata Trentham variety, &c. In the nurserymen's class for 10 Orchids, Mr. James Cypher was 1st with some very fine specimens, consisting of Dendrobium Jamesianum, very fine; D. thyrsiflorum, Lælia purpurata splendens, Cymbidium Loweanum, Cattleya Skinneri, C. Mendelii, Cypripedium caudatum, C. lævigatum, C. barbatum, and Masdevallia Lindenii. Mr. Cypher was the only competitor.

Stove and Greenhouse plants.—Perhaps the specimen-stands on this occasion were not quite equal to those seen in past years, but they were very fresh, well-grown, and finely-flowered. The best eight came from Mr. Nicholls, gr. to the Earl of Zetland, who had Boronia elatior, Franciscea calycina major, Anthurium Scherzerianum, A. Andreanum, with some very fine spathes; Dracophyllum gracile, Erica depressa multiflora, Aphelexis macrantha purpurea, and Clerodendron Balfourianum; 2nd, Mr. S. Baerlin, with some good plants, generally similar to the foregoing. Mr. James Cypher had the best 10 plants, including three fine specimen Azaleas, Stephanotis floribunda, Darwinia tulipifera, D. fuchsoides, Pimelea Hendersoni, Aphelexis macrantha purpurea, and Anthurium Scherzerianum; 2nd, Mr. J. F. Mould, nurseryman, Pewsey, Wilts. The best specimen stove plant was Anthurium Scherzerianum, from Lord Zetland; Mr. Blair coming 2nd with the same. Mr. Currey, gr. to Colonel Pepper, Salisbury, had the best specimen greenhouse plant in Darwinia fuchsoides; Lord Zetland coming 2nd with Aphelexis rosea.

Greenhouse Ericas, were represented by small but nicely flowered plants, though in the amateurs' class the 1st prize was withheld.

In that for nurserymen with six plants, Mr. J. Cypher was 1st, and Mr. J. F. Mould 2nd, the varieties being those ordinarily exhibited.

Tuberous Begonias.—The early date of the show operated to seriously circumscribe the competition with these. Messrs. Lord, Ashton-on-Mersey, was 1st with six single varieties; the doubles were very small and poor.

In the nurserymen's classes for twelve of each, Messrs. Ryder & Son, nurseryman, Sale, were placed 1st with small but admirably grown and flowered plants of seedling varieties of high quality.

Pelargoniums.—Mr. Charles Rylance, nurseryman, Ormskirk, was 1st with eight very fine specimens of show varieties, some of the best ever seen at Manchester, consisting of Beauty, Prince Leopold, Venus, Duchess of Edinburgh, Harlequin, Pygmalion, Lady Isabel, Edward Perkins, and Gaiety.

The fancy varieties were small and poor, and the zonals not up to the usual mark. Some nicely grown and bloomed Ivy-leaved varieties were shown by Messrs. N. A. Earle and C. M. Royds.

Roses.—Plants in pots were numerous, and furnished charming masses of colour. The best ten plants came from Mr. J. G. Wood, gr. to James Brown, Esq., Heaton Mersey, well grown and flowered, the leading varieties, Madame G. Luizet, Juno, François Levet, W. A. Richardson, Madame H. Jamain, and Marie van Houtte. Mr. N. A. Earle was a good 2nd.

With twenty Roses, including standards, Messrs. Paul & Son, Old Nurseries, Cheshunt, were 1st, with excellent plants of Celine Forestier, Magna Charta, Paul Jamain, Centifolia rosea, Madame Lacharme, The Bride, Merveille de Lyon, François Levet, Madame Margottin, Innocente Pirola, and Violette Bouyer. Mr. W. S. Williams, nurseryman, Stockport, was 2nd.

With thirty plants Messrs. Paul & Son were again 1st, with Souvenir d'un Ami, Niphetos, Jean Ducher, Etienne Levet, Alba rosea, Caroline Kuster, La France, Merveille de Lyon, Comtesse de Serenye, Cheshunt Hybrid, W. A. Richardson, François Levet, and Antoine Mouton; 2nd, Mr. J. F. Mould.

Herbaceous and Bulbous Plants.—In the amateur class for thirty, Mr. S. Vickers, gr. to J. Lamb, Esq., Bowdon, was 1st, having good specimens of Lilies, Phloxes, Lupinus, Gladiolus, Trollius, Campanula, Spiræas, &c. Mr. R. P. Gill (Mr. W. Plant, gr.), was 2nd, also with a very good collection.

In the nurserymen's class the best collection—a very large and imposing one—came from Messrs. Dickson's (Limited), Chester, and included Liliums Harrisii, araatum, and others; Pæonies, Pyrethrums, Iris, Tulips, Scillas, Funkias, Cypripedium spectabile, Hemerocallis Kwanso, and its variegated form; Anthericum liliastrum, &c.; 2nd, Messrs. W. H. Stansfield & Co., nurserymen, Southport, with good examples of similar subjects.

Alpine Plants.—These, as is usual at Manchester, made a very interesting exhibit. The best thirty came from Mr. R. P. Gill, who had Primula Sieboldi in variety; P. obconica, Ajuga genevensis, Silene pendula compacta, Campanula Portenschlagiana, Saxifraga pyramidalis, Rodigersia podophylla, the Edelweiss, &c.; 2nd, Mr. J. Lamb, who had Alyssum saxatile compactum, Saxifraga pyramidalis, S. Wallacei, S. affinis, Iberis corifolia, Phlox setacea, &c. In the nurserymen's class for forty Alpines, Messrs. Paul & Sons were 1st with a remarkably good collection, including Cypripedium parviflorum, Globularia trichosantha, Ramondia pyrenaica, and its white variety; Dianthus alpinus, the Edelweiss, Lithosperimum prostratum, Myosotis rupicola, Omphalodes lucillïæ, &c.; 2nd, Messrs.

Dicksons, who had capital examples of Cypripedium acaulis, C. spectabile, C. calceolus, Onosma taurica, Saxifraga McNabiana, S. pyramidalis, Dodecatheon integrifolium, Heuchera sanguinea, &c.

Pansies and Violas.—The large potfuls of these staged at Manchester had a very pretty effect. The best twelve pots of show Pansies came from Mr. F. Blower, the Children's Hospital, Pendlebury:—George Rudd, yellow self; Mrs. Laing, white self; Dr. Hardy, dark self, being very good; Mr. R. P. Gill was 2nd.

In the nurserymen's class for twenty pots, Mr. S. Robinson, Florist, Sale, staged a very good lot indeed, having Dr. Hardy and W. E. Gladstone, dark selfs; George Rudd and Cloth of Gold, yellow selfs; Mrs. Laing, white self; Bluestone, blue self; Lizzie Bullock, Meteor, and Lady Derby, yellow grounds; Mrs. Buckland and Mr. Eades, white grounds. Mr. Robinson was the only exhibitor in this, and also in the class for twenty pots of fancy Pansies, staging a remarkably fine lot, the most striking being Joseph Fleming, Robert Scott, W. A. Dixson, David Baird, Neil McKay, Agnes Mitchell, and Mrs. Nelson. Mr. Robinson also had the best twenty pots of Violas, having of blues, King of the Blues, Queen of the Blues, and Blue King; of yellows, Sovereign, Queen of Yellows, and Ardwell Gem; white, Countess of Hopeton and Pilrig Park; Skylark, white, edged with blue; and Countess of Kintore, purple, blotched with white. Mrs. Mellor, Chorlton-cum-Hardy, was 2nd. There was a class for six pots, but they were poorly shown.

Foliaged Plants.—Some fine examples of these were staged; Lord Zetland's was the best ten. There were staged Cycas circinalis, Chamærops Fortunei, Kentia Belmoreana, K. Forsteriana, Dicksonia antarctica, Crotons Thomsoni and Queen Victoria, Gleichenia rupestris, Neottopteris australasica, and Dasylirion acrotrichum; 2nd, Mr. S. Baerlin, having some fine specimens also, particularly Cordyline indivisa, Encephalartos Lehmanni, Cycas circinalis, some fine Crotons, &c.

Mr. Cypher had the best eight specimens, consisting of Latania borbonica, Cycas circinalis, Kentia australis, K. Forsteriana, Phormium tenax variegata, Cordilyne indivisa, and two fine Crotons; 2nd, Mr. J. F. Mould.

Ferns were a bold feature. The best eight stove and greenhouse types came from Mr. F. Millward, gr. to R. Goodair, Esq., Lawnhurst, Didsbury, who had Davallias Mooreana, pyxidata, and polyantha, Alsophila excelsa, Cibotium Schiedei, Adiantum pentophylla, &c.; 2nd, Mrs. Gurney Peate, who had three good pieces, Gleichenias, Davallia fijiensis, Adiantums, &c.

Hardy Ferns were surprisingly fine, more than rivalling the tender varieties for beauty of development. Mr. R. Tyldesley, Worsley, staged a splendid lot of twelve, generally finely crested forms of Lastrea, Athyrium, Osmunda, Polystichum, &c.; Mr. N. A. Earle was 2nd, with a fine lot also. The best twelve in the nurserymen's class came from Messrs. H. Stansfield & Co.

Palms were very fine. Mr. S. Baerlin had the best four, consisting of Phœnix rupicola, Kentia australis, K. Belmoreana, and Thrinax elegans; Mr. Thomas Agnew was 2nd, with Cocos Weddelliana, Geonoma gracilis, Latania borbonica, and Kentia Canterburyana.

Crotons were small, but in good character. Miss Lord was placed 1st, with some unnamed plants; Mrs. Gurney Pease being 2nd.

Messrs. A. P. Ker & Co. were the only exhibitors of ten in the nurserymen's class, having finely finished examples of Disraeli, Aigburthensis, gracilis, Neumanni, Montefortainensis, Queen Victoria, Williamsii, ruberrimus, Baroness Rothschild, and Hookerii.

Dracænas were represented by well-grown and coloured specimens. Colonel Wingfield, Shrewsbury, had the best six in the open class, consisting of Thomsoni, Baptistii, Norwoodensis, amabilis, Anerleyensis, and Gladstonei; Mr. J. Lamb was 2nd.

Messrs. Ker & Sons had the best twelve—excellent plants of Salmonea, Berkeleyi, Madame Lecoq, Dumeseul, Norwoodensis, Dr. Repland, Gladstonei, terminalis alba, Halseyi, Versaillesensis, Barroni, and Lindeni; Mr. J. F. Mould was 2nd.

Pitcher Plants.—The only collection of these in the amateurs' division came from Mr. Blair, who staged a number of unnamed specimens.

The best collection of ten, from Mr. J. A. Bruce, were all Sarracenias, such as Courtier, Hybrida purpurea, Flambeau, and Tolleana.

A very large collection of Japanese and other evergreen shrubs was staged by Messrs. J. Waterer & Sons, of Bagshot Nurseries, the Japanese Maples being largely represented.

Cut Flowers were in the form of Roses. A very fine stand of twelve Tea-scented varieties came from M. Bulley, Esq., Liverpool; Mr. Thomas Gee, Allerton, being 2nd.

The only exhibitor of eighteen Tea-scented and Noisette Roses was Messrs. Harkness & Sons, nurserymen, Bedale, who had a very fine lot of Maréchal Niel.

Mr. James Burn, Longford Heaton, Mersey, had the best twelve varieties; Miss Lord being 2nd.

Fruit.—A remarkably good display of fruit was witnessed. The best eight dishes came from Mr. J. McIndoe, gr. to Sir J. W. Pease, Bart., Hutton Hall, Guisboro, who had very fine Black Hamburgh and Foster's Seedling Grapes, Queen Pine, Grosse Mignonne Peaches, and Lord Napier Nectarine, Sir Harry Strawberry, Exquisite Oranges and Melon. Mr. Blair was 2nd, with the same varieties of Grapes, Hale's Early Peaches, Strawberries, &c.; Mr. J. G. Morris a very good 3rd. Mr. Lowden, the Quinta Gardens, Chirk, was 1st, with two very finely finished bunches of Black Hamburgh Grapes; Mr. W. Speed, gr. to Lord Penrhyn, Bangor, was 2nd, with excellent bunches also. Mr. Lowden had the best two bunches of white, staging admirable Muscat of Alexandria; Mr. J. G. Morris 2nd, with Foster's Seedling. Mr. McIndoe was the only exhibitor of of two Pine-apples, having Queen and a seedling; and of one, having a good Charlotte Rothschild. Some very fine pots of Strawberries were shown by Mr. Blair, Mr. Upjohn, Worsley Hall Gardens, and Mr. Samuel Barlow—the sorts Sir Harry and Noble. Mr. Upjohn had the best dish of Peaches, in Hale's Early, very good indeed; Mr. McIndoe being 2nd, with Grosse Mignonne. Mr. R. Davies, gr. to Mr. Meynell-Ingram, Temple Newsom, was 1st; and Mr. McIndoe, 2nd, with Nectarines, Lord Napier being shown by both. A number of Melons were staged, Mr. J. G. Morris had the best scarlet in Masterpiece, and Mr. Blair the best green in High Cross Hybrid. The best Cherries were Black Circassian, fine, Mr. Davies. The best Strawberries were La Grosse Sucrée, from Mr. Upjohn; Sir Harry and Noble were also very fine. Tomatos were represented by good fruit of Perfection; and out of fifteen brace of Cucumbers Lockie's Perfection carried off the prizes.

Miscellaneous Exhibits were very numerous, and of great value in making up the show, Mr. B. S. Williams, Victoria Nurseries, Holloway, had a large collection of choice plants, including some very fine Amaryllis, and good collections also came from Messrs. Dicksons, Chester, and the Liverpool Horticultural Company. Mr. F. Sander, St. Albans, had a number of new and valuable Orchids; and so had Messrs. Charlesworth, Shuttleworth & Co., of Bradford. Mr. W. Owen, nurseryman, Northwich, had a collection of choice Cattleyas. Messrs. Ryder & Son, nurserymen, Sale, had a very extensive collection of double and single Begonias of high quality, representing their strain. Messrs. W. Clibran & Son, Oldfield Nurseries, Altrincham, plants of various kinds, and collections of cut Pelargoniums of various types, shown in very fine bunches. Mr. H. Stevenson had some excellent shrubby Calceolarias; and Messrs. Isaac Davies & Son, Ormskirk, plants and cut examples of their new hardy Rhododendrons.

BATH.

May 21.—A glorious day rendered the fine display at the Sydney Gardens enjoyable to the many visitors who attended. Around the Orchid exhibits, the interest, as in former years, centred, and also in that class, which now seems to make the chief feature in most flower shows—the groups arranged for effect. In this class, as in all the leading classes for Orchids, the Rev. E. Handley, of Bath, has not been deposed from the leading place, although R. B. Cater, Esq., another clever cultivator, also of Bath, gradually shortens the distance in a very ominous manner. In the first prize group, the Rev. E. Handley had an unique plant in Lælia purpurata Handleyana, which is a long way in advance of any of its section, viz., the L. Russeliana and L. Schröderiana group. The open forms of Lælia purpurata were also exceptionally good and the Odontoglossums Cattleya Lawrenceana, C. Mendelii, Cypripedium caudatum, and other species good and well displayed, the centre being especially attractive with its backing of Areca lutescens, under which was a noble form of Vanda teres, then some fine sprays of Odontoglossum and the elegant Oncidium phymatochilum, with Dendrobium Bensonæ on either side, and the drooping flowers of Cattleya citrina hanging over, with the Panicum and Isolepis which faced the arrangement. Mr. Cater's 2nd prize group had some fine specimens—too large indeed for the purpose of effective arrangement—the centre Dendrobium thyrsiflorum had about a dozen spikes; the pretty Burlingtonia fragrans ten spikes; and many of the Cattleyas and Lælias were good enough to enter in the classes for specimen plants. Messrs. Heath & Son, of Cheltenham, secured the 3rd prize with a pretty group, in which the brightly-coloured Masdevallias were conspicuous.

For six Orchids the Rev. E. Handley (gr., Mr. Kerslake) was first with admirable specimens of Cattleya Skinnerii, Cypripedium caudatum, with ten flowers; Cymbidium Lowianum giganteum, Lælia purpurata and Dendrobium suavissimum. Messrs. Heath & Son were second with some very large made-up plants. For four Orchids the Rev. E. Handley was again first with a Cattleya Mendelii with sixteen flowers, and other specimens to match. In the class for a single specimen, the Rev. E. Handley and Mr. R. B. Cater were respectively 1st and 2nd, the former having a Lælia purpurata with twenty-six flowers, and the latter a smaller plant of the same species. C. W. MacKillop, Esq., of Royal Crescent, Bath, a very successful exhibitor in other classes of specimen plants, was also a prize-taker.

A class which attracted much attention was that for a group of plants, in or out of bloom, arranged for effect in a space not less than 150 square feet, and these were arranged in a tent by themselves, Colonel Pepper, of Salisbury, easily carrying off 1st. For a smaller group, Alderman Jerome Murch was 1st. For new or rare plants, Mrs. Gouldsmith was 1st, with a curiously mottled-lipped Cattleya Mossiæ. In the classes for large specimen stove, greenhouse, and ornamental plants and Ferns, Mr. J. Cypher, of Cheltenham, came out in his usual manner with perfect and fresh specimens. In these classes, C. W. MacKillop, Esq. (gr., Mr. A. Taylor), secured some of the most important 1st places with grand exhibits; Major W. P. Clarke, Colonel Landon, Colonel Pepper, the Right Hon. Lord Justice Lopes, Mr. W. C. Drummond of Weston Nurseries, and Mr. J. F. Mould, also exhibiting well and successfully.

In Roses, which were of great merit, the Rev. E. Handley seemed as invincible as in the Orchid classes: Mr. S. P. Rudd being 2nd to his 1st in both classes.

Cut flowers, fruits, and vegetables were, as usual, well exhibited, and one of the most interesting features in the show was that made up of the miscellaneous collections staged by nurserymen not for competition, that arranged by Messrs. R. Veitch & Co., of Exeter, being the most extensive, and comprising an interesting collection of hardy foliage and flowering plants, rare herbaceous perennials, fine Anthuriums and Orchids, Maples, Rhododendrons, varieties of Cytisus, and, among other new plants, their Asparagus secundus deflexus, a lovely plant.

Mr. A. Walters, West Kensington Nurseries, Bath, also had a very interesting collection, in the centre of which was a large specimen of Dendrobium chrysotoxum; and among the spring flowers, an elegant collection of well-grown Ferns, some of them rare species, such as Polypodium refractum, Lomaria discolor, bipinnatifida, &c.

Messrs. George Cooling & Son, of Bath, had a very fresh-looking display of Tea Roses, a collection of Aubrietias, Orchids, Heaths, Petunias, Pansies, and other florists' flowers of high merit.

SOUTHAMPTON ROYAL HORTICULTURAL.

May 26.—A small but interesting exhibition was held in the Royal Southampton Society's grounds at Westwood Park on Whit Monday, and was the first held at this season of the year by the Society.

The main part of the exhibition tent was filled with non-competitive exhibits. Chief amongst them being a fine bank of Rhododendrons in pots from the Red Lodge Nurseries, Southampton, which Mr. Rogers kindly lent for the occasion, which, being profusely flowered, and arranged in combination with Conifers in pots, made a pretty effect. Occupying one end of the same tent was a group of miscellaneous plants from Mr. E. Wills, gr. to Mrs. Pearce Bassett, Southampton, also making a good display. Mr. T. Hall, gr. to the President of the Society, S. Montagu, Esq., South Stonebam House, Southampton, sent a number of well-grown Gloxinias,

consisting chiefly of flowers with rich colours, and, being set up with Caladium argyrites and Adiantum cuneatum, a pretty combination was effected.

Mr. B. Ladhams, florist, Shirley, had a capital list of market Pelargoniums in pots, interspersed with Petunias and Pansies; the same exhibitor staged a splendid collection of cut blooms of herbaceous perennials that were much admired.

For miscellaneous plants arranged for effect in groups in area not greater than 80 square feet, Mr. E. Can, gr. to W. A. Gillet, Esq., Fair Oak Lodge, Bishopstoke, was the most successful competitor. The group contained some well-bloomed Orchids, and was tastefully arranged with Ferns and other suitable plants. Mr. G. Busby, gr. to F. Willan, Esq., Thornhill Park, Bitterne, was a good second.

Mr. E. Can showed some nicely grown Orchids, of which Lælia purpurata, Cattleya Mossiæ, Odontoglossum citrosmum, and Oncidium sphacelatum, with spikes 4 feet long, were the most noteworthy.

THE WEATHER.

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending May 24.	Temperature. Accumulated. Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg	Day-deg	Day-deg	Day-deg	Inches		In.		
1	6 +	83	0	+ 145	73	4	97	19.1	35	28
2	5 +	81	0	+ 76	61	3 —	83	11.2	39	29
3	3 +	85	0	+ 50	93	3 —	72	7.8	44	28
4	3 +	93	0	+ 26	39	3 —	76	8.3	66	36
5	3 +	93	0	+ 25	28	0 av.	71	8.4	48	30
6	3 +	102	0	+ 37	68	1 —	73	9.9	57	33
7	6 +	95	0	+ 97	74	1 —	88	18.5	37	30
8	5 +	102	0	+ 77	81	1 —	83	11.7	42	29
9	3 +	95	0	+ 20	52	0 av.	84	14.3	47	35
10	4 +	95	0	+ 43	55	3 —	93	11.6	19	31
11	2 +	99	0	+ 21	14	2 +	95	17.8	47	34
12	1 +	91	0	+ 111	22	6 +	99	12.9	59	42

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

THE PAST WEEK.

The following summary record of the weather for the week ending May 24, is furnished from the Meteorological Office:—

"The *weather* during this period has been fine and bright generally over all the more eastern and south-eastern parts of the kingdom. In the western districts it was unsettled and rainy during the earlier days, but subsequently became very fine and summer-like there also. Thunder and lightning were experienced at many stations during the early part of the time, and again over our south-western districts at its close.

"The *temperature* has been above the mean in all districts, the excess having ranged from 1° in the 'Channel Islands,' 2° in 'Ireland, S.,' and 3° over the greater part of England to 5° in 'England, N.W.,' and to 5° or 6° over Scotland. The highest of the maxima, which were recorded on the 24th, ranged from 73° in 'Scotland, E.,' to 78° in many parts of England and in 'Ireland, N.,' and to 80° in 'England, S.' The lowest of the minima, which were registered on rather irregular dates, varied from 37° in the north and east of Scotland to 43° in 'England, N.E.' and 'England, N.W.,' and to 45° in the 'Channel Islands.'

"The *rainfall* has exceeded the mean in Ireland and the 'Channel Islands,' and just equalled it in 'England, S.W.' and the 'Midland Counties,' but in all other districts it has been less than the normal amount.

"*Bright sunshine* shows a general increase in duration, the percentage of the possible amount having ranged from 35 to 39 in Scotland, from 47 to 49 in Ireland, and from 42 to 66 over England."

MARKETS.

COVENT GARDEN, May 29.

The first half of this week has been most disastrous to all kinds of best fruit, there having been literally no inquiry for anything, owing to the recess. The market has also been glutted with small Peaches, very few samples coming good. Best Strawberries have only been cleared under the value of seconds, the fine weather of last week having sent on large quantities at an unfortunate time, but they will most probably recover themselves at the beginning of the week. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6	7 0	Peaches, dozen	4 0	20 0
— Tasmanian, case	15 0	20 0	Pineapples, St. Michael, each	2 0	6 0
Grapes, lb.	1 6	3 0	Strawberries, lb.	1 0	4 0
Lemons, per case	12 0	20 0			
Melons, each	1 6	3 6			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per bdle	12 0	—	Mustard and Cress, punnet	0 4	—
Beans, French, lb.	2 0	—	Onions, per bunch	0 6	—
Beet, red, per dozen	1 0	2 0	Parsley, per bunch	0 6	—
Carrots, per bunch	0 6	—	Rhubarb, per bundle	0 6	—
Cauliflowers, each	0 3	—	Sprinkle, punnet	0 3	—
Celery, per bundle	1 6	2 0	Shallots, per lb.	0 6	—
Cucumbers, each	1 0	1 6	Spinach, per bushel	6 0	—
Endive, per dozen	2 0	—	Sprue, per bundle	1 6	—
Herbs, per bunch	0 4	—	Brussel Sprouts, pr lb.	0 3	—
Leeks, per bunch	0 3	—	Tomatos, per lb.	1 0	—
Lettuces, per dozen	1 6	—	Turnips, per bunch, new	0 4	—
Mushrooms, punnet	1 6	—			

POTATOS. Jerseys, 11s. to 13s.; Maltas, kidneys, 10c. to 15s.; rounds 8s. to 9s.; Canaries, 10s. to 14s.; Lisbons, 7s. 6d. to 8s. 6d.; Cherbourgs, 12s. to 14s. Markets dull. Old Potatos quiet. *J. E. Timmer.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Ficus elastica, each	1 6	7 0
Aram Lilies, per doz.	8 0	12 0	Fuchsia, per doz.	6 0	12 0
Aspidistria, doz.	18 0	42 0	Genista, per doz.	8 0	12 0
— specs. plants, each	7 6	10 6	Heliotrope, per doz.	5 0	8 0
Azaleas, various, each	2 0	3 0	Hydrangeas, doz.	12 0	18 0
Begonias, per doz.	6 0	18 0	Ivy Geranium, p. doz.	3 0	6 0
Cactus, per doz.	12 0	24 0	Liliums, various, per dozen	18 0	36 0
Calceolarias, p. doz.	6 0	9 0	Lily of the Valley, p. doz. pots	12 0	18 0
Cineraria, per doz.	4 0	6 0	Lobelia, per doz.	4 0	6 0
Cyperus, per dozen	4 0	12 0	Marguerites, doz.	6 0	12 0
Dielytra, per doz.	9 0	12 0	Mignonette, per doz.	4 0	8 0
Dracæna terminalis, per dozen	30 0	60 0	Musk, per dozen	2 0	4 0
— viridis, per doz.	12 0	24 0	Narcissus, p. doz.	4 0	6 0
Erica Cavendishii, per dozen	18 0	48 0	Palm in var., each	2 6	21 0
— ventricosa, doz.	15 0	24 0	Pelargoniums, scarlet, per dozen	3 0	6 0
Euonymus, in var., per dozen	6 0	18 0	— per doz.	12 0	24 0
Evergreens, in var., per dozen	6 0	24 0	Petunias, per doz.	6 0	9 0
Ericas, various, doz.	8 0	24 0	Roses, various, doz.	12 0	24 0
Ferns, in var., doz.	4 0	18 0	— (Fairy), per doz.	8 0	10 0
Foliage plants, various, each	2 0	10 0	Saxifrages, per doz.	18 0	24 0
			Solanums, per dozen	8 0	12 0

"*.*" Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0	Marguerites, 12 bun.	3 0	6 0
Azaleas, doz. sprays	0 6	1 0	Pelargoniums, scarlet, 12 spr.	0 4	0 6
Bouvardins, per bun.	0 6	1 0	— dozen sprays	0 6	1 0
Callanthiopsea, 12 bl.	3 0	5 0	Primulas, double, 12 sprays	1 0	1 6
Carnations, 12 blms.	1 0	2 0	Peonies, 12 bunches	6 0	18 0
Cowslips, doz. bun.	1 0	1 6	Roses, 12 blooms	1 6	3 0
Eucharis, per dozen	4 0	6 0	— coloured, dozen	2 0	4 0
Gardenias, 12 blooms	1 6	3 0	— French, doz.	1 0	2 0
Iris, various, 12 bun.	6 0	18 0	— red, per dozen	2 0	4 0
Ixia, doz. bunches	3 0	6 0	— Safrano, dozen	1 0	2 0
Heliotropes, 12 spr.	0 6	1 0	— outdoor, 12 bun.	6 0	12 0
Lilac, white, Fr., bun.	4 0	6 0	Ranunculus, 12 bun.	3 0	4 0
Lilium, var., 12 bl.	0 6	4 0	Spirea, doz. sprays	0 6	1 0
Lily of the Valley, per doz. bunches	8 0	12 0	Stephanotis, 12 spr.	1 6	3 0
Maiden Hair Fern, do.	4 0	9 0	Tuberoses, 12 blms.	0 6	1 0
Mignonette, 12 bun.	2 0	4 0	Tulips, doz. bunches	3 0	6 0
— French, per bun.	1 8	2 0	Violets, French, bun.	1 0	2 0
Narcissus, various, doz. bun.	1 6	6 0	Wallflowers, 12 bun.	2 0	4 0

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *May* 28.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that to-day's market, as might be expected, presented quite a holiday appearance, with almost a complete absence of business. Clover seeds are, of course, just now quite neglected; indeed, the sowing demand for things generally is just now at the lowest possible ebb. Mustard and Rapeseed keep firm. Choice Blue Peas have got into narrow compass. Hempseed continues scarce and dear. In Canary-seed the late advance is well sustained.

FRUIT AND VEGETABLES.

SPITALFIELDS: *May* 28.—Good supplies of all kinds of green vegetables, potatos, &c. Scarce supply of fruit. Demand fairly active at prices as under:—Gooseberries, 6s. to 6s. 6d. per half-sieve; natural Rhubarb, 1s. 6d. to 2s. 6d. per dozen bundles; Asparagus, 1s. to 2s. per bundle of 100 heads; Cabbages, 1s. to 2s. 6d. per tally; Cauliflowers, 2s. 6d. to 6s. do.; Radishes, 2s. to 3s. do.; Seakale, 1s. to 1s. 6d. per punnet; Spinach, 4d. to 1s. per bushel; Greens, 1s. to 1s. 9d. per dozen bunches; Parsley, 1s. 6d. to 2s. do.; Mint, 1s. 6d. to 2s. per dozen bundles; Horseradish, 1s. 1d. to 1s. 4d. per bundle; frame Cucumbers, 2s. to 2s. 6d. per dozen; natural ditto, 9d. to 1s. do.; spring Onions, 1s. to 1s. 6d. per dozen bunches; Mustard and Cress, 1s. to 1s. 6d. per dozen baskets; Cos Lettuces, 6d. to 1s. per score; Cabbage do., 6d. to 9d. per dozen; Endive, 1s. to 1s. 6d. per dozen; Carrots, 16s. to 20s. per ton.

NOTICES TO CORRESPONDENTS.

"*.*" **Owing to the large extension of our circulation, we are under the necessity of going to press at an earlier time than heretofore, and request our regular correspondents to favour us with their communications as EARLY IN THE WEEK AS POSSIBLE.**

ABORTIVE FLOWERS OF ODONTOGLOSSUM. *E. P.* We have this season received similar specimens from other correspondents, and can only account for them by supposing the extra vigour of the plants, which has in each case been noted, to have turned towards the growth while yet the buds were forming, and, diverting the flow of sap from the flowers, thus causing the abortion. These things are kept too constantly moist, and it will probably be found that a rather drier and more airy house, and less water at the roots from the time the spikes appear until the flowers expand, will do away with abortive and imperfect flowers.

BOOKS: *F. H. B. Cross and Self-Fertilisation of Plants.* Darwin. (John Murray, London.) *Domestic Floriculture.* F. W. Burbidge. (W. Blackwood & Sons, London and Edinburgh.)

COLEUS: *T. W.* We do not find either fungus or insect. We have seen similar appearances before, and attribute them to some check during growth, but how produced we do not know.

DENDROBIUM WARDIANUM: *J C.* In your flower two stamens, which are generally abortive, have developed in the shape of supplementary lips.

HYBRID AND CROSS: *C. S. F.* Hybrids are intermediate forms, or mules, produced between flowers of two different species. Crosses result from the fertilization between two plants of the same species.

NAMES OF PLANTS: *T. B.* The Buckbean (Menyanthes trifoliata). The best time to move it would be after the flowering season is over.—*W. P. L.* 1, Prunus Padus; 2, Pyrus Aria; 3, Lycium barbarum; 4, Viburnum opulus. — *J. S., Dumfries.* Staphylea pinnata.—*Camjes.* Dendrobium aurantiacum; Vanda Wightii. — *Stansted.* Maxillaria tenuifolia. — *T. H. W.* Dendrobium cretaceum; D. albosanguineum.—*C. A. M. C.* Rhodotypus kerrioides.—*P. McL.* 1, Abies pectinata; 2, Abies Nordmanniana; 3, Abies grandis; 4, Abies balsamea; 5, Picea Morinda; 6, Abies Lowiana, *alias* Parsonsi, *alias* lasiocarpa, *alias* concolor.—*W. S.* Dendrobium Dalhousieanum.—*L. L.* 1, Symphytum caucasicum; 2, Euphorbia pilosa; 3, send again in fruit—we do not at present recognise it; 4, Geum rivale; 5, Armeria plantaginea; 6, Saxifraga tenella.—*F. W. B.* Veronica Lavandiana.—*E. D. L.* 5, Olearia Cunninghamii.

G. Paul. Primula farinosa, two varieties.—*T. E.* Lælia purpurata, a good but not extraordinary variety.—*L. C., Rugby.* 1, Oncidium maculatum; 2, Piptanthus nepalensis.—*W. H. S.* 1, Ribes aureum; 2, Ribes sp.—perhaps a common Currant; 3, Lælia purpurata, an ordinary form.—*F. O.* The Bird Cherry, Prunus Padus.—*X. Y. Z.* Stanhopea tigrina.—*W. H. S.* 1, Ribes aureum; 2, Ribes, s.p., perhaps a common Currant; 3, Lælia purpurata, an ordinary form.

PEACHES: *A. G. H.* The tree is healthy, but there has been an excess of water at the roots at a particular period. Is the drainage quite what it should be?

RASPBERRY PLANTING: *J. C.* The canes should not have been planted later than the end of March, and probably all those which your employer ordered you to plant about a week ago will die, or make very weakly growth. Suckers may be detached carefully from stools, lifted with plenty of soil, planted on a north border, and watered heavily to settle the soil about them; and the end of April is quite late enough for that operation. The soil around them should be mulched with short manure and watering must be done in very dry weather. You need not lose the use of the ground for this summer and may crop it with the intended Cauliflowers, &c., not, of course, crowding the lines of Raspberries.

ROSES: *A.* As far as we can judge from the specimens sent, your Roses are very good and well worth cultivating.

TREE SEEDS: *R. W.* The fact that three weeks have elapsed since sowing the seed and no plants have appeared is no test of the goodness of the seed. Tree seeds often remain one and two years before germinating; and in the case of seeds with hard cases it is best to "stratify" them in the autumn—that is to let them lay between strata of earth or sand until March or April, and then sow them out of doors in properly prepared beds, or, in the case of small quantities, in boxes or pans. It is a good plan with Coniferous seeds to sow them in pots in October, and place the pans in a cold pit, protected against evaporation and the depredations of mice by means of a close-fitting piece of tile or slate. Seeds so treated, usually (if the seed be new) come up well in the spring or late winter. The pots should be looked at once a month to see that they are not too dry, or mouldiness has spread over the surface. If mould has appeared, scrape off the crust carefully and replace it with sandy loam; but if sandy loam alone is employed to fill the pots mould will rarely give trouble. Seeds not often asked for are often sold when their germination is a matter of doubt. Conifer seeds should never be kept more than a few months before sowing them, as they soon spoil. Young seedlings of Cypresses from warmer climes than ours should be kept during the first five or six winters in pots in a cold frame; or if in beds a frame should be put over them, or even thin thatch would do.

VINERY, TOMATO-HOUSE, IRON ROOF, AND GLAZING WITHOUT PUTTY: *H. L. T.* Some systems are very good, there being no leaks, breakages from expansion, or paint necessary; but the iron (mild steel) should be galvanised. We cannot recommend dealers.

WATER LILY LEAVES: *V.* We cannot see that there is anything wrong. It looks like simple death and decay from natural causes.

WIREWORMS: *R. B. E.* See p. 682 of this issue, where you will find a remedy for the evil. When the crops are cleared off the land, dress it with gas-lime and soot, well incorporating these substances with the soil when digging it.

CATALOGUES RECEIVED.

A. BLANC & Co., Philadelphia, U.S.A.—Cacti.

DAMMAN & Co., San Giovanni a Teduccio, near Naples, Italy—Wholesale List of Bulbs, Roots, and Orchids.

OSMAN & Co., 132, Commercial Street, London, E.—Nurserymen's and Florists' Requisites and Sundries.

COMMUNICATIONS RECEIVED.—J. Lowe.—W. H.—F. Roemer.—L. Castle.—J. D.—Y. E.—J. G. Baker.—J. M.—H. E.—W. N.—E. M.—E. R.—J. S—L. C.—J. A.—Dr. B.—C. W. D.—R. A. R.—Captain.—W. S. C. P.—Barbados.

BENTLEY'S WEED DESTROYER.

Mr. W. IGGULDEN, *Marston Gardens, writes:*—"I have used your Weed Destroyer for several seasons. It is doubtful if anything more effectual will ever be concocted."

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CHEMICAL WORKS,
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This is a Plant Food of great excellence, carefully prepared with the view of supplying a manure which shall contain all the elements necessary for the Perfection of Plant Life, and at the same time be QUICK IN ACTION, LASTING, AND ECONOMICAL.

The ingredients have been so arranged that, whilst accelerating luxurious growth, permanent benefit is secured by a continuance of nourishment to the plant.

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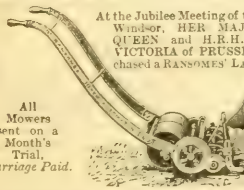
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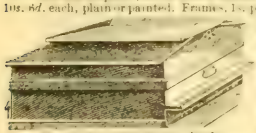
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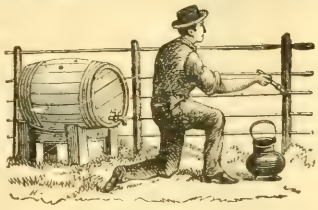
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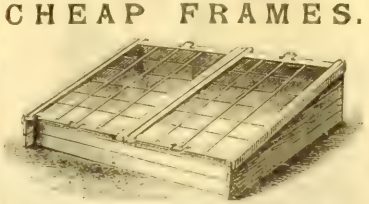


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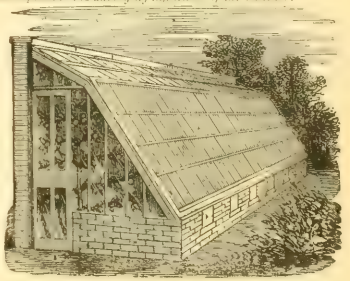
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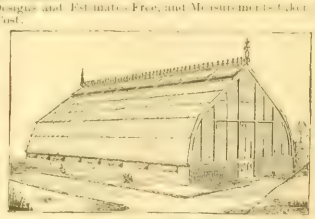
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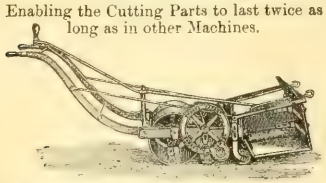
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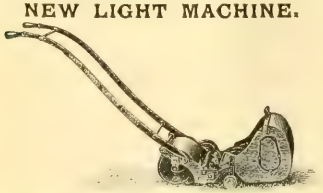
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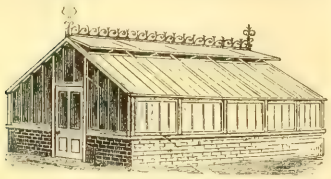
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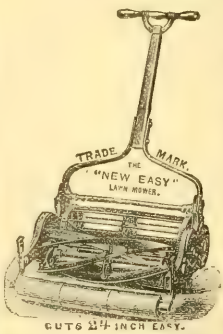
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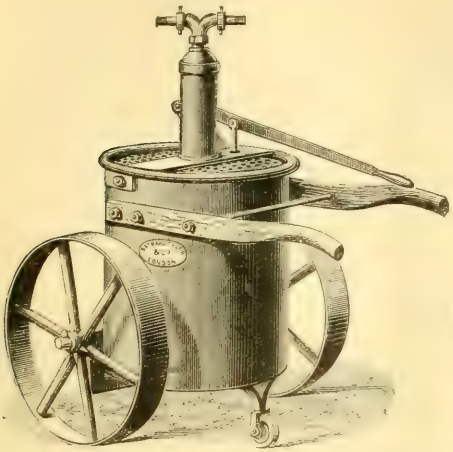
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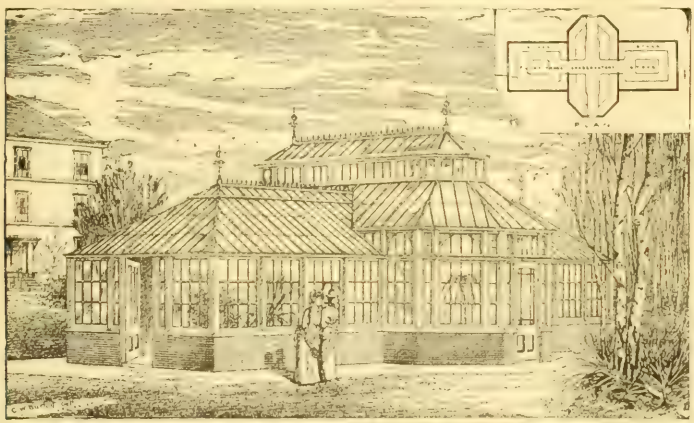
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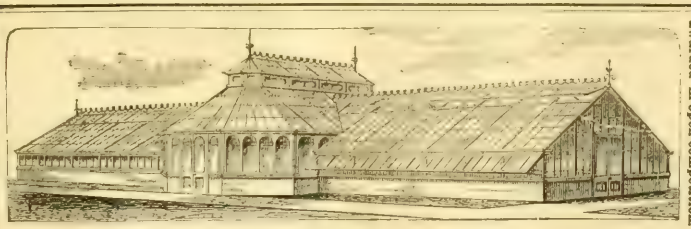
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FOREMAN, or SECOND in Private Establishment.—Age 26, twelve years' good general experience. Highly recommended.—T. COUSINS, The Gardens, Monk's Orchard, West Wickham, Kent.

FOREMAN, or good SECOND. Age 24; four years and a half excellent character from last situation. Total abstainer.—W. FISHER, Orchard Gardens, Wilton, Somerset.

To the Trade.

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FOREMAN, or PROPAGATOR and GROWER.—Sixteen years' practical experience in producing large quantities of Cut Flowers and Flowering Plants, Hard and Soft-wooded, as Pelargoniums, Bouvardias, Cyclamen, Carnations, Double Primulas, Chrysanthemums; also Stove Plants, Ferns, Roses, &c. Well up in Wreaths and Bouquets.—ALPHA, 3, Bristol Nurseries, Brighton.

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To Nurserymen.

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To Nurserymen.

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JOURNEYMAN, in the Houses, in a good Establishment.—Age 23; eight years' experience. Good references.—W. B., Avisford, Arundel, Sussex.

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W. RICHARDS, 41, Wellington Street, Strand, W.C.

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The Square, Shrewsbury.

"HOOPER, Covent Garden.—The Flower and Fruit Commission Department formerly carried on by Hooper & Co. (Limited), is no longer conducted by them, but is entirely in the hands of Mr C. B. HOOPER, who is responsible for it.—Address, C. B. HOOPER, Covent Garden, London."

Sow in June.
SUTTON'S PRIZE GLOXINIAS.—The strain which attracted so much attention and admiration at the Royal Horticultural Society's Show in the Temple Gardens, May 28 and 29, 1890, and awarded the Society's Silver-gilt Flora Medal. The *Journal of Horticulture*, May 29, said:—"The noble show of Gloxinias of Messrs. Sutton & Sons, of Reading, must be noted. If it were a question of beauty only, no Orchid surpasses these superb plants as Messrs. Sutton have developed them. They are perfect in form and splendid in colour." Price of seed 2s. 6d. and 5s. per packet, post-free. SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, Reading.

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SALES BY AUCTION.

Thursday Next.

SPECIAL SALE of ORCHIDS in FLOWER and BUD.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 12, at half-past 12 o'Clock precisely, a fine COLLECTION of ORCHIDS in FLOWER and BUD, comprising some fine forms of Cattleya Mossiæ and C. Mendelii, Odontoglossum Alexandræ, O. Pescatorei, and O. vexillarium; Phalænopsis speciosa, Oncidiums, Dendrobes, Cypripediums, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

20 fine plants of MASDEVALLIA HINCKSIANUM.

Importations from Madagascar, &c.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 12, 20 fine Plants of the new Hybrid MASDEVALLIA HINCKSIANUM, Rchb. f., being the whole stock, with the exception of 10 leaves, retained by the raiser for his Private Collection; an extensive importation of ANGR.ECUM SESQUIPEDALE, A. EBURNEUM SUPERBUM, GRAMMATOPHYLLUMS, &c., from Madagascar, received direct; 25 fine Plants of PHAL.ENOPSIS LOWII, &c.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 13, at half past 12 o'Clock, a magnificent importation in splendid condition of EAST INDIAN ORCHIDS, all true to name, imported by Messrs. Walter Kemsley & Co., London, including Vanda tricolor, Cypripedium Hookeræ, Dendrobium Veitchianum, Cypripedium Lowii, and Aerides mitratum. Also a large quantity of ESTABLISHED ORCHIDS, many of them in flower, comprising, amongst others, a few hybrid Cypripediums, Cattleya Mossiæ alba, an extraordinary variety with seventeen flowers and buds, several unusually fine varieties of Odontoglossum vexillarium, Cattleya gigas, &c. Also a valuable and scarce OLD WORK ON PLANTS, date 1750 to 1770, the plates having been all coloured by hand, complete in two volumes; and about 200 green tree frogs.

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Friday Next.

Postponed from Friday, June 6.

IMPORTANT to ORCHID FANCIERS and OTHERS.

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MESSRS. PROTHEROE AND MORRIS have been favoured with instructions to SELL the above VALUABLE COLLECTION by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 13, 1890, at 2 o'Clock precisely, in one lot.

May be viewed at the Auctioneers' Offices two days prior to the Sale, or at any previous time by appointment. Descriptive Catalogues are now ready, and will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

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MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, June 24 and 25, at half-past 12 o'Clock precisely each day, the FIRST PORTION of this SUPERB COLLECTION. Amongst the many fine things included in the First Sale, the following may be specially mentioned:—

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,, De Witt Smith
,, porphyrochlamys
,, Wallaertianum
,, Lafoscadei
,, macropterum
,, concolor Tongkiensis
,, Marshallianum
,, vexillarium
,, Leeanum superbum
,, pycnopterum
,, Saundersianum
,, Winnianum
,, Tautzianum
,, tonsum superbum
,, michrochilum
,, Mrs. Charles Canham
,, Charles Canham
,, selligerum majus
,, dulectum
,, villosum aureum
Cypripedium Bossevianum
Lælia elegans Blenheimensis
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,, callistoglossa
,, elegans Morreniana
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,, ,, stelzneriana
Cattleya Percivaliana alba
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,, nobile Cooksoni
,, ,, album
Dendrochilum filoforme

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Expiration of Lease. First Portion.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, on the Premises, The Brunswick Nursery, Tottenham, N., close to the White Hart Lane Station, G.E.R., on THURSDAY, June 26, at 12 o'Clock, the erection of ten GREENHOUSES and ten PITS, with the Hot-water Piping, Boilers, and Brickwork; 120 moveable Lights; also a large quantity of Stove and Greenhouse Plants, Ferns, Chrysanthemums, Ampelopsis Veitchii, &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Brimsdown Nursery, Enfield Highway; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

"The Brokes," Reigate.

about half a mile from the Railway Station.

SALE OF STOVE, GREENHOUSE, &c., PLANTS.

MESSRS. JOHN LEES AND BURCHELL, have received instructions from the executors of the late W. H. Trego, Esq., to SELL by AUCTION upon the Premises, as above, on TUESDAY, June 17, at 10 for 11 o'Clock, the whole COLLECTION of PLANTS, including choice Orchids, Camellias, Azaleas, Cactus, rare specimen Cerus peruviana, exotic, tree, and hardy Ferns, and specimen Todea superba, fine Palms, Dracænas, Aloes, Amaryllis, Eucharis, Imported specimen Anthuriums, Begonias, Crotons, Ericas, Rhododendrons, Fuchsias, Pelargoniums, and many others; Bedding Plants, and Garden Implements, Tools, Pot Lights, Frames, &c.

May be viewed the day preceding the Sale, and Catalogues obtained of JOHN LEES AND BURCHELL, Auctioneers and Land Agents, Reigate, and 17, Wool Exchange, E.C.

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TO BE SOLD, a First-class NURSERY, within seven miles of Covent Garden, comprising about one acre of Land, with two Cottages and eight large Glass Houses thereon, all well stocked, and heated with hot water. Lease 15 years. Terms moderate.

Apply to W. E., 130, Percy Road, Shepherd's Bush, W.

TO BE DISPOSED of, an old-established FLORIST BUSINESS, with Residence and Conservatory, near Maida Vale. Moderate Rent. Possession at June Quarter. Small sum required for Fixtures and Stock-in-Trade.

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To Market Gardeners, Farmers, Florists, and Others.

FOR DISPOSAL, an excellent MARKET GARDEN, of about 20 Acres of splendid Land, close to main road, eight miles from London, well stocked with choice Trees and Plants in a high state of cultivation. Good Homestead; spacious Hothouses and Forcing Pits; good supply of Water. Price, valuation only. Rent £130, inclusive.

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At a very Moderate Rent, and Price in Proportion
TO THE COST.

TO BE SOLD or LET, by order of the Mortgagees, Detached HOUSE, at Bexley Heath, Kent, on Gravel Soil, facing the open country: eight Bedrooms, two Dressing-rooms, Bathroom, three Sitting-rooms; Stabling, and Gardens, with fine old Trees. Rent £80.

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A MEDIUM-SIZED detached RESIDENCE, containing 8 Bed-rooms, Bath-room, 3 Reception-rooms, Offices, &c. In the garden are Vinery, 70 by 25 feet; Orchid-house, 70 by 12 feet; Greenhouse, 70 by 12 feet, forming one range; Greenhouse, 90 by 22 feet, with Frames adjoining, all economically worked from one boiler; auxiliary Boiler. Small Kitchen Garden and Orchard, with back entrance. Lease, 17 years. Rent, £94. Small Premium.—Messrs. H. E. FOSTER AND CRANFIELD, 6, Poultry, E.C., and Enfield.

Fifty Nurseries, Market Gardens, Florist and Seed
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MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

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ORCHIDS. THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), Limited, have just received large and fine importations of the following and many other ORCHIDS:—

Cattleya Trianæ,
Odontoglossum vexillarium,
,, Roezlii,
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Odontoglossum luteopurpureum,
Oncidiums undulatum, fuscatum,
Pescatorea Dayana,
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H. SQUELCH is open to RECEIVE CONSIGNMENTS of CHOICE BLACK GRAPES, MUSCATS, TOMATOS, CUCUMBERS, PEACHES, and all kinds of Hot-house Produce.

H. SQUELCH'S connection is amongst the best business houses in the United Kingdom, and he gives personal attention to all consignments. Account of Sales forwarded day of Sale. Cheques weekly or as desired. Empties and Labels supplied. Bankers, London and County Bank. Warehouses and Banana House, James Street, Covent Garden, W.C.

FOR SALE, cheap to clear, tri-colour GERANIUMS, Sophia Dumaresque and Pollock; Bronze George Peabody, in large 60's. Free on rail in London. Price for cash only, apply

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GRAND NEW COLEUS, "DUCHESSE OF FIFE."

First-class Certificate Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser,

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Also, at very low prices, a large importation of DENDROBIUM FIMBRIATUM OCULATUM, D. DALHOUSIANUM, D. FORMOSUM GIGANTEUM, D. AGGREGATUM MAJUS, D. BENSONIÆ, AERIDES LOBBII CŒLOGYNE LENTIGINOSA, and SACCOLABIUM BLUMEI LONGIRACEMOSUM.

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SAMUEL SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire, begs to offer the following, of which he has made a specialty for the last twenty-six years:

PRIMULAS! PRIMULAS! and CINERARIAS, finest possible strains, the latest new colours and improved forms as sold in Covent Garden. Good Plants for next autumn and winter blooming, 1s. 6d. per dozen, 10s. per 100; extra strong selected, 2s. per dozen, 12s. per 100.

CYCLAMENS, CYCLAMENS!—Lamb's celebrated Giganteum strain, good plants, 2s. per dozen; extra selected, 2s. 6d. per dozen; all carriage free.

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Cheap Bedding Plants.—Special Offer.

WILLIAM BADMAN offers as under from Store-pots, all well-rooted, and fit for present potting. The present is a good time for making up losses sustained during the winter.

VERBENAS, Purple, White, Scarlet, Crimson, Rose, 6s. per 100, 50s. per 1000; 12 choice named varieties, 8s. per 100.

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CALCEOLARIA Golden Gem, 6s. per 100, 50s. per 1000; Camden Hero, fine dark, 10s. per 100.

HELIOTROPE Jaun d'Amour, Miss Nightingale, dark, 6s. per 100, 50s. per 1000.

AGERATUM Imperial Dwarf, blue, 5s. per 100, 40s. per 1000.

COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100, 75s. per 1000.

IRESINE LINDENI, dark crimson, good bedder, 6s. per 100, 50s. per 1000.

PELARGONIUM Vesuvius, finest bedding scarlet, 8s per 100, 75s. per 1000; Master Christine, 12s. per 100; Mrs. Levers and Jenny Dodds, fine pink, 10s. per 100; Henry Jacoby, best crimson, 12s. per 100; Madame Vaucher, white, 12s. per 100; Queen of Belgians, finest white, 3s. per dozen, 20s. per 100; Nipheto, bedding white, 12s. per 100; Waltham Seedling, Lucius, Jean Sisley, and White Vesuvius, 10s. per 100.

SILVER VARIEGATED May Queen (Turner's), Princess Alexandra, Flower of Spring, 12s. per 100; Little Trot, dwarf, 12s. per 100; Prince Silverwings, 12s. per 100; Lady Plymouth, 10s. per 100.

GOLD LEAF Crystal Palace Gem, 12s. per 100; Happy Thought, 12s. per 100.

BRONZE McMahon, Black Douglas, The Czar, the best bedders, 15s. per 100.

TRICOLOR Mrs. Pollock, 15s. per 100; Sophie Dumaresque, Lady Cullum, Sir E. Nasper, 18s. per 100.

DOUBLES, F. V. Raspail, fine scarlet; M. Thibaut, pink; M. Baltet, best white, 12s. per 100.

TROPÆOLUM Vesuvius, 10s. per 100; Mrs. Ellis, best dwarf scarlet, 10s. per 100.

FUCHSIAS, in twelve good named sorts, 8s. per 100.

PELARGONIUMS, Show and Decorative, from single pots, good, 2s. per 100, 3s. per dozen.

NOTE.—Not fewer than twenty-five of any one sort supplied at above rate. Packing included. Terms, cash.

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SINGLE DAHLIAS.—Clearance Sale.—Fine strong Plants for immediate planting out. A beautiful variety of splendid colours. Will produce a grand show in the garden till late in autumn. First-class for cut flowers. 1s. 6d. doz., 10s. 6d. per 100, carriage free for cash.
DANIELS BROS., Town Close Nurseries, Norwich.

NEW IVY-LEAVED PELARGONIUMS.—Magnificent new double-flowered varieties of the most charming and brilliant colours. Splendid for pots, hanging baskets, or the garden. Good Plants. Correctly named. 3s. 6d. per dozen, 6 for 2s., or 25 for 6s. 6d. Extra choice sorts, 4s. 6d. per dozen, 6 for 2s. 6d., or 25 for 8s., carriage free for cash.
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FUCHSIAS.—Clearance Sale.—A magnificent Collection of superb Double and Single-flowered varieties, including the newest and most beautiful sorts in cultivation. Splendid for pot culture or the garden. Strong young Plants, from single pots, correctly named, 2s. 6d. per dozen, 6 for 1s. 6d., or 25 for 4s. 6d. Extra choice sorts, 3s. 6d. per dozen, 6 for 2s., or 25 for 6s. 6d., post-free.
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CHRYSANTHEMUMS.—Clearance Sale.—A splendid Collection, including all the most beautiful and popular of the Japanese, Incurved, and Pompone varieties. Strong well-rooted Cuttings, correctly named, 1s. 6d. per dozen, 100 for 10s. 6d. Extra choice sorts, 2s. 6d. per dozen, 100 for 15s., post-free.
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Rare and Valuable Orchids.

MR. F. C. LEHMANN, German Consul at Popayan, New Granada, has entrusted me with the sale of the following rare and valuable ORCHIDS, collected by him in Ecuador and New Granada, in 1887 and 1888, all of which are now offered in perfectly established plants, viz.:—

CATTLEYA AUREA, 10s. 6d. and 15s. each.
,, TRIANÆ, Popayan varieties, 3s. 6d. and 5s.; very strong, 10s. 6d.
ODONTOGLOSSUM CIRRHOSUM, 5s. and 7s. 6d.
,, CRISPUM LEHMANNI, 3s. 6d., 5s., and 7s. 6d.
,, EDWARDI, 10s. 6d. and 15s.
,, HALLII LEUCOGLOSSUM, 15s. and 21s.
,, NANTHOGLOSSUM, 10s. 6d. and 15s.
,, ROEZLII (Miltonia), 5s. and 7s. 6d.
,, VEXILLARIUM RUBELLUM (Miltonia), small plants, 5s.; fine strong plants, 12s. 6d.
ONCIDIUM KRAMERI, several plants on each block, 5s. and 7s. 6d. per block.
,, MACRANTHUM, 7s. 6d. and 10s.
,, PYRAMIDALE, rare and very pretty, with dense, upright panicles of golden yellow flowers with conspicuous clear white centre, 7s. 6d. and 10s. 6d.
,, UNDULATUM, very rare and most beautiful, belongs to the macranthum section, 21s. and 31s. 6d.
TRICHOPILIA FRAGRANS ALBA (Pilumna nobilis), all segments clear white with orange-yellow eye, very sweet-scented, 3s. 6d., 5s., and 7s. 6d.

Orders will be executed in strict rotation, and forwarded, POST AND PACKAGE FREE, to any part of Great Britain or Continent. The stock being very limited, early orders respectfully solicited. Terms for cash only, either by Post-office Order or Crossed Cheque, made payable to
EDWARD ORTGIES, Inspector of Botanic Gardens, Zurich, Switzerland.

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"If you want really good illustrations of best Daffodils, there are none better than what are published by Wm. Baylor Hartland in the *Amateur Garden*, *Cassell's Journal*, and *Chambers' Journal*" for March, 1890.
Apart altogether from Price or Trade, I am now publishing a "Book" of 44 pages, entirely devoted to what is good among Daffodils. The Drawings—many of them Conference selections—are by my niece Gertrude Hartland, engraved by Welch of London, and finished in a most artistic manner. Post-free, 1s. 6d. The key to the same—descriptive and priced—will be published in July. Trade Circulars of Market Daffodils now ready. Quotation speend for quantity, and prompt July delivery guaranteed. Daffodil grounds, 10 acres.
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CHOICE DAHLIAS.—12 New Cactus Dahlias, including Prince of Wales, Prince Albert Victor, Lady Brassey, Lady Marsham, Black Knight, Our Leader, for 6s.; also 100 of the best exhibition sorts of Show, Fancy, Pompons, and Singles, true to name, from 3 inch pots, sample dozen for 2s. 6d. Packing free for cash with order.
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THOMAS METHVEN AND SONS offer their choice strain of the above, in five varieties, viz.: Scarlet, Purple, White, Crimson, and White Wall-leaved, at 1s., 2s. 6d., and 5s. each colour. Price to the Trade on application.
By Royal Warrant, Nurserymen and Seedsmen to the Queen, Edinburgh.



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None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.
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DONATIONS and SUBSCRIPTIONS

Paid or Promised on occasion of the Fifty-first Anniversary Festival, June 12, 1890, on which occasion
Mr. HARRY J. VEITCH, the Treasurer, will preside.

In Addition to the last Announcement:—

	£	s.	d.
Sir JULIAN GOLDSMID, Bart., M.P.	210	10	0
Mrs. DAVIS, Bifrons, Farnboro' (A.)	1	1	0
Mrs. HAMILTON	3	0	0
WM. MURRAY, Esq.	1	0	0
Mrs. EVANS, Wimbledon Park House (A.)	1	1	0
The Hon. WALTER ROTHSCHILD, New Court	10	10	0
Mrs. MORGAN	1	1	0
R. COURAGE, Esq., Bramby	5	0	0
Mrs. FITZGERALD	1	1	0
Messrs. C. and F. JOHNSON	2	2	0
J. C. PARKINSON, Esq., 125, Victoria Street	10	10	0
Mrs. THORNTON, Battersea Rise	1	1	0
J. VALLANCE, Esq., Willesden Lane	1	1	0
Mrs. MYERS, Benham Park, Newbury (A.)	1	1	0
THOS. B. HAYWOOD, Esq., Reigate	5	5	0
Mrs. FINLAY	1	1	0
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Mr. W. WEEKS, Fulham Road	5	0	0
B. BEAUMANN, Esq., Willesden Lane	2	2	0
Messrs. STROUD BROTHERS, Green Lanes	2	2	0
ISAAC GREAVES, Esq., Sheffield	5	5	0
Mrs. H. J. VEITCH, Chelsea	10	10	0
Mr. GEO. LITTLE, Clapton	0	10	6
Per Mr. GARAWAY, Durdham Downs, Bristol	19	10	0
Mr. C. F. WILLIAMS, Handsworth	0	10	0
Mr. McINTYRE, Glen Gardens	2	12	0
Mr. TURNER, Cranfield Court Gardens	2	3	0
Mr. HARRISON, Knowsley Gardens	5	5	0
Mr. ILIFFE, Naseby Woolleys	0	15	0
Mr. BERRIDGE, Little Brick Hill Gardens	0	15	0
Mr. MANN, Leighton Gardens	1	0	0
Mr. MacMILLAN, Oakley Gardens	1	5	0
Mr. MONK, Moss Hall Gardens	0	10	0
Mr. WILLARD, Holly Lodge Gardens	1	1	0
Mr. WHEELER, Barnes Elms Gardens	10	10	0
Mr. KITSON, Burbridge Gardens	4	3	6
Mr. BERRY, Roehampton	1	1	0
Mr. SWANBOROUGH, Glassleugh, Ireland	1	6	0
Mr. TESLEY, Great Barr Gardens	0	10	6
Mr. WOODHAM, Model Farm Gardens	0	5	0
Mr. SAYER, Snowdenham Gardens	1	10	0
Mr. GODDARD, Hanson Court Gardens	0	10	6
Mr. SHOEBRIDGE, The Limes Gardens	0	5	0
Mr. TUCKER, Curraghmore Gardens	1	0	0
Mr. W. NEWTON, Newton Tod ington Gardens	0	5	0
Lord SUDELEY	5	5	0
Mr. PARKER, Broxbornebury Gardens	10	10	0
Mr. MORGAN, Oak Lodge Gardens	1	2	0
Mr. SALCOMBE, The Vineyard, Ticehurst	5	6	6
Mr. PERKINS, Thornham Gardens	0	10	6
Mr. SNELL, Grimston Gardens	2	4	6
Mr. KNOX, Port Elliot Gardens	1	1	0
Mr. CANHAM, Royal Exotic Nursery	1	1	0
Mr. HITCHCOX, Rokham Grove	0	5	0
Mr. ARNOLD, Cirencester House	0	10	0
Mr. JONES, West Hatch Gardens	1	12	0
Mr. KAINES, Oakham	0	5	0
Mr. WARNER, Peper Harrow Gardens	0	5	0
Mr. SHEPHARD, High Elms, Watford. *3rd Collection*	5	17	6
Mr. WOOD, Juniper Hall Gardens	0	5	0
Mr. TILT, Rousden Gardens	0	5	0
Mr. GEO. AYRES, Manley Gardens, Lichfield	2	2	0
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Mr. JOHN LEGGE, Glen Andre Gardens	2	12	0
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Mr. F. VAN VELSEN, Jr., Overveen	5	5	0
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Per GEO. MONRO (amount previously acknowledged, £57 19s.) *Third List*:—			
JOSEPH LANE, Palgrave, Diss	1	1	0
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S. PICHAM, St. John's Wood	1	1	0
R. PIPER, Worthing	1	1	0
T. W. LEE, St. John's Wood	1	1	0
G. HYAMS, Spitalfields	0	5	0
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E. JONES, Dunloe	1	1	0
S. GARD, Hampstead	1	1	0
J. G. TAYLOR, Hyde Park	1	1	0
F. H. TODD, Roydon, Diss	0	10	0
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H. TITE, Hampton	1	1	0
Gen. Sir A. LITTLE, Tetbury	1	0	0
FRAIS AND SON, Limited, Brixton	2	2	0
W. WILSON, Tunbridge Wells	0	10	6
A. STEPHENS, Spitalfields	1	1	0
BOYD, BARROW AND CO., Glasgow	1	1	0
W. GREEN, Harold Wood	1	1	0
Do. Do.	1	1	0
F. ROODS, Pevensey	0	2	6
J. MILLER, Surbiton	0	10	6
E. HARRISON, Leadenhall	1	1	0
BERRILL AND SON, Birmingham	1	1	0
Mrs. BUTCHART, Leadenhall	1	1	0
Mr. GRAHAM	1	1	0
THOS. HAMILTON, Waltham Cross	1	1	0
W. F. MUMFORD, Scilly	0	5	0
W. M. GLUYAS, Scilly	1	1	0
JOHN MUSSON, Henfield	0	10	6
A. WATERER, Esq., Knap Hill	10	10	0
A. WATERER, Jun., Esq., Knap Hill	10	10	0
Per Mr. OWEN THOMAS, Chatsworth	25	7	0

WOLVERHAMPTON
HORTICULTURAL SHOW
AND FLORAL FETE,
JULY 15, 16, and 17.
Open to all England. Classes for PLANTS, ROSES, BOUQUETS, &c. Gentlemen's Gardeners' Classes, open to Staffordshire, Shropshire, Warwickshire, and Worcestershire. Portions of the Park are allotted for exhibits of Horticultural Appliances, and applications for space should be made at once to
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NATIONAL COOPERATIVE FLOWER SHOW 1890.
FIFTH NATIONAL CO-OPERATIVE FLOWER SHOW, Crystal Palace, AUGUST 16, 1890.
Schedules now ready of over 825 Prizes, comprising Gold, Silver, and Bronze Medals, and £350 in cash; Special Prizes of Goods, Certificates, &c.; post-free on application to
EDWARD OWEN GREENING, Hon. Secretary.
At this Show, the Agricultural and Horticultural Association (Ld.), offer £150 for best produce grown from their reliable One and All Seeds. 3, Agar Street, Strand, W.C., and Creek Road, Deptford, S.E.

Enoch White, deceased.

Pursuant to the Statute, 22 and 23 Victoria, chapter 35,
NOTICE IS HEREBY GIVEN that all persons having any CLAIMS or DEMANDS against the Estate of ENOCH WHITE, late of No. 23, Holdenhurst Road, Bournemouth, in the County of Southampton, Nurseryman and Florist, deceased (who died on the 4th day of January, 1890, and whose Will was proved in the Principal Registry of the Probate Division of Her Majesty's High Court of Justice, on the 15th day of May, 1890, by John James Dacombe, of Bournemouth aforesaid, Decorator, and Henry Pratt Moore, of the same place, Coach Builder, the Executors), are hereby required to send the particulars in writing of their Claims or Demands to us the undersigned the Solicitors for the said Executors, on or before the 24th day of June, 1890, after which date the said Executors will proceed to Distribute the Assets of the said Deceased amongst the persons entitled thereto, having regard only to the Claims and Demands of which they shall then have had notice; and that they will not be liable for the Assets of the said Deceased, or any part thereof so distributed to any person or persons of whose Claims they shall not then have had notice. Dated this 23rd day of May, 1890.
J. AND W. H. DRUITT, Solicitors for the Executors.
Town Hall Chambers, Bournemouth.

DAILY PARCELS EXPRESS SERVICE to the CONTINENT, *and* Queenborough, Flushing, Kaldenkirchen.
This Parcels Service, in direct connection with the German and Austro-Hungarian Posts, is specially adapted for the rapid and regular despatch of Plants, Bulbs, &c. No Certificate required for Germany. Tariffs free on application. Goods also accepted for Conveyance by *Petite and Grande Vitesse*.
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Receiving Office at Holborn Viaduct Station.

Rare and Valuable Orchids.

MR. RICHARD PFAU has entrusted me with the sale of the following rare and valuable ORCHIDS, collected by him in Costa Rica, viz.:—

BARKERIA LINDLEYANA, or perhaps B. SPECTABILIS, nice plants with sound breaks, 5s. each.
CATTLEYA DOWIANA, good plants, semi-established, 7s. 6d.; ditto, strong established plants, 15s. and 21s.
ODONTOGLOSSUM KRAMERI.—According to Collector this very fine species will always remain scarce, being very rare in its native country. He says it is the fine dark variety, much superior to the lighter coloured variety from Chiriqui. Nice plants with sound breaks 25s.; fine strong plants, 42s.
,, GERSTEDI MAJUS. This very pretty and distinct var. has larger flowers, and several flowers on a spike, much superior to type. Nice plants with sound breaks, 3s. 6d., 5s., and 7s. 6d.
ONCIDIUM ANSIFERUM, or new species, only a very few nice plants with sound breaks, 7s. 6d.
TRICHOPILIA COCCINEA ATRORUBENS. The entire lip of a deep blood-red colour, very fine var. Fine established plants, 7s. 6d. and 10s. 6d.
,, COCCINEA SUB-ALBA.—One single plant only found by collector, entire lip pure white, very faintly suffused with small blood-red stain deep down in the throat—very beautiful and distinct. Nice established plants, having flowered with me, 25s.
,, SUAVIS SUPERBA.—The best, highly spotted variety. Fine established plants, 10s. 6d.
TRICHOCENTRUM PFAVII. — A pretty winter flowerer. Small established plants, 5s. and 7s. 6d.
UTRICULARIA ENDRESII MAJOR, with flowers twice as large as the type—very fine. Sound bulbs in native soil, 7s. 6d.

Orders will be executed in strict rotation, and forwarded, POST AND PACKAGE FREE, to any part of Great Britain or Continent. Terms for cash only, either by Post-office Order or Crossed Cheque made payable to
EDWARD ORTGIES, Inspector of Botanic Gardens, Zurich, Switzerland.

Many Acres of Lilies of the Valley!

T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

SLUGICIDE (Registered).—Certain death to slugs; harmless to plant, vegetable, and animal life. Delicate seedlings are absolutely secure when sprinkled with Slugicide (Registered), 1s. 6d. per box.—The SLUGICIDE CO., 6, Marylepo rt Street, Bristol. Agents wanted.

MACKEY'S CATERPILLAR EXTERMINATOR and UNIVERSAL INSECTICIDE, as recommended by the Board of Agriculture, for Green and Black Fly, Mealy Bug, Red Spider, Camellia Scale, Blight, &c. No boiling or mixing required. 1 lb. dissolved in 10 gallons will form the Exterminator for Caterpillars as recommended by the Board of Agriculture; 1 lb. to 300 for Green Fly, Blight, &c. Price, in 1 lb. tins, 1s. 6d.; 5 lb., 3s.; 10 lb., 5s.; per cwt., 45s. Sample gratis on application.
MACKEY, MACKEY AND CO., 1 and 2, Bouverie Street, Fleet Street, London, E.C.

COCOA-NUT FIBRE REFUSE. — Newly made, the same as supplied to the Royal Horticultural Society. Truck-load of 2 tons, £1; free on to Rail, L. B. S. C. and S. E., £1 5s.; in Bags, 20, 16s.; 40, £1 10s. Cash with order.
J. STEVENS AND CO., 153, High Street, Battersea, S.W.

For Green and Black Fly, American Blight, Camellia Scale, Red Spider, Mealy Bug, Brown and White Scale, Worms, Wood Lice, &c.

"PICRENA," THE UNIVERSAL INSECTICIDE.

SAFE—ECONOMICAL—EFFECTUAL.

15, PRINCES STREET, EDINBURGH, *July* 15, 1887.—"Dear Sirs, I have thoroughly tested a sample of a new Insecticide which you were so good to send me. At the rate of 1 oz. to a gallon of water at a temperature of 95°, I find it kills Green Fly immediately. Double this strength, or 2 oz. to a gallon at 120°, seals the fate of Scale of all sorts in a few seconds; while 3 oz. to gallon at same temperature effectually dissolves Mealy Bug, and so far as I have yet observed, without the slightest injury to leaf or flower, and it is withal a most agreeable compound to work with. All our insect remedies are applied through common syringe, or garden engine, a much severer test of efficiency than when applied by hand-washing or spray.—I remain, dear sirs, yours truly. (Signed) A. MACKENZIE." of Messrs. Methven & Sons.

Victoria and Paradise Nurseries, Upper Holloway, London, *January* 7, 1888. "GENTLEMEN—I have given your Insecticide, 'Picrena,' a good trial in competition with many others. I am pleased to say that I have found it to be more effectual in destroying Mealy Bug and other insects than anything we have ever used. It ought to command a good sale. (Signed) B. S. WILLIAMS."

Sold by Chemists, Nurserymen, and Florists,
in Bottles at 1s. 6d., 2s. 6d., and 3s. 6d.; in Tins (1 and 2 gallons), 10s. 6d. and 20s. each; in quantities of 5 gallons and upwards, 9s. per gallon,

Prepared only by
DUNCAN, FLOCKHART & CO., Chemists to the Queen, Edinburgh.

May be had from B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London; and from WILLIAM EDWARDS AND SON, 157, Queen Victoria Street, London.

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For GREENHOUSE or GARDEN.

Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
	2s.	3s. 6d.	5s. 6d.	9s.	14s.

And in 6d. and 1s. packets.

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THE "STOTT" Patent Insecticide Manure DISTRIBUTOR.



Cheap, simple and effectual.

THE "STOTT" Patent SPRAYER, giving a Mist-like Spray; cannot choke.



Price LISTS on application.

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SAVE HALF THE COST.

GARSIDE'S BEDFORDSHIRE COARSE AND FINE SILVER SAND

Is admitted by the leading Nurserymen to be the Best

Quality obtainable in the Trade.

Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus *save half the ordinary cost.* NO TRAVELLERS OR AGENTS.

Apply direct to the Proprietor for Samples and Price free on Rail or Canal. *All Orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts. All kinds of PEAT supplied at lowest possible prices. Sample Bag sent on application to

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TRADE MARK. SWIFT & SURE.

Supersedes all Others WITHOUT WHICH NONE IS GENUINE.

For SHADING GLASS ROOFS of ALL KINDS.

Is the Cheapest. Goes four times as far as the old preparations. Note its merits described below.

Messrs. CARLTON, Contractors for the painting of the Glasgow Exhibition of 1888, write:—

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PRICE.—1-lb. tin, 1s.; 2-lb. tin, 2s. Post-free, 4½d. extra.

1 lb. makes half a gallon for use.

THE "PERFECT" WEED KILLER

TRADE MARK. SWIFT & SURE.

(Trial sample post-free.) WITHOUT WHICH NONE IS GENUINE

Maintains its Superiority over all Rivals

for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, &c.

Used at Kew Gardens, Royal Horticultural Gardens, &c., &c.

COMPLETE SATISFACTION GUARANTEED

to all using WEED KILLER bearing our Trade Mark, without which none is genuine. *Refuse Imitations.*

1 RICE—Gallon, 2/-; 5 gal., 1/9 per gal.; 10 gal. 1/6 per gal.; 40 gal. 1/4 per gal. SPECIAL QUOTATIONS FOR QUANTITIES.
Carriage paid on 10 gals. and upwards.

DISTRIBUTOR for "Perfect" Weed Killer.



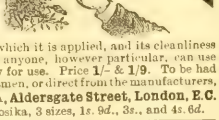
Holds 40 gallons. Wrought-iron frame-work neatly painted. Galvanized tubes with tap to regulate flow. Gives spray 36 ins. wide. Price £4 net on rail Glasgow.

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NOTICE.—*We originally had our Works at Tonbridge, Kent, but removed them to* GLASGOW *in January, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.

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Trade Mark Registered.
Effective, Harmless.
Promptly clears Roses and all plants from green fly, caterpillars, spiders, and other insect pests. It recommends itself to all who have tried it for its efficiency, pleasant odour, the facility with which it is applied, and its cleanliness in application; so that anyone, however particular, can use it, and it is always ready for use. Price 1/- & 1/9. To be had through Chemists & Seedsmen, or direct from the manufacturers,
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Apparatus for use of Rosika, 3 sizes, 1s. 9d., 3s., and 4s. 6d.

GENUINE ROLL TOBACCO PAPER.—Strong, effective, 1s. per lb., carriage paid, for cash only. W. C. LEE, 61, Westgate, Grantham.

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CLIBRAN'S SHADING acts as a beautiful shade during sunny weather, but becomes almost transparent during rain—reappearing again as the glass dries. *Unlike other preparations,* it shades only at the particular time wanted. Practical growers are noting this. Non-poisonous.
Greenhouse Friend.
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LEMON-OIL is fast superseding all other Insecticides, being cheaper, far more certain, and can safely be used by any amateur. If you want beautiful foliage and healthy plants, try this.
Plant Friend.
Post-free: pints, 1s. 10d.; quarts, 3s. 3d.; half-gal., 5s. 9d.

EUCHARIS MITE-KILLER.—This valuable compound enables everyone to grow and flower Eucharis splendidly, and has saved thousands of bulbs which otherwise would have been destroyed. See Testimonials.
Eucharis Friend.
Post-free: ½ pints, 1/9; pints, 2/9; quarts, 4/9; ½ gal., 8/-
Or from your Seedsman.

CLIBRAN'S, Oldfield Nurseries, ALTRINCHAM;
Also 10 and 12, Market Street, Manchester.

WORM DESTROYER, for eradicating every kind of Worm from the roots of large Specimen Plants, Pots, Lawns, &c. It is easily and cheaply applied, and will not harm the most delicate plant. In bottles, 1s., 2s. 6d., 7s., and 12s. 6d. each.

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UNEQUALLED AS A DRESSING FOR LAWNS AND FOR DESTRUCTION of WEEDS.

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SELECTED specially for Orchids, Choice Plants, Ferns, and Rhododendrons. PEAT MOULD, LEAF-MOULD, LOAM, Coarse and Fine SILVER SAND, SPHAGNUM, COCOA FIBRE REFUSE, CHARCOAL, &c. A First-class Stock of FOREST, FRUIT, and ROSE TREES, CONIFERS, RHODODENDRONS, &c. PEAT MOSS LITTER. Special railway rates.
EPPS & CO., The Old-established Peat Dépôt, Ringwood, Hants.

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Quality, THE BEST in the Market. (All sacks included.)
COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 4d. each; 10 sacks, 12s. 6d.; 15 sacks, 17s. 6d., 20 sacks, 20s.; 25 sacks, 24s.; 30 sacks, 27s.; 40 sacks, 35s.; 50 sacks, 40s.; Truck-load, loose, free on rail, 30s.
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DAHLIA STAKES, and all kinds of Flower Sticks, Cheapest in the Market. Marquees, Tents, Flags, and all kinds of Garden Tools and Sundries.
Terms strictly Cash with order. Price LIST on application from
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Kills Fly, Thrip, and Spider, in the easiest, cheapest, and most harmless way to Flowers, Fruit, or Foliage, even if treble the necessary quantity is used. The best of all Insecticides for Orchids. Try it. In Rolls for houses of a capacity of—

100 cubic feet,	500 feet,	1000 feet,	2000 feet,	post-free.
8d.	1/-	1/3	2/3	

CLIBRAN, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

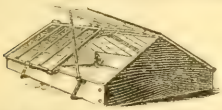
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6 ft. by 3 ft. £2 0 0 | 6 ft. by 4 ft. £2 7 6
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No. 73.—New Span-roof GARDEN FRAME.

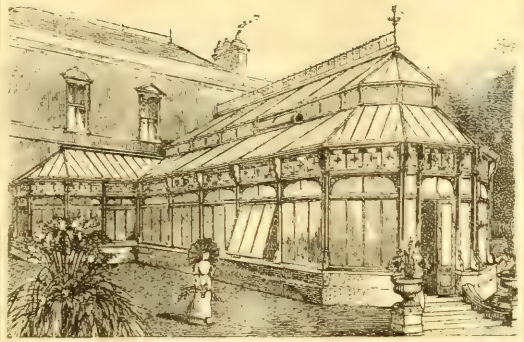


4 ft. by 6 ft. £2 15 0 | 12 ft. by 6 ft. £5 17 6
8 ft. by 6 ft. 4 7 6 | 16 ft. by 6 ft. 7 7 6

All Frames made of selected Red Deal, painted three times, and lights glazed with 21-oz. British sheet glass.

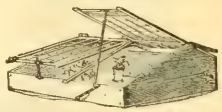
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6 ft. by 4 ft., glazed and painted ... 15*s.* each.
Unglazed and unpainted ... ... 6*s.* each.
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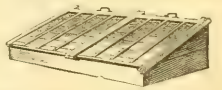
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GARDEN FRAMES IN GREAT VARIETY.

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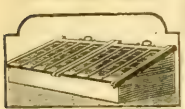
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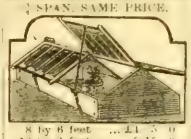
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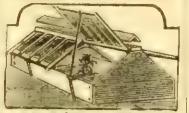
8 by 5 feet ... £2 15 0
8 by 6 feet ... 3 0 0
12 by 6 feet ... 4 4 0

No. 110.—SPAN ROOF AND ¾ SPAN, SAME PRICE.



8 by 6 feet ... £4 5 0
12 by 6 feet ... 5 15 0
Made to any length.

No. 112.—VENTILATING RIDGE TOMATO FRAME.



8 by 6 feet ... £5 0 0
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16 by 6 feet ... 8 0 0

No. 115.—THE COTTAGE GARDEN FRAME.



LIGHTS TO SLIDE. HINGED.
6 by 4 feet, £1 17 6 £2 2 6
9 by 4 feet, 2 10 0 2 17 6

Made of Best Red Deal. Painted three times. Glazed 21-oz. English Glass. Ready for use.
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Has a fine Stock for of splendid quality.

Also a fine rich sample for and Choice Plants.

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LOAM of unsurpassed quality, in Solid, Fibrous Turves.

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1 sack BEST LEAF MOULD, 3*s.* 6*d.*; 1 sack PEAT, 3*s.* 6*d.*; 1 sack YELLOW FIBROUS LOAM, 3*s.* 6*d.*; 1 sack BEALE'S CONCENTRATED FARM-YARD MANURE, 6*s.*; 1 cwt. COARSE SILVER SAND, 3*s.* 6*d.* Or, 1 sack Mixture of above to suit any purpose, 5*s.* Over 10*s.* value, free delivery by Carter Paterson, or to rail. Send 6*d.* extra for sack.

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The cheapest, neatest, and most durable for every class of plants. Black or White, thin, round, 1 foot long, 1*s.* per 100, 7*s.* 6*d.* per 1000; 1 ft. 6 in. long, 1*s.* 6*d.* per 100, 12*s.* 6*d.* per 1000. White 1 ft. 10 in. long, stiff Canes, 2*s.* per 100, 17*s.* 6*d.* per 1000; 2 ft. 6 in., 2*s.* 6*d.* per 100, 20*s.* per 1000; 4 ft., 3*s.* 6*d.* per 100, 32*s.* 6*d.* per 1000; 5 ft., 5*s.* per 100, 40*s.* per 1000.

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SPAWN for meadows, lawns, and paddocks. By following our directions and using our SPECIAL MEADOW SPAWN, excellent crops may be gathered through the summer and autumn. Price 5*s.* per bushel. 1*s.* extra for sack and carriage.

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NEW SOUTHGATE, LONDON, N.
Contractors to the London County Council.

SLUGS.—Save your Garden Produce by using "Lenos," 5*s.* per gallon, Diffuser included.

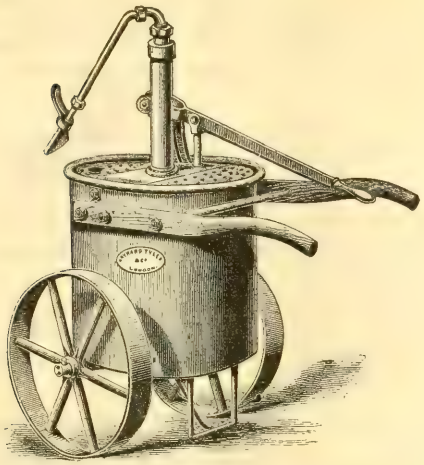
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ARTIFICIAL MANURE, without Smell, will produce grand blossoms, unsurpassed for Fruit and Vegetables, 112 lb., 20*s.*; 56 lb., 11*s.*; 28 lb., 6*s.*

ANTI-MILDEW, 10*s.* per gallon.

PLANT FUMIGATOR, combining Meat or Fish Smoker, Disinfector, or Domestic Safe, 4 feet 6 in. high, 37*s.* 6*d.*; 6 feet, 35*s.*

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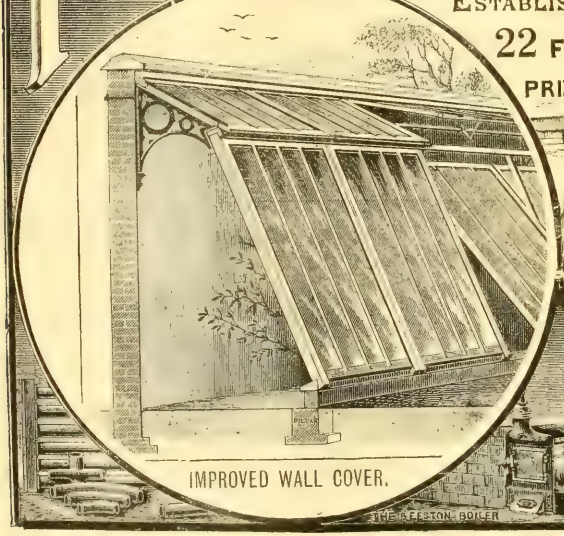
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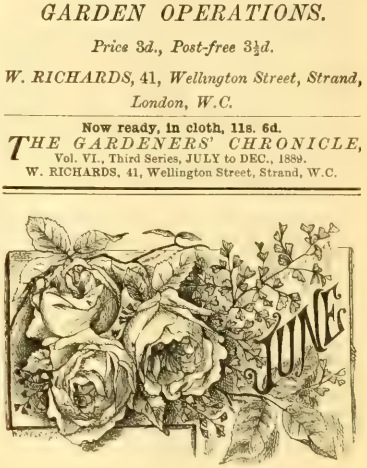
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 7, 1890.

THE WHITE ASPHODELS.

THE white Asphodel is now in flower in our gardens, and a very handsome flower it is, far surpassing in its best form anything I have yet seen in the way of Eremurus. The English name includes two or three closely allied species: there is Aphodelus ramosus of Linnæus, the finest of them, found in the Spanish Peninsula and the South of France; there is A. albus, which extends from the Pyrenees across the North of Italy into Turkey, but which seems to pass into A. ramosus in cultivation; and A. microcarpus, which Sibthorp found abundantly in all the mountainous districts of Greece. These do not exhaust the botanical list of white Asphodels, which are found in some kindred form in nearly all the districts which are washed on the south by the Mediterranean. They are particularly abundant in the highlands and lowlands of the Pyrenees, and from the sea-coast at Biarritz to an elevation of 6000 feet or more on the mountains; both in meadow and wood the plant constantly occurs.

A few days ago, I heard of an English lady at Biarritz who innocently took some of these flowers home to her lodgings. The French landlord was wild with indignation and excitement, and insisted on their immediate removal, as they were emblems of death, and would bring evil upon the house. It is interesting sometimes to trace out the origin of these items of the folk-lore of plants, and I think that it may be done in the case of the white Asphodel. The oldest mention of the plant is in Homer's *Odyssey*, where Ulysses sails to the Cimmerian land of darkness, and conjures up ghosts from Hades. The ghost of the mighty Achilles came and paced majestically up and down an Asphodel meadow. There is perhaps a little inconsistency in introducing an Asphodel meadow in a land of perpetual darkness, but assuming this poetic

license, Homer selects Asphodel as an ornamental meadow flower, just as he might have selected Crocus or Hyacinth. Indeed, the same words, "Asphodel meadow," occur twice in a hymn attributed to Homer, and certainly of great antiquity, where the meadow has no connection whatever with the nether world, but was a fertile pasture in which the cattle of the King of Thessaly grazed. This shows how the words were understood by Homer, or by his earliest imitators; but as he had introduced the Asphodel into his famous and popular ghost story, the plant, at some unknown period, became connected with the world of ghosts by readers of Homer.

The next mention of the plant was by Hesiod, who lived perhaps a century later—in those famous lines which have puzzled so many matter-of-fact readers. The poet is denouncing those avaricious oppressors, who amass wealth by injustice and bribes: he says, "Foolish men! who do not know how much more the half is than the whole," and how much goodness there is in the Mallow and the Asphodel, that is in the coarsest and most homely fare. The general sentiment is that true happiness is oftener attained by temperance and frugality than by abundance, and that contentment is wealth. We shall see how the words of Homer and Hesiod have been misunderstood both in ancient and in modern times.

There can be little doubt that the Asphodel of Greek and Latin writers was the plant we call by the name, though it may have included yellow kinds. Theophrastus says that the roots of the Asphodel were used for food, and gives an account of the way in which they were baked and made into farina. Pliny, who translates what Theophrastus says concerning the preparation of the roots, adds, that Hesiod recommends it as a "dainty luxury!" Pliny also says, that the plant was called in Italy the King's Spear (Hastula regia), a name which Gerard limits to the yellow species. Gerard tells us that an ancient Greek physician, named Galen, did not believe the root could be made into palatable food, as it is astringent and bitter; but we need not suppose that it was ever a luxury, though it certainly was formerly eaten by the poor. At what date it first became suggestive of food for the dead we do not know.

In a comic dialogue of the Greek writer, Lucian, who lived in the second century of our era, and of whose works a free translation was popular reading in France 200 years ago, we find the grim ferryman, Charon, complaining that Mercury, the shepherd of ghosts, was often late in coming down below to his work. "I know," he says, "why he stays so long in heaven; he gets plenty of nectar and ambrosia there; but here there is nothing but Asphodel, and dead men's victuals." No doubt Lucian took this idea of Asphodel from Homer's story, which it does not follow that he misunderstood, though his French readers probably did. A similar notion seems to prevail in Germany. A German commentator on the passage in the *Odyssey*, writing at the beginning of this century, says:—"The Asphodel, called in German Affodill, was the food of the poorer classes, and used to be placed on the graves of the dead." In Miller's *Dictionary of Gardening*, Asphodelus is said to be derived from a Greek word meaning "ashes," because it used to be planted together with the Mallow on graves! This absurd suggestion probably arose out of a mixture of Homer and Hesiod in the brain of its inventor.

We may observe, therefore, that nearly a thousand years, from Homer to Lucian, elapse, during which we find nothing in Greek or Latin writers about the Asphodel in connection with the dead, though the plant is often mentioned. The poet Theocritus, who was intermediate between Homer and Lucian, speaks of it as one of the materials of a delightful bed of hay, on which he proposed to lie and drink in summer. He certainly would not have introduced it had it been in his time a plant of ill-omen, or suggestive of death, but a misunderstanding of Homer's unlucky mention of it in his famous story of necromancy, is perhaps the remote cause of the disrepute in which Asphodel is now held in some parts of France.

P.S.—I find in Vilmorin's *Fleurs de Pleine Terre*, under *Asphodèle*, "The ancients used to plant the Asphodel round graves, in the belief that the shades of the dead feed upon its roots." *C. Wolley Dod, Edge Hall, Malpas, May* 31.

NEW OR NOTEWORTHY PLANTS.

LATHYRUS SIBTHORPII, *Baker.**

I HAVE intended each summer for the last two or three years to send you a diagnosis and description of this plant, and now the intention is renewed by the receipt of a fresh specimen from Mr. T. H. Archer Hind, who grows it successfully in his garden at Newton Abbott. For garden purposes it is evidently quite distinct from Lathyrus rotundifolius, being in fact, about halfway between that species and L. latifolius. But I cannot find the name Sibthorpii in any botanical book, and I cannot identify the plant with any species which has been described by a botanist under any other name. What Sibthorpe had to do with it, I have not been able to ascertain with certainty. Probably, it was he who introduced it into the Oxford Botanic Garden, and from thence it has been distributed to other English gardens. So far as I can judge from dried specimens, we have two sheets of it, collected by Aucher Eloy (who travelled widely in the east half a century ago) near Constantinople. One of these he has labelled rotundifolius, and I find that I have written on the sheet many years ago "L. latifolius var." Boissier gives Constantinople as a locality for L. rotundifolius, but I suspect that it will be found that true rotundifolius is restricted to the Caucasus and the Crimea, and that this Sibthorpii is its Byzantine representative. The true rotundifolius is figured in the *Botanical Magazine*, t. 6522. It flowers a month later, and differs from Sibthorpii by its more numerous brick-red flowers, denser racemes, and shorter, more obtuse leaflets.

Stems twining, broadly winged. Leaflets two, oblong, nearly or quite twice as long as broad, cuspidate or subacute; stipules lanceolate-deltoid, with a large spur. Peduncle reaching a length of half a foot; raceme a little shorter, consisting of five or six laxly-disposed secund flowers. Calyx-teeth rather unequal, as long as the campanulate tube. Petals mauve-red, fading to violet; standard orbicular an inch across. Pods flat, linear, glabrous, narrowed gradually from the middle towards the base. *J. G. Baker.*

Since the above was written, Mr. Archer Hind has kindly sent me the dates at which L. Sibthorpii and rotundifolius flowered in his garden in Devonshire for four years; they are as follows:—1882: Sibthorpii, April 22; rotundifolius, June 16. 1883: Sibthorpii, May 19; rotundifolius, June 19. 1884: Sibthorpii, May 1; rotundifolius, June 16. 1885: Sibthorpii, May 29; rotundifolius, June 16.

Both at Cambridge and Dorsetshire he says that Sibthorpii does not grow above 3 feet in height, and can nearly or quite support itself without a stick to climb upon. I cannot distinguish from rotundifolius what we have received as L. Drummondii, but this also is a name for which I cannot find any botanical authority or description. *J. G. B.*

ODONTOGLOSSUM HYBRIDUM LEROYANUM.

Hybrid Orchids are now numerous in some of the more popular and best known genera, but the artificial production of hybrid Odontoglossums has hitherto proved too much for the skill of Orchid cultivators in this country. Seed has been obtained and plants even have been raised, but they have either died, or have failed up to the present to produce flowers. A remarkable exception in France is worthy of notice, however, and will always possess considerable historical interest as the first hybrid resulting from artificial crossing amongst the Odontoglossums. This is in the collection of Orchids formed by the Baron Edmond de Rothschild, at Amandvilliers, a few miles from Paris, on the Strasburg line. It was secured from a cross effected about 5½ years ago between O. crispum and O. luteo-purpureum, the former being the seed parent. The seeds were sown when ripe, and several plants were raised, which have steadily progressed until the present year, when the most advanced produced a raceme of seven flowers early in May, and these are now fully expanded, the characters indicating a true combination of the two species named.

The pseudobulbs are rounder than those of O. crispum, and more like those of O. luteo-purpureum, the larger being 1½ inch in diameter and depth, and flattened, but the other is more conical in form.

The leaves are 10 to 12 inches long, and 1½ inch broad, stiff, and bright green. The flowers are 3½ inches across from tip to tip of the petals, and 2 inches from the tip of the upper sepal to the margin of the lip. The sepals and petals are nearly equal, the latter slightly broader, the sepals of a pale-yellowish ground tint most strongly marked at the tips. The petals are whiter, and perhaps will become still more pure. The sepals have each three broad reddish-brown bars, these being more clearly defined in the upper one than the two lower.

The petals are undulated at the margin, with one large blotch in the centre, two smaller rounded ones at the side, and a few still smaller near the centre of the base. The lip is three-quarters of an inch in diameter, somewhat like O. luteo-purpureum in shape fringed at the edge, white with one large reddish blotch, and a deeply divided yellow crest at the base on a reddish ground.

In general appearance, the flowers are very distinct, the sepals and petals being slightly curved forwards. Baron Edmond de Rothschild specially desires the plant to bear the name of his gardener M. Leroy, and I was informed that the hybrid will be thus named and figured in an early issue of the Reichenbachia. *L. Castle.*

ZYGOPETALUM JORISIANUM, *Rolfe, n. sp.**

This is a very distinct and handsome species, belonging to the section Euzygopetalum, but quite distinct from any other in having a three-lobed and beautifully fimbriate lip, also deeply fringed column-wings. The pedicels of the flower are unusually long, but the pseudobulbs and leaves have a general resemblance to Z. intermedium, Lodd. The lip is cream-white, except a broad margin on the side lobes, which is yellow, while the crest is purple. These characters impart to the plant a novel and striking appearance. It is a native of Venezuela, and was introduced by M. Bungeroth, who sent plants to the Société L'Horticulture Internationale of Brussels. It is dedicated to Monsieur G. Joris, a commissionaire of the Society. A fine raceme and coloured drawing of the plant have been kindly sent by Monsieur Luc en Linden. A reproduction of the latter will appear in an early number of the *Lindenia*. *R. A. Rolfe.*

* *Lathyrus Sibthorpii, Baker ex Hort*—Scandens, caulibus late alatis; stipulis lanceolato-deltoideis; foliolis unijugis ellipticis; pedunculo folus multo longiori; calycis dentibus lanceolatis, vel lanceolato-deltoideis tubo æquilongis; petalis rubro-purpureis; legumine lineari compresso.

* *Zygopetalum Jorisianum*, Rolfe, n. sp.—Pseudobulbs ovoid-oblong, approximate, 2 to 3 inches long. Leaves oblanceolate, acute, 8 to 9 inches long, 2 inches broad. Racemes suberect, five-flowered. Flowers 2½ inches diameter across the petals. Bracts ovate-oblong, three quarters of an inch long. Pedicels 3 inches long. Sepals lanceolate-oblong, subobtuse, apex a little reflexed, pale green, heavily spotted and barred with purple-brown. Petals similar, a little broader, the markings running longitudinally on the basal halves. Lips three-lobed, each strongly fimbriate; front lobe very broad and obtuse, cream-white; side lobes yellow, except the basal part, which is cream-white; callus large, fleshy, crested, white in front, maroon-purple on face, with about five radiating lines of same colour on either side. Column greenish-white, with numerous narrow purple-brown lines in front, and the wings cut up into a long purple fringe. Native of Venezuela.

FALKLAND PARK.

It almost sounds like some old world tale to read of the transformation that has taken place within the last thirty or forty years in the appearance of "Norwood's Oak-clad hill." The secluded haunts of Margaret Finch and her gipsy vassals in the forest that stretched for miles along the ridge, now crowned by the great dome of the Crystal Palace, have long lost their rustic character, and form to-day the sites of luxurious villas, and sunny orchards and gardens. The outflow of London wealth and society has taken the place of the crowds that used to seek enlightenment as to their future destiny at the tents of the famous gipsy Queen and her confederates. Even after a 10 miles ride from Victoria, you can hardly claim now-a-days to have reached the country at a point where the Canterbury pilgrims, whose adventures have been immortalised by Chaucer, might have been revelling in some rustic inn some four centuries ago, far from the noise and squalor of the capital.

But it is with Falkland Park, about a mile distant from the Crystal Palace, that we are here concerned. This old place, extending to about 40 acres, and situated on the ridge of Norwood Hill, overlooking the junction, bids fair in the hands of its new proprietor, Mr. McMeekin, to undergo a transformation comparable to that which the Norwood of to-day presents to that of the Norwood of half-a-century ago.

To begin with, a splendid new mansion is being erected on a commanding site, from which an extensive view is obtained in the woods and orchards of Kent on the one hand, and the sunny slopes of Surrey on the other. To one coming from the sterner scenery and ruder climate of the north, the outstretched panorama of wood, meadow, and orchard, with a village or a spire starting out here and there, the effect is most captivating, and raises a doubt whether, unlike Byron, you could not exchange such "tame" scenes and such a climate for the storms and crags of wild Loch-na-gar.

As an improvement on the existing stretch of common brushwood, a great portion has been cleared off, and groups of Rhododendrons and Azaleas planted. The presence in the park of a number of valuable trees—such as the Red Beech, Cedar, Acacia pseudo-Acacia, Magnolia, Chestnut, and English Oak, assists greatly in the difficult task of remodelling a spot which, though formerly neglected, promises, to judge from the tasteful manipulation to which it is being subjected, to become a model of its kind.

Inside the fruit garden the same pleasing evidence is visible of the interest which Mr. McMeekin manifests in horticulture, and the ability with which his wishes are being carried out by his Scotch gardener, whose extensive experience, gained at Dalkeith Palace and Kylemore, stands him in good stead. From an unkempt garden into which it had degenerated under the old *régime*, a few months' hard work have turned it into a garden of promise, many young trees having been planted, including Peaches, Nectarines, Apricots, &c. The healthy appearance of the trees testifies to what can be done in a good loam soil overlying clay and gravel. Near the fruit-garden is a fine plant of Wistaria sinensis, which is more than 100 years old [?]; and a short distance from this object is a range of old-fashioned hothouses, and then comes the new range of glasshouses, which are located on the summit of the ridge, and have a south-east aspect. It is being erected by Messrs. Mackenzie & Moncur, of Edinburgh, and differs in design from the general run of such structures. It embraces a corridor of 250 feet in length, with seven houses, intended for various collections of plants, branching off at intervals, and is furnished with every convenience for the culture of plants and fruits. *Peregrinus.*

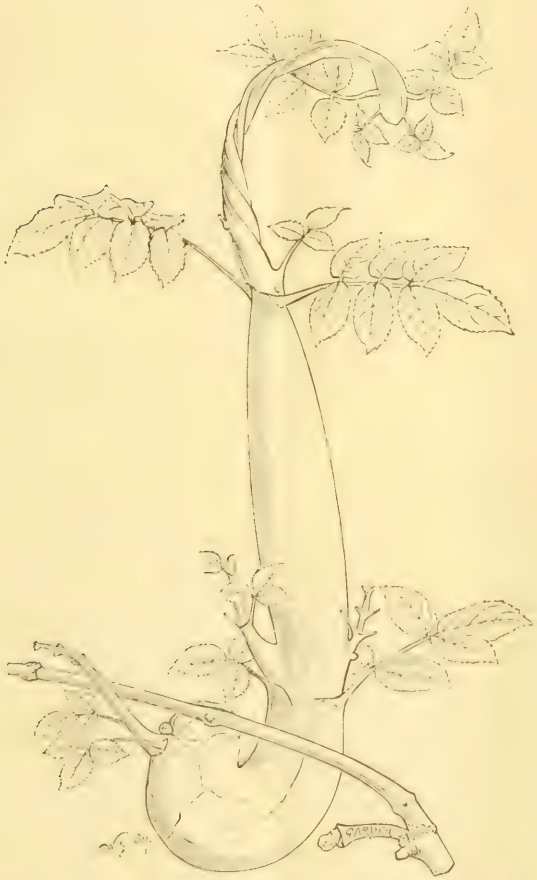


Fig. 116.—Swollen shoot of common elder, reduced one-half. (see p. 706.)

FLOWER-PAINTING.

To paint a flower well, four things must be shown: colour, form, texture, and substance; the hue of the blossom must be rendered, its outline and the shape of its petals, the peculiar quality of the surface of these, and the degree of solidity or fragility in which their accumulation results. Then, to make a good picture with the chosen flowers, other things must be considered—as the grouping of the subject, its lighting and the general colour-scheme of which the hue of the flowers themselves forms but a part. The task, in short, is a very complicated one. If the amateur is apt to consider it the easiest he could attempt, his recklessness is explained by the fact that even a poor rendering of a very beautiful theme will attract the uncritical eye. One needs to paint admirably well to please anyone with the picture of a Potato; but a picture of a Rose, though it be but a travesty, passes for something pretty with the majority of observers.

The more experienced artist, knowing the difficulty of his enterprise, usually takes the quite allowable course of insisting more upon one side of his theme than upon the others. Perhaps he lays most emphasis upon the decorative effect of his picture as a whole, trying to do no more than indicate the characteristics of the flowers which are its most prominent feature. He arranges them in an effective mass, and insists on their coloristic beauty as related to the surroundings which he has supplied for them, leaving their form, their texture, and their substance to be divined from the hints he gives. If these hints are rightly given, if they point to the truth although they do not explain it, and if the main explanation is truthful and beautiful, the critic finds no fault with the picture. He accepts it as an interpretation of one quality which the flowers possess; and he knows that it is not needful that art should try to show more than one thing at once. Naturally, in this kind of flower painting, only such models should be chosen as lend themselves best to the special aim in view. Pæonies, Chrysanthemums, China Asters, and a hundred common summer flowers like the Eupatoriums and Golden-rods, are by Nature adapted to a treatment in which a mass of gorgeous colour is the aim, depending little upon form, texture, or substance for the beauty we find in them; and the same may be said in a lesser degree of Geraniums and of double Violets, which are good material for smaller pictures of the kind. Any one who has been familiar with our annual exhibitions will remember the delightful large water-colours of Miss Greatorex, where, very often, masses of brilliant

*

blossoms have been shown in the white paper cones dear to Parisian peddlers, giving a delightful picture not, in strict truth, of the flowers, but of their coloristic beauty.

It would not be wise to choose such flowers as these when effects of linear beauty are desired in a picture, but there are others admirably suited for such a purpose, like the Iris, the Amaryllis, the Narcissus, the Tigridia, and many kinds of Lilies, from the Japan Lily of the garden to the wild Lily of the fields. All these are exquisite in colour, but owe their peculiar charm even more to form. So beautiful, indeed, are their forms, that if these are sympathetically felt and faithfully rendered, colour may be entirely suppressed and still the picture be pleasing. A black and white drawing of a row of China Asters would be scarcely worth making; but such a drawing of a row of Irises might be well worth seeing. Decorative artists have known these facts in all the great building ages of the world. The Lotus, the Honeysuckle, the Iris, the single Rose and star-shaped blossoms of one sort or another have been most conspicuous in architectural ornament when it is painted as well as when it is carved.

Certain flowers are chiefly remarkable for what may be called dignity of bearing. The Gladiolus has this dignity, together with great beauty of form in the individual flowers; the Foxglove, the Larkspur, the Tuberose, and the Crown Imperial have it; and the Hollyhock has it without any special elegance of form. Again, a graceful habit is the most characteristic trait, as with the Solomon's Seal, the Laburnum, many flowering shrubs, and, in a different way, the Lily of the Valley and the Poppy. Still again, an angular, somewhat eccentric manner of growth is the plant's main characteristic, as in many which Japanese artists love to paint; and flowers of such kinds should, of course, be painted so as to bring out their special qualities most clearly.

No one would paint flowers chiefly for their texture (as one might paint a piece of satin) or chiefly for their substance; these are characteristics which can sometimes be almost overlooked, and at other times be made of accessory importance. That is to say, when the picture as such is the prime consideration, when a general decorative effect is desired above all else. When we come to absolute portraiture—to the rendering of flowers for themselves, not for the part they can play in some larger scheme of beauty—then texture and substance must be as much considered as form and colour. To give the shape and tint of an Azalea blossom without giving its translucent texture, its fragile substance, would be to caricature it. To paint a Catherine Mermet Rose and not show that it is solid and heavy would be—not to paint this Rose. Naturally it is very difficult to achieve all these qualities together—to give the form of a flower exactly without making it seem hard, its colour exactly without slurring its form, its substance exactly without travestying its texture. It is so difficult, that we rarely see complete success except where the task has been simplified as much as possible. The best portraits of flowers are apt to be those where a very few blossoms of a single sort have been arranged and lighted as simply as possible. When Mr. La Farge shows us a single Water Lily he gives its form, its colour, its texture, its substance—almost its odour. But did he conceive a large group of Water Lilies, with adjuncts of various sorts, arranged and lighted so as to make a striking pictorial effect, he would probably choose some one quality of the flower for accentuation, and merely hint at the others. At all events, though success with his single blossom cannot have been easy, it would be infinitely more difficult with many.

When flowers are painted as they grow outdoors in masses, forming part of a landscape composition, then, naturally, nothing but their colour need be insisted upon, no matter what may be the dignity or elegance of their forms upon closer examination. Colour is always the quality that, as painters say, "carries furthest," remaining distinct at a distance where forms and even habits of growth may be quite invisible.

On the average exhibition wall we seldom enough find any true excellence in the painting of flowers. Even good taste in the placing of the models, so that their peculiar characteristics might best be presented to the painter, is very rare. Gladioli are heaped together in a low bowl; double Violets are spread out in a ragged line; Hollyhocks are plucked from their stems; Pansies are strung into a frieze; rough little Chrysanthemums are stuck up stiff and single. But Roses—it is Roses that are most often attempted and most seldom portrayed. Years ago we complained that they were always too hard; now things have changed—they are almost always too soft. Their colour has been the sole concern. Achieve this, the painter seems to say, and what matter though they look as if made of a layer of cotton wool without thickness or outline or velvety surface? The worst is, that even colour cannot be achieved unless texture at least is given; we may match the tint of a Rose petal in cotton wool, but the two tints will not be the same. When, from time to time, we find evidence of an eye that has seen the whole beauty of a flower, and a hand that has had the skill to render it, then we are indeed content, though we see nothing more than one Rose on its stalk, or two Carnations in a tiny bottle. We are content, although the portrait can hardly be called a picture; just as when, on the other hand, we find a beautiful picture, we are content if it only indicates the beauty of the flowers that inspired the painter. To ask for everything together is to ask what only the greatest masters of the brush could give us. Indeed, it is doubtful whether any great master has ever given us, could ever give us, a canvas in which we should have perfect pictorial beauty of an impressive kind, and perfect portraiture of flowers as well. Yet nothing is easier, thinks the amateur, than to paint flowers. *Garden and Forest.*

TUBEROUS BRANCHES.

WE are indebted to the courtesy of the Director of the Royal Gardens, Kew, for the opportunity of figuring a branch of Elder (fig. 116), from a tree growing in the garden of G. B. Longstaff, Esq., of Wandsworth. The shoot, which proceeded from one of the ordinary character, was first bent downwards and somewhat twisted as it again ascended, a circumstance which is suggestive that some check to growth was in some way or other implicated in the matter. On examination we could find no trace of fungus or of insect mischief, though it is not improbable that the originating cause of the deformity was either insect puncture or the action of frost. The illustration precludes the necessity of giving a description of the shoot—it may suffice to say that microscopical examination showed a thickening of the cortical and woody layers, although the walls of the constituent tracheids or wood-cells were thinner than usual, and their diameter, as also of the ducts, greater. The pith was greatly enlarged, its constituent cells were also larger than usual, full of liquid, but with no starch grains visible. In the case of some Laburnums sent by Mr. A. D. Webster, in 1886, similar appearances were presented, and were examined at the time by Mr. Worthington Smith (see fig. 118, p. 709). In that case as many as 500 trees were affected on one estate, and it was suggested at the time that the growth had been in the first instance arrested by frost.

Another case of like nature was sent us on one occasion by the late Mr. Webster, of Gordon Castle Gardens. (See fig. 117, p. 708).

The tubers which form on the haulm of Potato stems, and of which we have often given figures, result from the destruction by wireworm of the ordinary tubers while in course of formation. In the natural formation of tubers, the object is clearly to provide a store place for starch or other nutritive matter for future needs, but the production of tuberous shoots, as now figured, seems due to a different cause. What evidence we have points to some injury arresting natural growth in the first instance, and then setting up irritation, and consequent overgrowth—hypertrophy.

THE ORANGE GROVES OF FLORIDA.

(*Continued from p. 672.*)

STARTING from New York for Florida by railway at 9 P.M., we passed several of the principal towns in the night. The country beyond these large centres of population contained very little that was interesting, and the greater part is covered with a growth of Pine, varied occasionally by swamps, where trees and vegetation generally are quite different. Occasionally a plot of cultivated land is to be seen, Maize, Cotton, Tobacco, or Sugar-cane being grown. Near many of the "frame" dwellings, attempts are made to cultivate a few trees and flowers. After passing Richmond, in Virginia, a small Bamboo is very abundant in the forest, growing under the trees, and was the only green thing seen except the Pine trees, all the grass being completely dried up—the cattle eating it, however dry it may be, and looking in consequence as poor as may be imagined. The Indian summer was over, and deciduous trees had for the most part lost the beauty of the many-coloured leaves. The country generally down here is a comparative wilderness; a few negroes are occasionally seen, standing like black statues in the fields watching the passing trains. Occasionally a fine large Magnolia may be seen near a dwelling-house; also nice specimens of Juniper, and what is called the Shade tree, a deciduous species, with large bunches of yellow berries, looking very pretty; and in the summer the handsome foliage affords a dense shade.

After passing Savannah, pieces of Spanish moss (Tillandsia usneoides) are seen on the trees, and the beautiful red foliage was still hanging on the Oaks and other trees. The Bamboo grows much stronger in this part, and vegetation in the woods was greener; it consists chiefly of a dwarf fan-leaved Palm. The American Mistleto (Loranthus albus) is plentiful in the forest, but it was noticed as most plentiful in Virginia. The soil along the track is very sandy, and gets poorer the further we get towards the south. A species of Artemisia, called by the people, Dog Fennel, is very abundant, and gave the higher portions of the waste land a peculiar appearance with its bunches of dry seed-vessels. After leaving Jacksonville the scenery changes very much for the better, and rivers are occasionally seen with large quantities of Water Lilies floating near the margin. At Orange Park the first Oranges are seen, and more evergreen vegetation is to be found in the woods. Near some of the houses a few Bananas, some large Palms and Castor-oil plants, 30 feet high, were noted, the latter forming spreading trees. Although the sand is of a poorer nature down here, the Pines grow much larger. At Sanford the St. John's River is seen where it widens out into Lake Monroe, which is a beautiful lake, with some tall Palms growing in the foreground. The latter are very abundant in the woods in the vicinity, and look very pretty, especially where a good number of them are seen together in a group.

Arriving at Winter Park, Orange County, on December 5, I found the Oranges had just got their golden colour, and were eatable, and although not fully ripe, quite equal to an average Mediterranean fruit; but the Florida Oranges, when properly matured, are far better than those for flavour and sweetness, due doubtless to the greater sun-heat enjoyed in the ripening stage. I was told that the winter was both warmer and drier than usual, and I certainly found it quite hot enough on one or two occasions, when the thermometer registered 82° in the shade, and 123° in the sun. During my three months' stay very little change was experienced in the weather, and scarcely any rain fell for a period of eight weeks; it had also been dry for ten weeks

before I arrived. The thermometer as a rule went down to 55° or 56°, sometimes to 49°. The average minimum temperature from December 7 to February 16 was 55°.77, the lowest daily minimum being 48° on January 17. The highest daily minimum being 63° on January 16 and February 14. The average maximum for the same period was 76°.06, the lowest daily maximum being 64° on February 9 and 10, and the highest daily maximum 82° on February 5 and 7. I found by the records of Mr. Brigham, who keeps the signal office at Altamonte, that 95°.3 was the highest daily maximum temperature in 1889, which occurred on July 15, the lowest maximum for the year was 56°.6 in February. The lowest daily minimum was 33°.7, which occurred in January, the highest daily minimum was 77° in July; the total rainfall for the year was 47.85 inches. It will thus be seen that the seasons are very variable, but while I was at that place it was most enjoyable winter weather, and made me harbour the wish that it were possible to escape the rigours of an English winter for ever. It is usual, however, to get a large quantity of rain in January, but this year very little fell. What effect this will have on the current year's crop of Oranges is yet to be seen. Vegetation generally did not appear to suffer so much as might have been expected from the deficiency; the country is very flat, and the soil a pure sand with but little humus in it. In many places water is only 2 or 3 feet below the surface, and capillary attraction bring it within reach of shallow rooting plants.

In the early morning fogs prevail, which refresh the foliage very much; but the great want of Florida is a system of irrigation whereby the Orange groves and gardens could be watered in periods of drought, and the foliage prevented from curling up. In the driest positions, the Orange trees lost about half their leaves, which must weaken them considerably; but it is astonishing how soon they recover their freshness when a good shower comes, and one good soaking of water at the roots will keep them fresh for a period of about three weeks. The country has magnificent lakes, which are so numerous that most of the Orange groves are partly surrounded by them, so that by the aid of steam pumps and conduit-pipes to distribute water about the groves, much might be done to overcome drought.

The soil of the whole country consisting, with very few exceptions, of pure sand, a large amount of manure is required to support a crop of fruit. The mixing and distributing of chemical manures appears to be a very profitable trade, judging from the number of mixtures advertised at more than double their value, and each claiming to be the best Orange fertiliser. Prices range from 24 to 45 dols. per ton on rail, notwithstanding a good mixture can be made for 34 dols., or about £7 per ton, by purchasing the ingredients separately. A good dressing, say 5 cwt. per acre, should be given in December or January, and repeated once or twice during the growing season. In winter it is generally scattered, sown broadcast, and ploughed in, but at other seasons it is not possible to use the plough without injuring the feeding rootlets of the trees which are very near to the surface, and it is therefore scratched into the surface with the harrow, and left to the action of rain to wash it down to the roots. Stable manure is sometimes made use of, and a moderate quantity of this is beneficial, whilst too much of it causes strong, sappy growth, liable to be attacked with "die back," a disease of the young growths, which causes them to turn black and die, moreover it causes softening of the rind of the fruit, in which state it does not pack well.

Any manure containing a large percentage of nitrogen will cause the above disease, and if fowls are allowed to roost in the trees continually it will soon appear. This seems to be the only disease which troubles the Orange tree in Florida, insects not affecting them much. The only insect I observed was the mussel-scale, but trees that are well manured are not much affected with it, but Orange groves which are not well cultivated get very yellow and sickly-looking, especially if fertilisers are not put into the soil in sufficient quantities.

It is easy to see at a good distance away what is the kind of cultivation pursued, and occasionally I saw a grove that had been neglected for several seasons, and in which the trees generally bore only a small crop of poor fruit. Decayed vegetable matter, taken from the swamps, and locally called "muck," is sometimes applied to the trees with very beneficial effects. Some growers consider the soil is much enriched if they leave the wild grasses and weeds after June to make their growth, ploughing them in during the winter when all is dead and dry; others use green manure with "Cow Peas"—a kind of dwarf French Bean—which is sown and ploughed in like the weeds, but a very large amount of this kind of vegetation must be ploughed under before the sand is much improved. There are growers who keep their groves clean all the year round, obtaining good results with certainly a better appearance. Seedling Orange trees are found to be the hardier, and eventually give the more satisfactory returns, although they are much longer in reaching the fruiting stage than budded trees, and varying a little in the character of the fruit. The seedlings are supposed to belong, as a rule, to the Round Portugal variety of the Orange. The Navel, Mediterranean Sweet, Maltese Blood, Jaffa, Majorca, Mandarin, and Tangierine varieties, are also grown as budded trees; and many other varieties have been tried by some persons, and especially by General Sanford, at Belair, but the majority of the trees in the groves consist of seedlings. These latter do not bear much until the 15th or 16th year, when a single vigorous tree will carry a crop of 1000 to 1500 fruits. These trees are generally planted at from 25 to 30 feet apart each way, and when they reach the age of 20 years old and upwards, they are from 30 feet to 40 feet in height, and form a picture of much beauty when laden with ripe fruit.

Budded trees will bear at two years' old, and keep on increasing in the amount of their crop until the seventh or eighth year, when a full crop may be expected. It is not advisable to let budded trees fruit too soon, as early fruiting prevents the growth of healthy shoots. Budded trees are planted closer than are seedlings, the reason being that they never get so large as those, and especially is this true of the Mandarin and Tangierine varieties, the latter one of the prettiest of Oranges when seen in the growing stage, and a good-sized tree full of its bright orange-scarlet fruit being a sight not readily forgotten. These two varieties are of a much smaller size than any others; but the trees are very prolific, and the fruits fetch good prices—the latter being worth three times as much as ordinary Oranges. On one tree of the Mandarin, at Mr. D. Holden's grove, near Altamonte, I counted 400 fruits—this tree was 15 feet in diameter and 12 feet in height. Mr. Holden, who took the management of this grove early last season, found that it had been much neglected; but he has by liberal manuring secured a good crop of fruit on some of the trees, and clean growth on all of them.

A quantity of strong shoots spring from the old wood in the centre of the tree during the growing season, which grow at a tremendous rate, soon weakening the other parts of the tree if not kept in check. These shoots are called water-sprouts, and the cutting out of these shoots is about all the pruning that an old tree requires. Young trees, on the contrary, require much attention to keep a well-balanced head, and the centre of the tree free from crowded shoots.

Most Orange trees are grown in the same form as our standard Apples. The flowering season commences in February, and the fruits are not thoroughly ripe until January following, except in a few favoured districts. Many growers, however, are anxious to get their returns as soon as possible, and gather their fruit as soon as it is coloured, thus glutting the markets with inferior fruit, and getting Florida Oranges a bad name, because the flavour is not developed. The fruits are cut from the tree with scissors, the men standing on ladders and putting the Oranges into bags which are strapped over their shoulders; and they are then taken to the packing house and placed in the receiving bin in readiness for the sizing machine, which classifies them for packing into about six different sizes. The man who attends to it also sorts them at the same time into brights and russets, the latter being unlike the Oranges we are accustomed to see in England, being more or less brown on the outside, and for that reason do not find favour at present in the English market, buyers thinking probably that some accident has happened to them. The Florida folk prefer these russet fruits, and retain a good number for home consumption, considering them superior in flavour to the showier fruits, and they also sell well in the towns in the north, but fetch rather smaller prices than the bright fruits. What causes this peculiar russetty appearance is a disputed point; some attribute it to insect agency, others to a deficiency of some chemical element in the soil. I think the latter will prove to be the real cause, as I was told the groves in "Hummock" land—where a large amount of decayed vegetable matter is present—grew bright Oranges at first, but eventually only russetty ones; also those groves which are not so well cultivated, invariably have the greater part of the crop russetty. After the fruits have been sized by the machine, they are wrapped in tissue-paper and packed in boxes 2 feet 2½ inches long, 12 inches wide, and the same in depth, which hold ninety-six of the largest fruits—(which are very fine)—and 250 of the smallest size, with several intermediate numbers—good sizes for general use are 150 and 176. The boxes are bought in pieces cut to the proper size at the lumber-mills and are made up on the premises; and each size has to be packed on a certain plan or the proper number cannot be got into the boxes, diagrams showing how this may be done are circulated by the Florida Fruit Exchange, and some other agencies. The fruit is sent to the large towns in the north, some of the growers consigning their fruit to commission agents, a plan of selling which requires great caution, as there are numbers of adventurers among the latter, but of late years the Florida Fruit Exchange has handled a large portion of the fruit. This Company has dépôts in several of the largest cities and in Florida, and endeavours to secure the best prices by sending to whatever market has the greatest demand at the time. Prices vary from 6*s.* 3*d.* to 12*s.* 6*d.* per box for the ordinary kinds; Scarlet Tangierine fetch 25*s.* per box. Some growers sell the crop on the trees at 1 dol. or 4*s.* 2*d.* per box, the buyer to gather, pack, and market it himself; this is considered a good paying price; and doubtless it is so, if a good crop can be ensured, as it is possible to grow 500 boxes and upwards per acre, but to secure a result like this, the grove must have the very best attention continually. *W. H. Divers, Ketton Hall Gardens, Stamford.*

(To be continued.)

PLANT NOTES.

OCHNAS.

The members of this genus are far from being common in cultivation, though the flowers are pretty and attractive. Perhaps the greatest drawback to their popularity is in the fact that the flowers (petals) are very fugacious. Ochnas are not difficult to cultivate, and anyone with a stove at command may succeed in growing and flowering them satisfactorily; one great point being to mature the shoots, for, failing this, few flowers appear. In potting make use of well-drained pots, and a compost consisting of peat, a little turfy loam, and a sprinkling of sharp sand. Ochnas are readily increased from seeds or cuttings; and when the latter method is employed, short, half-ripened shoots should be chosen, putting them in sandy, peaty soil, and placing them, with a bell-glass over the pot, in

a gentle bottom-heat, attending to shading and syringing until rooted.

O. multiflora. — This is the commonest in cultivation. The petals are yellow, and soon drop off, but as a compensation the sepals and receptacle assume a bright crimson colour, and the latter increases in size, and resembles to some extent the fruit of a Strawberry. Upon this receptacle black fruits are borne, which form the chief attraction. These fruits, if gathered, dried, and sown, soon germinate, and in a year or two make stocky young specimens. The stems of the plants are covered with warty excrescences, the growth is slender, and the leaves, of a bright green colour, are elliptical in form, with serrated margins.

O. atropurpurea. — Some few years ago an Ochna was sent to the Cambridge Botanic Gardens under the name of O. Kirkii, but which, without doubt, may be referred to atropurpurea. It is a much larger plant than O. multiflora, and the habit is stiffer. The flowers measure about 2 inches in diameter; the colour of the petals is a beautiful soft yellow; the calyx and receptacle are of a dark purple colour; and the sepals are ovate. The leaves are ovate, with a finely teethed margin; the tips of these teeth are glandular when the leaves are in a very young state, the glands resembling those on the tentacles of a Drosera.

O. arborea.—Under this name seeds were received from the Cape of Good Hope, some three or four years ago, and one plant has been raised. This plant is quite distinct in habit and foliage from the other species named, but as it has not yet flowered, I cannot say more about it.

Acacia pulchella.

The above is one of the prettiest of greenhouse plants. The habit neat, compact, dwarf, and very floriferous. The flowers, yellow, appear as tiny balls, produced to the number of one, or two, or more, from each node. The stems are thinly covered with small hairs, and prominent reddish-brown spines. The leaves are small, five to seven leaflets upon a pinnæ, which are excellent examples of sleep movement, a fair rival for the so-called Weather-plant, Abrus precatorius. Propagation is effected by means of cuttings of small side-growths with a heel, put into light sandy soil, surfaced with sand, and covered with a bell-glass. The cutting-pot should be stood in a shady position in the greenhouse or frame, and with ordinary attention the cuttings will form roots in due season. At Chatsworth I noticed a very fine plant of this species trained against the corridor wall, and which, when in flower, must be very attractive. *W. Harrow.*

Orchid Notes and Gleanings.

LÆLIA PURPURATA VAR. RUSSELLIANA.

This beautiful and rare variety is now in flower at Clare Lawn, East Sheen. The plant has shorter and thicker pseudobulbs, large flowers with white sepals suffused with lilac, petals rather narrow and slightly deeper colour and broader, lip large, rosy-lilac, with a band of light rose near the yellow rose-pencilled throat. The plant has not flowered with us until now, from which it may be inferred that it is a shy bloomer. *W. H. Y.*

Odontoglossum Sanderianum.

A winter-flowering species, native of Venezuela, where it grows on the high mountains, so that it can be grown here in a winter temperature of 50°, and in a summer temperature of 60°. Water should be freely supplied during the growing season, light and air should be freely admitted to ripen the bulbs. *Reichenbachia*, t. 94.

Cattleya Morganiæ.

A freshly imported plant of this delicately beautiful form of C. labiata Mendelii in flower for the first time in the collection of R. B. Cater, Esq., Henrietta Park, Bath, is identical with the type; the sepals and petals being pure white with a faint pearly tinge on the lower halves of the former; the lip, beautifully fringed, is narrow, tubular, pure white with a blotch of bright magenta on the front, and a shade of clear yellow with dark reddish lines running up the throat to the base of the lip. It is superior to the medium forms of C. Mendelii, and forms an admirable contrast to the best high-coloured varieties. *J. O'B.*

Odontoglossum Schroderianum.

Mr. Sander distinguishes this from O. læve by its smaller pseudobulbs and the deeper colour of the flowers. It is a native of Central America, and was first flowered in this country by Baron Schröder. It is best grown in well-drained pots in a compost of fibrous peat and sphagnum, and should be placed near the glass to obtain as much light as possible without subjecting the plant to the direct rays of the sun. In summer the Odontoglossum-house, and in winter the cool end of the Cattleya-house, will suit the plant. The approach of winter is the signal for reducing the amount of water as much as possible consistent with due care. *Reichenbachia*, t. 96.



Fig. 117.—THICKENED, PENDULOUS BRANCH OF LABURNUM (SEE P. 706).

Cattleya Mossiæ alba.

There are several very beautiful forms of Cattleya Mossiæ with white segments, and some slight variations in the markings of the lip, which seem to render them distinct from a florist's point of view. A very beautiful variety is in the possession of A. Wilson, Esq., of Westbrook, near Sheffield, and of which a flower has just been sent to Kew. It measures fully 7 inches across from tip to tip of the petals; the segments are of the purest white, and the colours of the lip are very brilliant. In front of the bright yellow disc it is beautifully marbled, and veined with rich crimson-purple, outside of which is a broad white crisped margin. The plant was purchased from Messrs. Backhouse & Son, of York, and is said to have thirty-four pseudobulbs and six leaves. It is certainly a very beautiful variety. The earliest appearance of a white Cattleya Mossiæ seems to have been in 1850, in which year a plant flowered at Syon House, and was figured in Paxton's *Flower Garden* as Cattleya labiata candida. C. Wageneri appeared in 1852, and C. Reineckiana two years later, and both have since been placed as varieties of C. Mossiæ. Then came C. Mossiæ alba, and finally C. Reineckiana bella and C. Reineckiana superbissima. C. Wageneri is wholly white, with the exception of the small yellow disc of the lip, the others have a greater or less amount of crimson-purple veining in addition, but they differ from each other in very trifling characters. *R. A. Rolfe.*

Cattleya labiata Warneri.

The flowering season of this variety begins in June, when that of C. Mendelii is over, and lasts till that of C. Gaskelliana begins. This variety is especially suited for growth in baskets; it begins to grow in winter when a day temperature of 70° to 75°, falling to 60° at night, may be given. A moist atmosphere is necessary, and copious waterings during the growing season. Even during the resting period, when the temperature is lowered, care should be taken not to allow the bulbs to lose their plumpness. *Reichenbachia*, t. 95.

Miltonia vexillaria at Waddesdon.

Few Orchids excel this superb species in floriferousness and showiness of character. At Waddesdon, the whole side of one of the Orchid-houses is occupied with plants of this grand free-flowering Orchid. Mr. Jaques, the head gardener, has evidently studied this plant with great attention, and has succeeded in a remarkable manner, the plants being clean, robust, and well rooted; as a natural consequence, the blossoms are large, and of great substance. The varieties most in favour at Waddesdon are those with white and deep rosy-red flowers, and all those known as radiated forms, as well as those having barred sepals and petals. All the Baron's plants are selected for excellence—some of form, others of colouring, substance of flowers, &c; hence, much variation from the normal type is to be seen. On the occasion of the recent visit of Her Majesty, the whole of the lunch table was decorated with Miltonia vexillaria. By candle or gaslight, only the deep rosy-red kinds are really effective; but for the afternoon tea or lunch table, the exquisite colours of the lighter forms are most charming. The bouquet presented to the Queen consisted of Vanda teres, interspersed with Odontoglossum Pescatorei. Mr. Jaques deserves great praise for the skill in making the floral arrangements carried out in the mansion and elsewhere, all of which were under his personal superintendence, and which were much admired by Her Majesty and all the guests present on the occasion. *Veritas.*

Cattleya Eldorado crocata.

Perianth-segments white, lip white, undulate at the margin, and with a large orange-yellow blotch on the disc, extending into the throat. It was first introduced by Mr. Sander, but was discovered by Wallis in the Valley of the Rio Negro, Northern Brazil. The conditions under which Mr. Sander cultivates it are a maximum temperature of 80°, a minimum of 60°, the atmosphere being kept in a moist condition. The plants should be placed in well-drained pots in a compost of rough peat and moss, with a little charcoal or crocks mixed, so as to keep it open. In this condition "any amount" of water may be given in the growing season, the amount being gradually diminished after the bulbs are fully developed, and more air given. In winter, water should be given occasionally to keep the bulbs plump. "*Reichenbachia*," t. 93.

Sambucus nigra, Argentea variegata. — Plants of this Elder, together with those of S. nigra var. aurea, and S. racemosa, are very effective, either planted as specimens in the grounds, or associated with other shrubs, the variegated and golden leaves of the first-named two varieties, and fine scarlet fruit of S. racemosa, contrasting very effectively with the dark green leaves of the evergreens surrounding them.

BERWICK, SHREWSBURY.

In a commanding position on the crest of one of the hills, which add beauty to the environs of Shrewsbury, and 2 miles distant from the town, stands the fine mansion of James Watson, Esq., M.P. The estate, several square miles in extent, has a garden of proportionate size, in which of late years Mrs. Watson, whose taste in horticultural matters is well known, has been continually carrying out plans for embellishment. In these concerns the landscape gardener has not been followed too close, but originality in design and execution. Turning from one front of the mansion, a pleasing result of this originality is observed, the geometrical Italian flower garden, which in many places is too often filled with glaring bedding plants in the summer months, and left bare for the remainder of the year; here, a geometrical garden is transformed into an alpine and herbaceous garden, which affords a fine display of varied flowers for the greater part of the year, and is never quite without them. The borders around, and the beds arranged as rockeries, natural rock being employed, are planted with species of plants suitable to the situations they occupy—here a marsh bed of Iris Kæmpferii, there a patch of Cypripedium spectabile; on the drier rocks large cushions of dwarf Phloxes, Arabis, and Alyssum, relieved by the purple hues of the Aubrietias; beyond, perhaps, lies a clump of cærulean Gentians; and around the borders are Irises, Pyrethrums, Potentillas, and many another plant, worthy of a place in such a garden. Every hour that a garden so planted is visited some new and charming object is to be discovered.

From another front of the house a fresh scene of beauty is disclosed: terraces at four different levels, connected with each other by flights of stone steps, and a walk in the middle, flanked with Juniper bushes, which, being low, are admirably fitted for the position. On the lowest level, and also on the slopes to the left, which run on towards the Rhododendron dell, is some neat scroll-work with bedding-plants; the Rhododendron dell, by the way, being brightened by the presence of some large clumps of the yellow Azalea altaclarensis. To the right are giant Beeches, and a single Walnut tree, beneath whose shade a rich green carpet has been produced by sowing Carter's lawn grass seeds in March, and strewing moss litter over it after the seeds had been raked in. Beyond this point, a winding walk with a Rose arbour extends away to the right past many lovely bits of arrangement to the river Severn, whose bank at this portion of its course are planted with fine shrubs and patches of Narcissus and alpine plants, while the native plants are only restricted, not treated as weeds. The beauty of the Lychnis, Veronica, Myosotis, Celandine, Daphne laureola, and other British plants renders them no mean rivals to the exotic stranger; and a constant succession of groups of these native flowers may be found in this seemingly endless and delightful walk by the river side.

On a still lower level than the terraces, its architecturally beautiful arched front, forming the face of the lowest one runs the colonnade; whose climber-clad pillars furnished shelter, rest, and grateful shade. A low wall is built in curves, with buttresses of red stone at each curve, and forms the lowest step of the garden on this side, and is another very pretty feature, and one which with time will be rendered a charming object.

Between the stones Saxifragas, Linarias, Aspleniums, Sedums, and other suitable plants are placed, most of which have taken well, and some were in flower. On the lower level a broad walk flanked with Cupressus passes through what is termed the spring garden, which was gay with Wallflowers, Pansies, &c. Throughout the grounds generally, where all things are kept in splendid condition, many noteworthy objects strike the visitor, notably the fine proportions of the Rhododendrons, many of them 20 or 30 feet in height; the Portugal Laurels well trimmed, but not clipped, but cut over with the knife, equal these in size and beauty; and everywhere noble Coniferæ testify to the good soil and healthy character of the district. The Tree Pæony flourishes here; one specimen which was noted had more than a hundred flowers upon it. Azara microphylla becomes a grand object, either as a bush or on a wall; Aralia Sieboldii is hardy here, and grows into fine clumps; and at the end of the shady spring walk, so fresh with its grassy path and spring flowers, the Japanese Maples form a fine contrast to the more massive foliage around them. Another feature in this fine garden is the clothing of all available spaces—walls, tree-stumps, garden-houses, and pillars with climbing plants, a great variety of which—many of them uncommon—are employed for



Fig. 118.—Thickened shoot of Laburnum. (See p. 705.)

the purpose, as the varieties of Ceanothus, just now a fine display; the white, pink, and red Cydonia japonica, and the pretty C. Maulei; Clematis in profusion, Forsythias, Menispermum canadense, Muhlenbeckia complexa, Ficus stipularis, and many other subjects usually to be found in the greenhouse. The beauty and completeness of these many gardens in one cannot be too highly spoken of, and truly Mr. Alfred Gaut must have calls on him which only his ability and steady perseverance could enable him to meet.

The Glass-houses,

For plant and fruit-growing, are numerous. In one of the former was a fine show of Calceolarias, Pelargoniums, Marguerites, Begonias, &c., with the singular yellow Senecio macroglossus, which has been flowering all through the winter; and Trachelospermum jasminoides, the latter a twiner, on the roof.

Another range, consisting of two divisions, contained specimen Ferns, Palms, Crotons, Dracænas, Allamandas, &c.

A fernery with a back wall, rendered beautiful by being mossed and planted with a pretty collection of Ferns, contains many rare and well-grown species on the front stages. In another house the Roses—Niphetos, Maréchal Niel, &c., are blooming profusely, and on its back wall Heliotrope, Clianthus, Plumbago capensis, and Hydrangea stellata—a grand object, with about 250 heads of bloom.

The vineries form a range of four divisions, each filled with heavy crops of fruit in various stages of development, and many of the bunches fit for exhibition. The house for forcing Peach and Nectarines—one of them nearly 200 feet in length, were furnished with clean healthy trees well cropped; and the Melons, Cucumbers, Strawberries, &c., were as they should be. To get a succession of Melon fruits from one house, a plan is adopted of not constructing a continuous bed, but dividing it into divisions with cross-boards, planting each division in turn. Fruits in all stages, and plants not yet in bearing, give evidence of the success of the plan.

For remedying defective ventilation, Mr. Gaut has a most successful method, which he has applied to every house requiring it—it consists of running a drain, with ventilating openings in it, up the middle of the house from end to end, with openings into the outer air at the ends, and also with pipes at intervals from the front outside to the drain inside, the openings being capped to allow of the ventilation being regulated. The adoption of this plan would render many an unmanageable ill-ventilated old house better adapted for plants.

The kitchen gardens are in every way worthy of the other parts of the establishment, and the whole gives a good example of money and labour well applied.

THE GENUS SCAPHOSEPALUM.

The species of this curious little genus were formerly referred to Masdevallia, under which name several of them appear in various collections. They do not, however, agree well with the characters of that genus, and Professor Pfitzer has recently proposed to separate Masdevallia ochthodes, Rchb. f., and M. verrucosa, Rchb. f., under the name Scaphosepalum, in allusion to the scooped-out, or boat-like arrangement of the lateral sepals. In the May number of the *Journal of Botany*, I have pointed out that seven other species must also be transferred here. The genus thus comprises the following:—S. anchoriferum, S. breve, S. gibberosum, S. macrodactylum, S. ochthodes, S. pulvinare, S. punctatum, S. swertiæfolium, and S. verrucosum—all of them formerly bearing the same specific names under Masdevallia. The removal of these species, which are always readily distinguished by their inverted flowers, leaves Masdevallia a far more natural and definable group. Another very remarkable species has just appeared, which is described in the following note:—

Scaphosepalum antenniferum, *Rolfe, n. sp.**

A highly curious species, and the first very close ally of S. pulvinare, Rolfe (Masdevallia pulvinaris, Rchb. f.), which has yet appeared. As in that species, there is a very remarkable fleshy pulvinus or

* *Scaphosepalum antenniferum*, Rolfe, n. sp.—Plant cespitose. Leaves elliptical, long petioled, rigid, bright green, 3 to 8 inches long, 1 to 1½ inch broad. Scape 18 inches high, dark dull green, and strongly verrucose, producing numerous flowers in succession. Bracts ochreate below, with a rigid fleshy apex, similarly coloured to the scape, but far less verrucose. Flowers 8 to 9 lines long, dull greenish-yellow, the sepals dotted and lined with dusky purple-brown, the pulvinus being covered with minute dots of a lighter shade, antennæ greenish-yellow. Petals obliquely ovate, acute, deep yellow. Lip indistinctly three-lobed, side-lobes narrow, truncate above, front-lobe very obtuse; colour yellow, with numerous minute purple spots. A pair of linear, somewhat fleshy keels extend from base to above middle. *R. A. Rolfe.*

cushion on the united pair of lateral sepals, though differing in shape and colour; while in habit the two are almost precisely alike. But the present species has one or two very important differences. In S. pulvinare the lateral sepals are acute, nearly straight, and scarcely at all divergent at their free points, while in S. antenniferum the apex of the united sepals is broad and truncate, while the free portions are sharply reflexed, very slender, half an inch long, and gracefully curved underneath the basal portion, the whole resembling the head and antennæ of a good-sized centipede. The character is so striking that I doubt whether a more appropriate name could be found. It was imported by Messrs. Charlesworth, Shuttleworth & Co. (I am not sure from what locality), and the specimen now described has passed into the collection of R. I. Measures, Esq., of Camberwell. *R. A. Rolfe.*

THE CULTIVATION OF ECONOMIC PLANTS IN CENTRAL AFRICA.

Consul Hawes, some time since, says:—"Of the natural productions of the Myassa territories, Rubber, Indigo, Strophanthus, and fibre-yielding plants, may be named as offering a possible means of trade, though I cannot say that the prospects are very encouraging." Rubber might, under proper treatment, have become a profitable export. It is now found in very small quantities, and, indeed, it can scarcely be considered worthy of attention. This is undoubtedly owing to the destructive method the natives have of extracting the juice. At Mount Zomba, Landolphia florida was found in abundance, but now the plant is almost exterminated. Rubber of this species sold in Africa last year for 1*s.* 6*d.* per pound.

The cultivation of rubber-yielding plants in this part of Africa is at present attracting the attention of Europeans, and a plant of Ficus elastica is said to be growing luxuriantly in a private garden, the owner of which intends to propagate it largely. Indigo grows wild all along the slopes of Mount Zomba. It forms a large bush, and is perennial. It is of luxuriant growth, and its cultivation and manufacture might probably be undertaken with advantage.

Speaking of the now well-known Kombe poison (Strophanthus Kombe), Mr. Hawes says that during 1886 over 1100 lb. of the seeds were exported from the Nyassa districts, and realised in the London markets 9*s.* per lb. The supplies hitherto obtained have been drawn from the right bank of the river Shire, below the Murchison Rapids. The Strophanthus is a strong climbing plant, and is always found in the vicinity of high trees, on which it supports itself. The stem averages a few inches in diameter, and lies on the ground in folds, the branches supporting themselves on the nearest trees. The fruit grows in pairs, and have the appearance of a pair of large horns hanging to a slender twig. The fruit begins to ripen in July, and lasts till the end of September. The native method of preparing the poison is very simple. They first clean the seeds of their hairy appendages, and then pound them in a mortar until they are reduced to pulp; a little water is then added, and a gummy substance obtained from the bark of a tree, which helps to keep the poison on the arrow in the event of its striking against a bone. The poison thus prepared is spread upon the arrow, and allowed to dry. Game wounded by arrows poisoned with Strophanthus die quickly. The flesh is eaten without any injurious effects. The juice of the Baobab bark squeezed on the wound made by the arrow counteracts the evil effects of the poison. Buffaloes and all smaller game are killed by it.

Referring to Coffee planting as a source of export, Mr. Hawes says:—Promising as the culture seemed to be two years ago, the result hitherto has not realised the expectations of the planters, and though the quality of the Coffee grown at Zomba has been established beyond doubt, still, more experience is required before it can with certainty be said whether the cultivation of Coffee will be successful or not. The crops grown last year, both in the Mandala and Zomba districts, were to a great extent rendered unsaleable by the berry becoming diseased just before reaching maturity, the same disease showing itself again this year. The cause is partly attributed to allowing the trees to bear too profusely.

In Coffee culture, the difficulty of obtaining labour presents a serious obstacle. At the season when the planter requires a large supply of labour, to keep down weeds and plant out new ground, the natives are all employed making their own gardens, and will do no other work. Proprietors of small plantations may, with their few permanent hands, tide over the difficulty till workers can be obtained; but the question of labour forms a serious consideration, and will tell greatly against any foreign enterprise on a large scale being successfully carried out in Central Africa. Another drawback to the prospects of coffee planters is the heavy transit freights to the coast. Until competition brings about a lower rate of charges, a serious barrier is opposed to the development of European enterprise in these territories.

In favour of the cultivation of Coffee, it may be stated that land with suited soil can be purchased cheaply. Though unlimited acreage of good soil may be unobtainable, still sufficiently large areas to justify planters in establishing plantations can readily be got. At present about 90 acres of land in the Zomba and Blantyre districts are under Coffee cultivation, a considerable portion being new plantations formed this year.

A few tea plants have been introduced and grow fairly well, but as yet nothing definite can be said of the prospects of Tea plantations. In the highlands it is doubtful whether the cultivation would ever prove successful, and the uncertainty of labour would render it a very precarious undertaking.

Cinchona has been introduced, and shows every prospect of its cultivation being a success from the fact that plants three years old are now 6 feet high. It remains to be seen whether the quality of the bark will justify the planter's investment of capital, and whether the state of the market will offer encouragement. A small plantation of 1000 plants was formed last season at Zomba.

SCOTLAND.

THE INTERNATIONAL EXHIBITION, EDINBURGH, 1890.

(Continued from p. 576.)

Since the opening day, many finishing touches have been added to the adornment of the grounds, enhancing their beauty and interest much. The columns of the crescent-shaped colonnade leading from the gateway to the grand entrance have been flanked with fine specimens of Sweet Bay and Cupressus Lawsoniana, which are placed alternately in tubs covered with virgin cork, and resemble portions of the trunks of giant Oaks. The arches of the colonnade are further decorated with hanging baskets filled with Ferns, Ivy, and flowering plants, imparting a light and elegant drapery to the not unpleasing lines of the structure. Altogether the grounds present a charming appearance, and afford to the visitors a promenade of great beauty and variety.

Greenhouses, boilers, summerhouses, &c. — Several local horticultural builders have erected greenhouses. Taking the exhibits in their order as they occurred in my passage round the grounds, Messrs. Peel & Sons, of Edinburgh, London, and Dublin, have a pretty amateur's greenhouse, span-roofed, and altogether well constructed and proportioned for plant growing. A heating apparatus, invented by the firm, and adapted to heat the house, is erected outside of it. The boiler somewhat resembles the "Loughborough," "Stourbridge," and other similar slow-combustion boilers intended to heat an amateur's greenhouse, and is set up in the same manner, the body of the boiler being placed inside the house, and the furnace front only is exposed outside.

Messrs. Reith, Hardy & Co., Edinburgh, exhibit an excellent combination amateur's greenhouse and propagating-house, well adapted for either plant growing or propagating. The house is span-roofed, and on one side a tank-like bed, about 20 inches wide, runs the entire length; the outer wall of the house, and one composed of cement and grit 3 inches thick, built about 2½ feet high, forms the retaining wall of the bed, and also the boundary of the passage. If to be used for propagating, bottom-heat can be supplied with hot-water pipes laid in the bed, and the surface be closed in with squares of glass. Should the bed not be required for propagating, it may be filled with soil, and climbers be planted therein.

A twin-saddle boiler, the invention of the firm, appears to be a good thing where much power along with slow combustion is wanted. The boiler is a large one, with a wide span, and the distinctive feature of the invention is a waterway midfeather, extending from front to back, and from the crown of the boiler to the furnace-bars, thus cutting the ordinary furnace space of a simple saddle boiler of the same dimensions in two equally, so that there are actually two furnaces within the boiler in place of one in ordinary. Clearly such an arrangement is only adapted to boilers of a large size. The advantage claimed for the midfeather waterway is that besides the greater heating surface it presents, it conduces largely to the maintenance of a steady temperature during the night, with a minimum of labour in stoking, and in the consumption of fuel.

In connection with this subject, I learn that it is on the *tapis* to organise a horticultural boiler competition, to be held in the grounds sometime—probably on the occasion of the Edinburgh Agricultural Society's show—during the course of the summer. The idea has originated with the local horticultural builders themselves, but it would be well if the competition were opened up to all comers.

Mr. John Petrie, Freer Street, West Fountainbridge, Edinburgh, has a very neat amateur's greenhouse, in excellent proportions, and well adapted to plant culture, which, on a larger scale, would make a very handsome conservatory, with every requirement for healthy plant growth, being very light, and amply ventilated.

Messrs. D. Low & Sons, of Edinburgh and Manchester, have a handsome cruciform conservatory, which is a well-proportioned, and very substantial yet light structure. This firm exhibits also some capital span-roofed frames—a specialty—and various boilers, garden seats—also a specialty—and a very elegantly-fashioned heating coil case in cast metal, painted bronze, and having a marble top. The design is their own, and remarkable for its light and elegant appearance, while effectually concealing the pipes within.

Messrs. McKenzie & Moncur, Edinburgh and Glasgow, have a very pretty conservatory, suitable for a villa residence, along with exhibits of boilers, frames, and garden seats. The house was well filled with flowering and foliage plants by Messrs. J. & A. Seth, florists, Edinburgh, who were doing a brisk trade in cut flowers and plants with the admiring public.

Summer-houses, arbours, and rustic seats are very numerous, and judiciously disposed throughout the grounds, so as to add to the beauty of the scene. There are only two exhibitors in this class of horticultural structures and conveniences, but they are a host in themselves. Mr. Henry Cæsar, of Knutsford, Cheshire, and of King's Cross Railway Station, London, and Mr. J. S. Inman, Stretford, Manchester, are the two gentlemen who have come forward each with excellent samples of their taste and handiwork in the art for which both are famous. *W. S.*

PLANTS AND THEIR CULTURE.

Miscellaneous Plants.—Many of the plants that were forced for winter decoration will by this date be sufficiently hardened off to place in their summer quarters. The Azaleas of the mollis section will have made a nice growth in a cool house or a late vinery; and may be plunged in the open border of light loamy or peaty soil, and well supplied with water. If a year's rest can be given them, and the plants turned out of their pots, the drainage being then removed, they will make better plants for forcing the next year. The plants of Deutzia gracilis will have made a good growth if they have been afforded similar treatment to the Azaleas above mentioned, and may be plunged like them. The later plants of Deutzia should get frame protection till the new growth is advanced, syringing them two or

three times daily in bright weather to promote growth, the plants being plunged in coal ashes at the end of the month. Every evening, in fine weather, Deutzias in the open should get a heavy syringing. Callas that may be wanted at Christmas-tide should be turned out of their pots, the old soil shaken away, the suckers removed, and the plants repotted in the same sized pot, employing sound loam, ½-inch bones or bone dust in this potting, and plunging the plants on a warm border and liberally supplying them with liquid manure as soon as the new leaves get somewhat advanced. I prefer single plants in 6-inch pots for early spathes, the remaining or larger portion being shaken out, divided and planted out in a rich compost—cow dung preferably. A south or warm border is not necessary for these later plants. It is well to leave ridges between the rows of plants, or make basins round each to hold water.

Spiræas may be divided and planted in a moist border, and have abundance of water afforded them. Spiræas soon make large clumps under these conditions. Viburnum opulus, if plunged out-of-doors after having made a little new growth, will be of use another season; and when become too large for pots may be planted in the shrubberies. Prunus and other similar plants should be treated in the same way as Viburnum, it not being desirable to leave these plants exposed to hot sunshine without root-protection. Bouvardias will now be fit to be turned out of their pots, and planted if possible on a disused hot-bed; on such, the plants make a much finer growth than when planted on a border. If Bouvardias are damped over every evening, stopping a few of the strongest shoots, and not inducing coarse growth, watering occasionally only, with liquid manure, good plants will be secured. I prefer the young plants of last year for planting out, cutting the shoots hard back in early May. Young stock struck this year will require a close frame, and to be kept rapidly growing and free from aphis. This lot of plants will form a succession to those which are planted out.

Solanums are much better for being planted out-of-doors in summer; the only attention required by them is, to keep them clean, and water them well in dry weather. Cut-back Solanums should get a place on a south border; the young plants may be treated in the same way when large enough, and the points of the shoots stopped occasionally. The plants are better for being syringed in the evening of dry days, when the bloom is set. Pernettyas need a somewhat similar place, and to be well supplied with water, planting them in loamy soil containing peat and leaf-mould. When the plants are in bloom, no water need be afforded them overhead until the berries are set. Salvias for blooming in the autumn may now be plunged out-of-doors, after having been hardened off; also all species of Eupatorium. Eupatoriums must not be allowed to get very much pot-bound, or the foliage will drop and the bloom be poor. *G. Wythes, Syon House, Brentford.*

The Orchid Houses.

The Cool-house.—Some difficulty may now be experienced in keeping down aphis on the young growths, flowers, and flower-spikes of Odontoglossums; this will be much mitigated if a sharp eye be kept upon the plants, syringing them each morning, after killing such aphides as are noticed with saliva and the brush. This may appear a tedious operation, but it is not so, as many plants may be examined in the course of an hour.

The temperature of the house must be kept as low as possible, and syringing should be done often, not necessarily in a heavy manner, or over the plants every time. On very warm days I find it good practice to reduce the air usually given at the top, coming in, as it does, in a dry state; more air being put on again towards evening. Oncidium Marshallianum, as it goes out of flower, should be kept on the dry side till the roots and growths push. It is really a cool-house plant, though often grown in warm houses; but I never knew of an old-established healthy plant which had been grown warm. Imported plants do well the first year in an intermediate-house.

Disa grandiflora, now sending up flower-spikes, must be carefully watched, thrips and aphis soon damaging the flower-buds, and discolouring the young leaves on the flower-scapes; a small quantity of soot or guano-water may be employed about once a week, and the plants should be syringed heavily every day. Oncidium macranthum, Odontoglossum Edwardii, and O. ramosissimum, should be kept at the coolest part of the house. Masdevallias, as they go out of flower, should have all the old spikes removed low down, for they look very unsightly when left long. Odontoglossum chiriquense, now in flower, is a magnificent Orchid, which should be found in all choice collections. No fire-heat will, in all probability, be necessary before the month of October.

Intermediate-house.—The Pleonies here must have every attention as to watering, the young growth now being in process of forming their corms. Liquid cow-manure and guano may now be applied with safety, but each should be commenced with a little at a time, and by so doing, all danger from their use will be avoided. If ants are troublesome, as they sometimes will be, gallipots should be stood about in their runs, with a decoction of thick syrup and water. Lælia præstans and its varieties, now breaking forth into growth, must not be allowed to become dry, but should be well syringed every morning, and the same treatment should be meted out to Sophronitis grandiflora. Odontoglossum citrosmum, as it goes out of flower, should be repotted if requiring it, employing a compost of three-parts fibrous peat and one of sphagnum moss. Vanda tricolor and V. suavis, after flowering, should have their leaves and stems washed with soft-soapy water to remove the dirt. The atmosphere of this house should be kept very moist, with a minimum temperature at night of 62°. *A. G. Catt, Parkfield, Worcester.*

Fruits Under Glass.

Vineries.—If the preparation of Vines and soils was made as advised, the replanting of exhausted vineries may be pushed forward. If the crop is ripe, the Grapes will keep fresh in a cool room for several weeks, if cut with shoots having leaves attached. If the Vines are intended for early forcing, I prefer to have all the roots inside, and so avoid the fluctuating temperature outside. Some growers form an inner 4½-inch wall at a brick distant from the outer wall, and thus prevent the roots being affected by cold. There is no Grape yet known superior to the Black Hamburgh as a first early, but Madresfield Court does well in conjunction with it, and requires only a week or ten days longer to finish; but the pollen of the former is sometimes required, if weather should be bad at very early setting time. Before planting, the soil should be made very firm, and the young Vines carefully slid off their rafts, or if in pots, their roots uncoiled and partly shaken out, a watering with a fine rose pot being given to settle the soil about the roots. Fasten the plants somewhat loosely for a time, mulch the roots with spent manure, and maintain a moist atmosphere, shading the Vines slightly for a few days if the weather be sunny; remove all tendrils, and encourage lateral growth, as by so doing root-action is promoted. In border-making, where the subsoil is clay, marl, or of some other non-porous material, it is necessary to concrete the bottom.

It should be stated that concrete, or slabs of stone, are cold and very damp, when placed on the bare clay; and this being so, it is prudent to place a layer 2 inches thick of clean rubble above the clay, marl, &c., and put in pipe-drains, which should run right through, and be provided with openings at either end, for aëration purposes. A small quantity of drainage materials will be required in addition to this. Such precautions are important factors in the early ripening of the wood, without which very early Grapes often prove unsatisfactory. Make the borders piecemeal longitudinally—say, 3 feet at a time—and leave a turf wall at the outside wherever practicable.

Vineries, where the Grapes are ripe, must be kept as cool as possible, and be mulched with clean straw, to prevent evaporation from the border. Encourage growth of foliage on any black Grape-vines, where the fruit is about to colour, giving plenty of air, and do not hurry the Vines; but white Grapes should have their foliage partially tied on one side, away from the bunches, admitting sunlight, to bring them up to their proper colour. Madresfield, Morocco, Foster's Seedling, or other kinds subject to cracking of the berries, must be carefully tended, and former directions carried out. Finish as expeditiously as possible the thinning of Black Alicante, Lady Downes, Gros Colmar, and other late Grapes, which require thinning. Tie up the shoulders of large bunches as soon as their weight has straightened the main-stalk. Give Vine borders abundance of water, but first mulching with a thick layer of rotten manure, letting it be of such a nature that it will not make the surface pasty. Spent mulching should be removed, and renewed with fresh; but it should be noted that the ammonia arising therefrom is apt to spoil the foliage, if the ventilation be neglected in the early hours. A safe plan is to leave a small amount of top air at all times during the night. Keep a look-out for red-spider, and immediately sponge with soapy water the affected leaves, and these are easily detected by their yellow look. The sponging should be followed by a few good syringings now and then at closing time, and before the colouring season sets in, using a little fire-heat to dry the foliage.

Give every encouragement to late Grapes, so as to have them ripen in September, as only those coloured at that date will keep satisfactorily either bottled or left on the Vines. Lady Downes, well ripened in a good brisk Muscat-house temperature, will keep plump and fresh till the following May. Continue to use fire-heat at nights and on dull days in Muscat-houses, and do not neglect the night ventilation, or the brown spot at the apex of the berries will appear. If all the laterals cease to grow, it is an indication of overcropping, and must be remedied. Let the growth of laterals extend wherever space can be found for them without overcrowding. Train up young rods at intervals, as this gives new life to the Vine, annually spurring in, with no extension whatever, soon causing signs of distress to appear; in fact, kinds like Barbarossa soon refuse to fruit if there be no extension. Keep late Hamburghs cool, short of draughts, and endeavour to keep all the old foliage healthy on Vines whose crops are gathered. Stop the stems of pot Vines at 7 or 8 feet high, and afford them plenty of air and heat to mature. Pot on late pot Vines. *W. Crump, Madresfield Court, Malvern.*

The Kitchen Garden.

Asparagus Beds.—Those beds which are in full bearing should be cut over each alternate day, and if the beds show signs of being distressed, cutting must not be followed up late in the season. About the middle of this month is the time to cease to cut—a time when Peas, Cauliflowers, and other summer vegetables are in abundance. In cold districts cutting may be done to a later date. Keep the beds free from weeds, and afford some kind of manure to the plants after cutting is over. Newly-planted Asparagus beds should be hoed between the rows of plants, and on light soil plenty of manure may be placed on them, this rendering the soil moist, and strengthening growth. Seedlings on permanent beds may be thinned out to 8 inches apart, transplanting each alternate plant next season, so that at last the plants will stand at 16 inches from stool to stool.

Globe Artichokes showing heads should be literally afforded strong manure-water, and heavy mulching. Those March or April-planted should not suffer for want of water at the root, or of mulching. For the latter, cow-house manure is best, if the soil be dry.

Tomatos.—These plants will now to have a height of 18 inches or 2 feet, and may be hardened off, in readiness to be put out-of-doors. In planting Tomatos, there is no real need for using much manure about the roots, luxuriant growth always following its employment, and little or no fruit. Heavy soils should be deeply dug, and leaf-mould or spent Mushroom-bed dung mixed with it. Thoroughly water the plants whilst in the pots, and, after becoming somewhat drained, remove the crocks, but do not break the ball nor disturb the roots much, planting them out at suitable distances, making the soil firm about the roots. In the cold parts of the country, better results may be obtained by potting the plants into 12 to 14-inch pots, which should be plunged to the rim at the base of a south wall or fence. The main point to be observed is the pinching out of the side laterals, so as to avoid the crowding the main stem on which is the fruit.

Turnips.—Make small and frequent sowings of Snowball, Veitch's Red Globe, and choose whenever possible, cool aspects and a rich soil for the beds. Thin early, and dust the plants with soot, lime, &c., to keep the fly at bay; a better remedy perhaps than either is the constant disturbing of the soil with the hoe, and frequent applications of roadside dust. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

WEDNESDAY, JUNE 11 { Royal Botanic Society: Second Summer Exhibition.

MEETINGS.

TUESDAY, JUNE 10 { Royal Horticultural Society: Fruit, Floral, and Scientific Committees and Lectures, at Westminster.

THURSDAY, JUNE 12 { Gardeners' Royal Benevolent Institution: Anniversary Dinner, at "The Albion," Aldersgate Street.

SALES.

THURSDAY, JUNE 12 { Orchids in Flower and Bud, also Imported, at Stevens' Rooms.

FRIDAY, JUNE 13 { Orchids, Established and Imported, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—60°.2.

Professor Oliver.

AN interesting ceremonial was enacted on Saturday last at Kew, on the occasion of the resignation of Professor OLIVER as keeper of the Herbarium. Mr. J. R. JACKSON, as the oldest member of the staff, read the following address to the Professor, in the presence of all the members of the Herbarium and Museum staff, with representatives of that of the garden, and one or two outsiders, who, from their almost constant presence as workers in the Herbarium, were specially permitted to take part in the proceedings. Others, whose visits are less frequent, heartily concur in this expression of regard for the Professor, and in admiration at the way in which he has administered the Herbarium for so many years.

Prof. OLIVER has, by his sterling qualities and great botanical acquirements, so endeared himself to his associates that the simple ceremony was very touching, and it was felt to be so, not only by the memorialists, but also by the Professor, who made an appropriate reply. The memorial was, fittingly enough, read in the large room occupied by the late Mr. BENTHAM:—

"DEAR PROFESSOR OLIVER,—Your resignation of the post of Keeper of the Herbarium and Library of the Royal Gardens, Kew, which you have held for the past thirty years, offers to your colleagues and habitual workers in the Herbarium at the moment, whose names are hereto subscribed, an opportunity of expressing the great regard they have always entertained for you, and the regret they all feel at losing some of that kind assistance which you have so readily and uniformly rendered to them when seeking information from, or working in, the great and important department of the establishment over which you have so long presided with so much distinction to yourself and advantage to botanical science generally.

"The regret that we all feel at your withdrawal from active work amongst us is, to some extent, lessened by the prospect of your periodical attendance at the Herbarium, and of your continued residence near the scene of your life's labours.

"While we shall always preserve very pleasant memories of our past relationship, we beg to offer you our sincere wishes for the future health, happiness, and long life of yourself and family in the rest you are now seeking.—Believe us, dear Professor OLIVER, yours sincerely—

(Signed)

JOHN GILBERT BAKER	JOHN READER JACKSON
WILLIAM J. BEAN	JOHN FREDERICK JEFFREY
NICHOLAS EDWARD BROWN	GEO. MASSEE
C. B. CLARKE	GEORGE NICHOLSON
M. C. COOKE	ROBERT ALLEN ROLFE
DANIEL DEWAR	MATILDA SMITH
FRANK GARRETT	WILLIAM TRUELOVE
WILLIAM BOTTING HEMSLEY	WILLIAM WATSON
JOHN MASTERS HILLIER	C. H. WRIGHT
BENJAMIN DAYDON JACKSON	J. D. HOOKER
	W. T. THISELTON DYER
	DANIEL MORRIS

May 31, 1890.

MR. WILLIAM RICHARDS.—We are glad to say that our Publisher has returned from New Zealand considerably improved in health, and will resume his duties early next week.

KING JOHN'S OAK.—With reference to the antiquity of this tree (fig. 119), we may quote from the *Guide to Knole*, in which it is stated that "two and a half centuries ago it was then known as the Old Oak."

It stands a little within the wood on the right of the footpath leading from Knole Park to Sevenoaks, and only a few yards distant from the famous King Beech.

Everyone who is privileged to see this curiously contorted and venerable tree, is struck with the immense size of the bole and its irregular proportions as compared with the total height; while only a glance is needed to point out that it is one of the few remaining trees of the great forests with which this part of England in remote ages was covered. There is good reason for supposing that this same old Oak gave shelter to barons and knights of the era of the elder Plantagenets on their excursions across the extensive forest or waste of which Knole Park of to-day must have formed a part.

In any case the tree was of noble proportions, and although many of the larger limbs have fallen from old age, or the effects of the storms, yet sufficient still remains to make it an object of interest and veneration.

The bole is hollow, and was formerly used as a place of resort by travellers and others, but now the entrance is boarded up, and a stout iron fence guards the tree from intruders; while, to prevent the larger limbs from falling apart, props have been placed around and in such a manner as to lessen the chances of further injury from wind.

There are several names attached to this tree, as the Witche's Oak, the Old Oak, and that which forms the heading of this note. That it is a tree of unusual proportions, and of great antiquity, is well set forth in the accompanying cut. *A. D. Webster.*

THE GARDENERS' ORPHAN FUND. — The monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, on the 30th ult., Mr. JOHN LAING presiding. It was resolved that a further sum of £500 be invested in Government Stock. A report from the Trustees of the Wildsmith Memorial was read, from which it appeared that the sum of £140 18*s.* had been subscribed, and after deducting the expenses, £138 14*s.* 9*d.* had been paid over to the Fund; and WALTER HYDE, aged 3 years (nominated by Mr. T. TURTON and Mr. J. S. JONES, on behalf of the Trustees) was placed on the Fund. The following donations were announced:—Earl CAWDOR, £5; Mr. F. SANDER, £6 10*s.*; Mr. R. H. ROBINSON (proceeds of a concert at Milnthorpe, £14 5*s.* 7*d.*; and proceeds of a box at the Temple Show, £3 11*s.* The Annual Dinner will take place on July 18, when Mr. SHIRLEY HIBBERD has kindly consented to preside.

FRUIT FARMING.—Mr. CECIL HOOPER, of the Swanley Horticultural College, has reprinted from the *Transactions of the Highland and Agricultural Society of Scotland*, a lecture he delivered to the class of agriculture in the University of Edinburgh. He admits that the production of fruit yields better prices than that of corn, meal, or milk, for the present, and says that Scotland can supply the south with late fruits, which command more remunerative returns than when the markets are crowded with fruit. At the same time, he says that fruit-farming needs a larger capital than ordinary agriculture. The cost of preparation and cultivation till there is a remunerative return varies according to circumstances from £35 per acre upwards, the working capital to stock a fruit farm already planted is £20 per acre and upwards. The paper is decidedly one of the best and most thoroughly practical of the many that have appeared on the subject.

—— Sir E. BIRKBECK gave an address at Great Yarmouth lately on the subject of fruit culture, in which he detailed the *pros* and *cons*, with which our readers are now mostly familiar.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The dinner subscription list progresses favourably, and Mr. H. J. VEITCH will, we think, be able to announce a handsome addition to the funds when he takes the chair on Thursday next. Mr. J. WILLS has received from Sir D. PROBYN a letter to the effect that H.R.H. the Prince of WALES will subscribe £10 10*s.* to his list.

THE LATE REV. M. J. BERKELEY.—The QUEEN has been pleased to approve of the grant of Civil List pensions to MISS CHARLOTTE, MISS RUTH, MISS MARGARET, and MISS ROSE BERKELEY, daughters of the late REV. M. J. BERKELEY. All botanists, and especially all the readers of the *Gardeners' Chronicle* from 1843 till two or three years since, will know how thoroughly appropriate this grant is. A Civil List pension has also been granted to Mrs. WOOD, the widow of the late REV. J. G. WOOD, who did so much to popularise natural history.

PHILODENDRON CANNÆFOLIUM.—A Brazilian species, remarkable for its fleshy, inflated petiole, broad midrib and spathes, coloured whitish outside, and green inside, has long been known in botanic gardens, but has not hitherto attracted the attention of horticulturists. A small plant of it was, however, offered for sale at Messrs. PROTHEROE & MORRIS' Auction Rooms on Tuesday last, and realised the astonishing sum of 9 guineas. It is satisfactory to learn that the plant was the property of the widow of a sailor who had brought it from Brazil as a curiosity several years ago. Plants of this species are in the Kew collection.

THE ROYAL HORTICULTURAL SOCIETY.—Herbaceous Pæonies are to be the feature of the meeting at the Drill Hall next Tuesday. Mr. G. PAUL and Mr. R. J. LYNCH are announced to read papers on the subject, and the Society offers a Silver Challenge Cup for the best collection of herbaceous Pæonies from an amateur, and this ought to bring forth a good display.

ORCHIDS.—The following, which we cull from the *Weekly Gazette*, Montreal, betrays such ignorance of horticultural matters, that it is as amusing to read as any passage in a comic paper:—

"The greatest known amateur of Orchids in

England is the Duke of Marlborough. He has sold his paintings, tapestries, and race horses, but has kept his conservatories. His collection of Orchids at Blenheim is worth £30,000—a sum exceeding, according to experts, the value of the finest French collection at Ferrières. Wonderful are the Orchid houses at Blenheim. There are three, each 330 yards square, always kept humid by means of steam, a condition essential to tropical Orchids; dry heat is death to them. The Duke of Marlborough has Orchid-hunters in almost every country where they are indigenous—Mexico, India, and Ceylon especially. The natives, who at first ridiculed the foreign Orchid-hunters, have now learned the secret of their incomprehensible value, and will only guide them to the spots where they grow when paid exorbitant prices.

"When the plant has been removed from its abode, either from trees or rocks, it is packed in a box lined with cotton-wool, and sent to Europe. On its arrival, the Duke is unaware of its value, as three months must elapse before the plant will flower. The uncertainty as to the flower about to blossom is a source of great excitement to the Orchid amateur—quite as great a madness as the Tulip folly. During the short space of time the plant remains in bloom—the rarer the species, the shorter is the duration of blooming, which never exceeds six weeks, and very often lasts only a fortnight—the plant has to be classified. The only thoroughly scientific authority respecting orchidaceous plants is Professor Reichaubach (the late Professor Reichenbach), a German, of Hamburg, where he resides permanently, and to him photographs are continually forwarded, with details of shades and peculiarities. Sometimes, however, these are insufficient for classification of the plant, and it becomes necessary to send it for personal inspection to the Professor. The Duke of Marlborough employs special couriers, who carry the plant, suitably packed, from Blenheim to Hamburg, where it is classified. It is only a passionate amateur who would bear such a trouble philosophically, but the Duke is satisfied with being the possessor of an hitherto unknown Orchid. The number of species of Orchids is greater than that of any other of the monocotyledonous order—not even excepting grasses—amounting to between 4000 and 5000 at least. The Orchid Kykusta Shenner (? Lycaste Skinneri), a native of Guatemala, is the largest known. Its colour is pink, but it is of no great value—140 dols. to 150 dols. a plant and 15 dols. a flower. (!) The white Orchid is the most valuable, bringing 240 dols. per flower. (!!) The prices paid for new or rare varieties recall the days of the Tulip mania. Can the history of any plant be more preposterous than that of the Orchid Pendrobria Nobita (Dendrobium nobile?), sold to the Duke for 3*s*. 6*d*. and valued now at more than 3600 dols.? (!) For amateurs the fascination which enchants them in the Orchids would seem to be the artificiality—unnaturalness, one might almost say—of the plant's anti-physical peculiarities.

"Paris must also be credited with love of flowers. In order to produce Roses on 13,000 trees for that one week, scientific marvels are performed, which are not taken into account by the gentleman who finds it hard to spend 10 dols. for two small branches of Lilacs, nor by the lady who feels rather aggrieved at receiving so many flowers."



Fig. 119.—King John's Oak, Knole, Kent. (see p. 712.)

The Bordeaux Mixture.—So important, says the *Canadian Horticulturist*, has this copper solution become to fruit growers, that it is important to have the formula for its preparation of convenient access. A late Bulletin of Cornell University gives a modified formula, which is cheaper than the original one, more readily applied, and less injurious to the young foliage. We, therefore, give our readers this new formula, hoping that our orchardists, who are troubled with the scab on Apples and Pears, will give it a thorough trial, and report to us the result:—(1), Sulphate of copper, 6 lb., dissolved in 4 gals. of hot water; (2), lime, 4 lb., dissolved in 4 gals. of cold water. Mix the two solutions as above, and, when desired for use, dilute to 22 gals. with cold water.

Bury and West Suffolk Horticultural Society.—Through the kindness of Earl Cadogan, the summer show of this very old society is this year to be held in the beautiful park of Culford on July 3 next, and an excellent show appears to be confidently expected. Culford is just 4 miles from Bury by road, and from the Ingham station of the Bury and Thetford Railway it is a pleasant walk of very little more than a mile.

Reichenbachia.—The second volume of this magnificent publication is dedicated by special permission to H. M. Augusta Victoria, Empress of Germany, and Queen of Prussia.

Botanical Collectors.—The perusal of the short historical sketch of the Royal Horticultural Society, prepared by Mr. Wilks on the occasion of the Temple Show, reminds us once more of the singularly ungrateful way in which horticulturists have ignored some of their greatest benefactors—Reeves, Don, Forbes, Potts, Hartweg, Weir—were all in the Society's service, and of the importance of their service to horticulture, especially in the case of Douglas and Fortune, it is impossible to speak too highly, yet there is not a portrait of either in the Society's rooms; not a medal, nor a scholarship, nor

anything to commemorate their services, save a casual mention in books or newspapers. WILLIAM LOBB, who introduced the Wellingtonia; JOHN FRASER, and many others, might be mentioned among those not connected with the Society. The passion for Orchid growing has in later times called forth a small army of collectors less well known to fame, because chiefly instigated by purely commercial considerations, and confining their attention to a few specialties; but they, too, have deserved well of horticulture, and, unhappily, a large proportion of them have lost their lives in the service. At Prague they are about to erect a monument to ROEZL. When shall we commemorate DOUGLAS or FORTUNE?

MONUMENT TO ROEZL.—We have received the first list of subscribers to this memorial. Among the names are those of Mr. SANDER, £5; Messrs. DE SMET, £2 10s.; Mr. GODEFROY, £1. From Russia 73 roubles have been received, and various sums from Mexico, Bohemia, Columbia, and Switzerland. The execution of the model for the monument has been entrusted to Professor MYSLBEK, a well-known sculptor of Prague. Further subscriptions are requested, and may be forwarded to Mr. THOMAYER, of Prague, or to the Editor of this Journal.

DUTCH HORTICULTURAL SOCIETY.—At the meeting, May 14, 1890, of the above Society, the Floral Committee awarded the following First-class Certificates:—To Mr. W. J. VAN LANSBERGE, at Brummen, for Odontoglossum vexillarium, Odontoglossum Cervanteaii lilacina, and Cattleya Schroderiana; and to Messrs. E. H. KREELAGE & SON, at Haarlem, for a collection of Tulipa Billietiana, of Jordan.

BEES AND BEE-KEEPING.—Mr. UPCOTT GILL is publishing a re-issue of Mr. CHESHIRE'S classical book on this subject. The second volume, which deals with practical matters, is now published as most appropriate to the present season, while the anatomical details and physiological descriptions will be given later on. The book is published in parts, and should be in the hands of all bee-keepers.

NOVA SCOTIA APPLES.—In the report of the Secretary for Agriculture (Dr. LAWSON), we find the following passage: "We believe (the Secretary of the King's County Agricultural Society is speaking officially), that for years to come a man will be as sure of a profitable return from trees planted in this valley as he can be of anything upon earth. That our farmers have this faith in it is proved by the new orchards and additions to old ones that are being planted every year. The price obtained in the London market for good well-packed Apples is from 1.50 dol. to 2 dols. per barrel. The best commercial sorts are Gravenstein, Ribston, King, Blenheim, Golden Russet, Fallowater, and Nonpareil; Northern Spy has gained in favour, Baldwins and Bishop Pippins have fallen off. Many people in Nova Scotia have digged for hidden treasure and found none, but hidden beneath the roots of our Apple trees is a mine of wealth which patient digging shall surely find, and keen observation and scientific methods as surely transform into golden fruit and sterling cheques."

RED RUST.—It is estimated that a million of money has been lost this season in South Australia from the ravages of red rust. Sulphate of iron is stated to be useful as a remedy. Sulphate of copper would be better, but it is obvious that their application on a sufficiently large scale is not feasible.

ORCHIDS, THEIR CULTURE AND MANAGEMENT.—This work, which has been produced in monthly parts, is now completed. It is compiled by Mr. WATSON, of the Royal Gardens, Kew, assisted by Mr. BEAN. The aim is to give a descriptive catalogue of all the garden Orchids worth growing, and to give full directions for the cultivation of each. The arrangement is alphabetical, and the substance of an earlier publication by Messrs. BRITTEN and GOWER has been incorporated in the present volume, with many modifications and additions. The last chapters are devoted to the consideration of hardy Orchids. We recommend the book to the notice of all young gardeners and beginners in Orchid culture.

HINTS ON CACTI.—It is said that these singular and often gorgeous plants are coming into favour again. If it be so, amateurs will be glad to know of a catalogue, published by A. BLANC & Co., Philadelphia, in which directions for their culture in rooms, greenhouses, and gardens are given. Descriptions of the most important species, together with numerous illustrations, are given.

WELBECK.—In an article in *Garden and Forest*, on this estate, in which the eccentricity of the late Duke and the absurd manner in which his wealth was expended are alluded to, the writer says:—"No American can see Welbeck and all its ghastly splendours without finding cause for congratulation, for the laws and customs of his native land which make such establishments impossible here." Is this the reason why an American is reported to have attempted a feat in Scotland from which he would probably be debarred in the States?

AUSTRALIAN PLANTS.—Baron Sir FERDINAND VON MUELLER has issued a second systematic census of the plants of Australia, comprising their names, references to books where they are described, date of publication, local and general distribution. It is a great boon to have so complete a list for reference.

GARDENING IN INDIA.—Mr. MARSHALL WOODROW has published a fifth edition, much enlarged, of his *Hints on Gardening in India*, illustrated with numerous woodcuts. In addition to the usual details as to soil and ordinary garden operations, Mr. WOODROW gives a series of meteorological tables, showing the average climatal conditions for numerous stations and altitudes in India, which will be very useful to cultivators at home, as well as in India and the colonies. Directions for laying out gardens, the treatment of plants after a long journey, and other details are given. It is natural that Anglo-Indians and colonists should endeavour to cultivate the plants they have been accustomed to see at home; but it is greatly to be desired that they should take in hand the native plants of the country they happen to be in, and cultivate them. They would find this often less difficult, and would have the satisfaction of annexing new subjects for the kingdom of horticulture. How much more valuable at Indian flower shows would it be to encourage the development and improvement of native produce than to attempt to cultivate exotics more or less ill suited to the climate. At any rate, there is no reason why the culture of exotics and the development and improvement of native plants should not be carried on simultaneously. Mr. WOODROW, in his remarks on the Mango, shows that he is alive to the importance of the subject.

"PLANT ORGANISATION."—Under this title, Dr. R. HALSTED WARD has published through Messrs. GINN & Co., of Boston, U.S.A. (E. ARNOLD, 18, Warwick Square), a series of tables resembling the schedules introduced by the late Professor HENSLOW, and so familiar in the pages of OLIVER'S elementary lessons. These are so constructed as to comprise the leading points of structure, blanks being left for the student to fill in from the plant presented to him, or in the case of beginners, from large diagrams. Other spaces are left for outline sketches, which are more valuable than written descriptions. The spaces allotted are rather small, and the abbreviations puzzling; but for use with a teacher in class the plan is excellent, as the student becomes familiarised in a very short time with the most important points of structure and arrangement. A glossary of terms, with illustrations, forms a useful addition.

WALLFLOWERS.—Recently we received from F. RŒMER, Seed Grower, Quedlinburg, a quantity of large spikes of double Wallflowers of various colours, brown-yellow, purplish-brown, orange, and yellowish-white. The plants had been grown in pots, and presented an appearance very dissimilar to a Wallflower from the open ground, being very tall but robust, and wanting in lateral shoots. Mr. RŒMER tells us that he grows 6600 pots of double Wallflowers, and these for seed purposes only. The seeds of Wallflower should be sown by the middle or end of May in a cold frame, or in prepared sandy soil in the open ground. Choose moderately rich soil, such as the Ten-week Stock delights in. Prick off the young plants as soon as large enough to handle, and transplant them by the end of June into beds in the open ground, at a distance of 1 foot apart. Stir up the ground during summer several times. Plant them in pots by the beginning of October. For this purpose, choose a good loamy soil; give the plants a good watering, and place them in a cold frame, which should not be covered with lights, but only with boards, giving air as freely as possible without taking off the boards, except in rainy weather. When cold weather ensues, care must be taken that the Wallflower plants are wintered as coolly as possible, affording as much air as possible, but keeping out hard frost; a little frost does no harm. By the end of March, place them in a half-shady place, where they can be sheltered, and where rain will not harm them, and early in April the plants will begin to bloom.

JAPAN.—The export of plants, trees, and shrubs for the month of January, amounted to 5708 *yen*, according to the *Journal of the Japanese Horticultural Society*. One yen is equal to about 3*s*. 6*d*.

YELLOW-BERRIED IVY.—Among the curiosities at the Temple Show, was a spray of the yellow-berried Ivy, sent from Worthing by that veteran horticulturist and friend of the Society, Mr. JAMES BATEMAN.

PRESENTATION TO MR. J. S. JOHNSON.—This gentleman, who has been connected with the well-known firm of Messrs. HURST & SON for the long period of thirty-seven years, and who is retiring solely on account of impaired health, had a very gratifying presentation made to him by the *employés* of the firm on the occasion of his taking farewell of them on May 24 at 152, Houndsditch, E.C. The presentation was made by Mr. HUGH AITON, and the gift consisted of a centre-piece and a pair of candlesticks, the former bearing the following inscription:—"Presented to Mr. J. S. JOHNSON by the Staff of Messrs. HURST & SON, on his retirement, after thirty-seven years' connection with the firm, as a token of their regard and esteem." Mr. JOHNSON replied in appropriate terms.

LONDON PURPLE.—Some time since, when commenting on the large use made of this substance in America as an insecticide, we mentioned that though called London Purple, it was not known in this country, and not procurable. Both these statements are now no longer correct, and Messrs. BEALE & Co., of New Southgate, now inform us that they can supply it in small quantities, with directions for use.

SUMMER SHADING AND THE PERFECT WEED KILLER.—During the month of April last, a sample of what the sellers—the Horticultural and Agricultural Chemical Company, 103, Holm Street, Glasgow—called *Summer Shading*, was sent to this office for trial, and which we sent to Mr. A. EVANS, the clever gardener at Lythe Hill, Haslemere. His report of a trial which he made of the substance will be found below. *The Perfect Weed Killer* was another article vended by the same firm, also sent to Mr. EVANS, whose opinion of it we append:—

"The summer shading I put to a good test on the roof and gable of a glasshouse, and I am enabled to endorse all that the manufacturers claim in its favour. I had the hose applied direct on to the gable end for five minutes, and actually on one

square of the glass, but at the end of that time there was scarcely any difference to be observed between the shading on that and the other squares, although there was a 90 feet fall from the water tanks, and the pressure great in consequence. This was again done the day afterwards with the same result, and yet it comes off by the lightest rub, a point which is, I think, of great value. There are many kinds of shading used which answer every purpose as a shading, but when not longer required, their removal offers great difficulty, and often entailing a good deal of labour and some breakage of glass.

"*The Perfect Weed-killer*" I have tried with very good results, as far as I can judge at the present. Some weed-killers only disable weeds for a time, and others destroy them. I applied it at the rate of 1 gallon to 80 square yards of gravel, and it took effect in a marked degree in three days afterwards. Weed-killers should be used annually in summer on every drive, walk, courtyard, and similar area which is near to grassland—it keeps them free from grasses and weeds; another dressing given in September will kill the summer seedlings, and make the surface smooth, compact, and clean for the season.

BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.—From the list of those published in the *Journal of Botany* for May, we extract the following:—

"PETIVER, JAMES (c. 1658-1718): b. Hillmorton, Warwickshire, circ. 1658; d. London, April 20, 1718. Apothecary to the Charterhouse. F.R.S., 1695. Contributed list of Middlesex pl. to Gibson', 'Camden,' and to Ray's 'Historia,' vols. ii. and iii., and 'Synopsis,' ed. 2, and to Phil. Trans. 1697–1717. 'Opera,' 1764. Plants in Hb. Sloane. Sloane MSS. 3330–3338. Pult. ii. 31; Pritz. 245; Jacks. 591; Fl. Midd. 379. *Petiveria* Plumier.

"PETRE, ROBERT JAMES, 8TH BARON (1713-1743): b. June 3, 1713; d. July 2, 1743. F.R.S., 1731. 'The Phœnix of this age,' Collinson. Had garden with large stoves, under Philip Miller's supervision, at Thorndon, Essex. Introduced *Camellia japonica*. Rich. Corr. 316, 340, 392; Linn. Letters, i. 9; MS. on fly-leaf of B.M. copy of Pult. ii. *Petrea* L.

"PIESSE, GEORGE W. SEPTIMUS (1820-1882): b. May 30, 1820; d. Chiswick, Oct. 23, 1882. 'Art of Perfumery,' 1856. Pritz. 247; Jacks. 210.

"PITCAIRN, WILLIAM (1711-1791): b. Dysart, Fife, 1711; d. Islington, Nov. 25, 1791; bur. St. Bartholomew-the-Less. M.D., Rheims. M.D., Oxon. 1749. F.R.C.P., 1750. F.R.S., P.R.C.P., 1775. Had a bot. garden in Upper Street, Islington. Munk. ii. 172. Portr. by Reynolds. Mezzotint by J. Jones, 1777. *Pitcairnia* L'Hérit.

"PITTS, EDMUND (fl. 1678). Alderman of Worcester. 'A very knowing botanist.' Discovered *Pyrus domestica* in Wyre Forest. Phil. Trans. xiii. 1678. 978; Lee's Bot. Worcestersh. lxxxviii.

"PLANCHON, JULES EMILE (1823-1888): b. Ganges, France, March 21, 1823; d. Montpellier, April 1, 1888. F.L.S., 1855. Assistant in Sir W. Hooker's Herb., 1844-48. Prof. Bot., Ghent, 1849; Montpellier, 1881-88. Co-ed. 'Flore des Serres,' 1849-81; Pritz. 248; Jacks. 592; R. S. C. iv. 932; viii. 631. Ann. Bot. ii. 423 (1888), with bibliography. *Planchonia*, Dun.

"PLANT, R. W. (fl. 1844-1852). Of Cheadle. 'New Gardener's Dictionary' (n. d.), 1849? 'Experimental cultivator and nurseryman.' Bot. Reg. 1844, p. 89. Collected in S. Africa, 1850-52. 'Excursion in Zulu Country,' Journ. Bot. 1852, 222, 257. R. S. C. iv. 933. Plants at Kew. *Plantia* Herb.

"PLATT, Sir HUGH (fl. 1571-1606): bur. Hornsey? B.A., Camb., 1571-2. Of Copt Hall, Essex, and Kirby Castle and Bishop's Hall, Middlesex. Knighted, 1605. Had a garden in St. Martin's Lane, 1606. 'Garden of Eden' (posth.), 1653-60. 'Flora's Paradise,' 1608. Johnson, 69; Pritz. 248; Wood, Athen. Oxon., ed. Bliss, 622; Cooper, Athen. Cantab. ii. 436, with bibliog.

PUBLICATIONS RECEIVED.—*Picturesque Wales (Cambrian Railways)*. Edited by G. TURNER. (London: SIMPKIN, MARSHALL & Co.).—*Notes on the Pansy*. By CHARLES KAY. (Stirling: C. HARVEY, Baker Street).

NOTICES OF BOOKS.

ANNALS OF BIRD LIFE. A Year-Book of British Ornithology. By Charles Dixon. Published by Chapman & Hall.

Mr. Charles Dixon is an author whose name should be well known to ornithologists, as he has written several books relating to this science. His latest work is entitled *Annals of Bird Life*, and this, while it contains statistics and scientific details, is so pleasantly written, that a lover of birds could not do better than consult its pages whenever he wishes for information. He will learn when our migratory birds arrive and depart, whence they come and whither they go; he will hear about many of our rarer birds, which perhaps were before this but as names to him, and he will even find a word of excuse offered for the unfortunate house-sparrow, who is sometimes fed and encouraged with mistaken kindness, and at others ruthlessly inveighed against and destroyed as vermin. The book is in four parts, each of which is devoted to the ornithology of one of the four seasons of the year, and finished by a calendar for spring, summer, autumn, and winter respectively. These calendars give the time of the arrival, departure, song, breeding, moulting, and other data of bird-life; while other tables teach the amateur the "points of distinction" of each species, and how to know one from another. As the work is not intended for very learned readers, or as a text-book for advanced scholars, the author spares us scientific names, and leaves him who would learn the manners and customs of any British bird to consult the full English index, and be referred by it to the pages giving the required information. We must not forget to allude to the illustrations, as many people consider no book complete without them; in this case they are not very plentiful, but are exceedingly soft and pretty, adding much to the attractive appearance of a volume of "annals" which, according to the author, has been compiled from "note-books filled during twenty years of field and forest errantry." That long and patient study has been paid to the subject we cannot doubt, and it is pleasant to find that almost on the first page justice is paid to the intelligence of birds. We hear that they "are no longer regarded as mere automatic machines, governed by mysterious impulses, all vaguely classed under the convenient term of 'instinct,' but as creatures endowed with mind, with mental powers very similar to those which control the movements of man himself. At no other period of the year, perhaps, are these various mental powers so well displayed as in the spring-time. For instance, what enormous powers of memory birds call into action in performing their long journey from Africa and other remote regions, to their summer quarters in this country! What passion and jealousy animate them in the pairing season; what a large amount of imitation, reason, and forethought are required in the all-important task of selecting a site for the nest, and then in building the structure itself! . . . Take the subject of migration first. . . . Spring is creeping rapidly over the valleys, and clothing every twig and spray with delicate green. Suddenly, as if by magic, the chiffchaff appears. Scores and hundreds of them may be heard chiff-chaffing from the Birch and Alder trees, and even from the long Bilberry wires and Heath that in some places half conceal the rocks. No man saw these birds arrive; silently they make their *début* in their summer quarters, journeying to them in the night when all is still, and the road is safe. Whence have these little feathered wanderers come? They are all the way from Northern Africa; from the oases in the Great Desert; from the groves of Morocco and Fez and the country of the lawless Tondreg. They have crossed the Straits of Gibraltar, passed along the coasts of Portugal, Spain, and France, and over the stormy English Channel; then 200 miles further still, nearly the length of England, to the old familiar coppices in this Yorkshire valley. Think of the magnitude of such a journey—1500 miles of flight for a pair of little wings almost as delicate as gossamer, supporting a body which would go inside a big thimble! Think of the little mind encased in this feathered casket; the recalling to memory of old familiar landmarks on the way; the eye for detail; the knowledge of locality brought into action between the Date Palms of Algerian oases, and the Bilberry wires and Birch trees of Yorkshire. And remember that this identical chiffchaff has come right back again to the spot where it built its nest last year, and is about to make a fresh one not half-a-dozen yards away from the very bush which shielded its previous home! . . Then remember the chiffchaff is only a unit in the great migrating army of birds; and that there are others which come from more distant regions still—the swallows, for example, which traverse sultry Africa from end to end, and perform a journey of six thousand miles twice every year of their lives."

The truth of these remarks will be at once acknowledged by all who have studied bird life, and those who have read thus far will be led on to the fascinating account of the courtship, pairing, nest-building, and maternal cares of the chiffchaffs.

We cannot close this notice without allowing ourselves one more extract from the interesting pages before us. Speaking of birds in winter—a season we are apt to think wanting in interest—Mr. Dixon says: "Although it is midwinter, the banks of the stream are a chosen haunt of bird life. Where the water boils and foams round the mossy boulder, we are sure to meet with our old friend the dipper. He is happy enough as long as the stream is open, and keen must be the frost that will stay its rapid waters. He dives into the ice-cold stream, in search of his insect food, just as heartily as in the spring and summer, his dense plumage being impervious to the wet and cold. The charming little gray wagtails are gone; the summer snipe is on the lagoons of Africa; but the kingfisher, in his beautiful dress of blue and chestnut, haunts the lower reaches of the stream. He is much less fortunate than the dipper, and often feels the pinch of hunger. No birds are affected so much by a long-continued frost as those that seek their food in slow running waters or amongst marshy ground. The poor kingfishers fare badly at such a time, and numbers of them are starved to death, whilst they have even been found frozen to the twigs on which they have chanced to rest. Sometimes this bird may be seen sitting above the frozen pool, the banks all draped with icicles, and set in a framework of frost and snow, watching the tiny fish and water insects on which it feeds, but quite beyond its reach, owing to the film of ice that has covered the water in a single night. In the Alder trees on the banks of the stream, little parties of siskins are busy picking at the seeds; here and there a wandering heron flies hurriedly away. This bird will not stay by the stream if the frost continues."

Our readers will gain an idea of the style of the book from these excerpts, and will surely welcome as heartily as we do a work which will increase their knowledge of the feathered songsters around them without alarming them with an array of scientific words and terms.

THE FRUIT MARKET.

THE following letter from a "London Salesman," in *Bell's Weekly Messenger* of February 24, is more encouraging to the fruit-growers of Nova Scotia than to those of the mother country:—

"For some time past considerable discussion has been taking place in regard to the growing of Apples in England, and we have been told by various experts and representatives of horticultural and other Societies that farmers have only to plant orchards, and in a very short time there would be an end to all their trouble; but it seems to me they have failed to recognise one very important fact. It is this, that during the past few years, while we have been talking

and arguing whether this or that soil is suitable, the kind of Apples to grow, who is to compensate the tenant if he plants an orchard and leaves his farm, &c., our great opponents in the fruit trade have been planting—not thousands of acres, but miles of orchards.

At the present time, Ontario, Nova Scotia, the United States, Tasmania, and other places, are supplying the English market with enormous quantities of Apples, but in a very short time, say two or three years, the quantity will be greatly increased, and in, say, six or seven years, they will be enabled to send three or four barrels to every one sent now, the quantity increasing as time goes on; and it is nonsense for nurserymen and others interested in planting orchards in this country to tell us that English-grown Apples will always sell, and make top price, and that the public prefer them, as imported Apples are flavourless, woody, and thick-skinned.

Speaking as a salesman, the buyers prefer bright-coloured, well-shaped, and well-packed fruit, and most of the imported Apples have these qualities; consequently they will always take the lead. Already, at times, this market is blocked with Apples. Take last season, for instance. At this time last year, Canadian, States, and Nova Scotian Apples were sold at 8*s.* and 10*s.* per barrel of 3 bushels, and the market was glutted the whole season; when freight and charges were paid, there was very little for the senders, yet they had to send; the Apples were there, and it was better to send to a bad market than not to send at all. English Apples during this period were almost unsaleable at any price.

Of course, this season things are different: the same kind of Apples that were being sold at 8*s.* to 10*s.* last season, are now making 24*s.* and 28*s.* per barrel. These prices encourage orchardists in America to still go on planting. Take the celebrated Annapolis Valley in Nova Scotia as a single instance. It is from 60 to 70 miles long, and is no doubt one of the most favoured spots for Apples in the whole world. In a very short time it will be one long orchard from Windsor to Annapolis. I don't write this letter to discourage English growers, but to caution them not to expect too great results from young orchards later on."

HARVESTING CHINA GRASS IN WENCHOW.

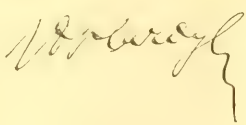
MR. ALEXANDER HOSIE, Acting Consul at Wenchow, reporting to the Foreign Office on the trade of that port for 1889, refers in the following terms to the cultivation of a fibrous plant which is classed as Hemp, and figures in the trade returns to the value of £1,077. Mr. Hosie says:—

"I presume that this is the fibre of Bœhmeria nivea, which is cultivated to a limited extent round Wenchow. There is one point in connection with the local growth which deserves more than a mere passing notice. In Western China, and more especially in the province of Ssu-ch'uan, I devoted considerable attention to the production of this valuable textile. There the stems, when ripe, are cut down, made into bundles, and carried from the fields to the house of the grower, where they are steeped in water, and the bark, with the fibre, removed by hand. Here a different method is practised. When the stems are ripe the peasant removes the bark on the field, in a very simple, ingenious, and, as it appears to me, very profitable manner. Seizing each stem about 6 inches above ground between the thumb and fingers of both hands, a few inches apart, he gives a smart push downwards and forwards, causing a compound fracture of the stem between his two hands. He then inserts the forefinger of the left hand in the fracture, and draws the bark downwards to the root, where it readily detaches itself. In the same way the remaining bark, and upper part of the stem, which he holds in his right hand, are removed, and by a simple brush of the hand from the root end of the bark upwards, the leaves and stem are dislodged, and the bark is ready for future manipulation. By this means, as it seems to me, several inches of bark and fibre are saved in comparison with the product resulting from the cutting down of the stems; and as length of staple adds much to the value of the fibre, the plan here pursued would appear to deserve some attention in those countries where the cultivation of Bœhmeria is of great commercial value. I refer especially to India, where labour is cheaper than in China. Another advantage of the system is, that the discarded leaves and stems remain on the field, and help to manure the other crops."

M. HARDY.

WE are indebted to the courtesy of Mr. Rothschild for the opportunity of giving a portrait of the distinguished Director of the National School of Horticulture at Versailles, who was also the Chairman of the Horticultural Department of the recent Paris Exhibition.





Unfortunately, we have in this country nothing quite analogous to the school over which M. Hardy presides with so much talent and urbanity. It comprises an experimental garden on a large scale, wherein the pupils have the opportunity of perfecting themselves in all branches of practical horticulture, and of taking part in the work of the garden.

The establishment comprises collections of fruit trees, vegetables, &c., for study and comparison, a museum, an arboretum, conservatories, forcing-houses, and all the appurtenances of a well-ordered garden. Instruction is given by lectures and demonstrations in horticultural work of all kind, in botany, meteorology, chemistry, book-keeping, and modern languages. M. Hardy, personally, gives instruction in the culture of fruit trees, Pomology, and forcing operations.

A long account of the garden is given in the numbers of the *Revue Horticole* for August and September last, in which it is shown that a large number of old students now fill the posts of Directors of Colonial, Municipal, and Agricultural Gardens and Colleges in France and her colonies, as well as in other countries.

THE TUNBRIDGE WELLS HORTICULTURAL SOCIETY announces its summer exhibition for Wednesday, July 9, next.

NEW GUINEA.

THE recent expedition of the Governor of British New Guinea, Sir William Macgregor, up the Fly River, has brought still more Australian forms of vegetation under notice, particularly from the delta-estuary of that stream-system. Of plants not previously found outside of Australia, the following occur, now in his Excellency's collection: Drosera petiolaris, Halfordia drupifera, Muhlenbeckia rhyticarpa, Eucalyptus tereticornis, E. terminalis, Metrosideros paradoxa, Tristania suaveolens, Melaleuca symphyocarpa, Fenzlia obtusa, Plectranthus longicornis, Mitrasacme elata, Alyxia spicata, Hæmodorum coccineum, Gahnia aspera, Eriachne palescens, and E. squarrosa. It seems likely, however, that this Australian element in the lowlands vegetation is confined to the southern part of this great island, the high ranges which extend almost along the whole region, offering a barrier for the migration of Australian plants across to the northern littoral tracts, where species of Sundaic plants would probably be still more numerous than along the southern coast regions. Previously among Australian forms the following were recorded from New Guinea:—Eupomatia laurina, a species of Brachychiton; Stackhousia viminea, Pimelea cornucopiæ, a species of Drapetes; Kennedya retusa, Panax Murrayi, Passiflora aurantia, Araucaria Cunninghami, a species of Phyllocladus; Hypoxis hygrometrica, Arthropodium fimbriatum, Geitonoplesium cymosum, Notothixos subaureus, Banksia dentata. Grevillea gibbosa, and another species; an Olearia, Lagenophora Billardieri, two Vittadinias, Styphelia montana, and two other of the Epacridaceæ, Astelia alpina, Xerotis Banksii, Carpha alpina, Leptaspis Banksii, Dawsonia superba, and a second species of that genus. This Australian element in Nature is further strengthened by some prominent forms of the Fauna, such as the Wallabyes and the Echidnas. Sir William Macgregor's recent gatherings demonstrate also the occurrence of representatives of the following genera, as Papuan, Salomonia, Cedrela, Sesuvium, Pterocarpus, Dioclea, Modecca, Homalium, Limnophila. *Ferd. V. Mueller.*

EMBOTHRIUM COCCINEUM.

RECENTLY some of our correspondents have favoured us with sprays of this handsome shrub. Very few of the Proteaceous plants are hardy in this country, except in the most favoured parts. The species we now figure (fig. 121), from Chili, may be added to the list, not however, without qualification. In the warm parts of England and Ireland, it grows fairly well at the foot of a west or south wall, either as a free standing shrub or trained to the wall. It is an evergreen with brilliant red-crimson flowers. As it ranges over a wide extent of country, and ascends mountains to a considerable altitude, it is probable that hardier varieties may yet be introduced.

INDIA.

MADRAS.

THE Agri-Horticultural Society of Madras held a moonlight fête in the Botanic Gardens on the night of February 5. Although the Society has now been established for fifty-five years, such an entertainment had never before been given. The experiment proved so successful, that it is hoped that the Committee will be persuaded to hold such a fête annually, and that the weather will always be as favourable as it was on this first occasion.

The Agri-Horticultural Society above mentioned, held its annual flower-show in the Gardens on February 22. The horticultural exhibits were quite up to their usual standard of excellence, but the dry weather which prevailed for some time previously

proved rather prejudicial to the food grains. There were many exhibitors, both native and European, and the show was opened by the President of the Society, His Excellency the Governor.

NOTES IN ECONOMIC BOTANY.

There can be no doubt that new sources of economic products of vegetable origin do occasionally come into the markets of which we know but little or nothing, helping, as they possibly oftentimes do, to contribute to the bulk of some well-known commodity. An apt illustration of this may be found in what is commercially or generally known as gum arabic. It is well known that large quantities of this gum come to the London market of different qualities, and under different commercial names; they are, for the most part, however, the produce of species of Acacia. Owing to the scarcity that has prevailed of late years in the supply of Suakim gum, many other gums have been introduced, notably in 1888, a Brazilian gum arabic appeared in the market, which proved to be obtained from Piptadenia macrocarpa. This gum has now become a regular article of import.

A new kind of African gum attracted some attention in Mincing Lane, in consequence of its appearing in long, slender stalactite tears, very distinct from ordinary gum arabic; much of it is likewise of a dark brown colour, mixed with a white Tragacanth-like gum. A quantity of this gum recently arrived in this country, and seems to be derived from an entirely different source from any gum yet known in English commerce, namely, from the so-called African Mahogany Tree (Khaya senegalensis), belonging to the natural order Meliaceæ, and closely allied to the true Mahogany. The tree grows to a good height, and produces a wood similar in appearace to Mahogany. A sample of this wood recently received at the Kew Museum shows a good, sound, even-grain timber, not unlike good ordinary Mahogany. The wood is not unknown to English hardwood dealers. A closely allied tree—Carapa guianensis—also yields an even grained, reddish-coloured wood, and seems to be known in English trade as Assinic Mahogany. The tree is found both in West Tropical Africa and in British Guiana, growing in the latter colony to such a size, that timber may be cut from the trunk 40 to 60 feet long, and from 14 to 16 inches square. The wood is much used in the colony for furniture, as well as for doors, partitions, and flooring; masts and spars, sugar-hogsheads, and various other articles are made from it.

Notwithstanding that the wood has been shown at most of the International Exhibitions as one of the useful products of British Guiana, it does not appear to have come into English commerce from that colony, but figures as a product of West Africa.

Another West African product that has lately appeared in the English market, is a coarse stiff material known as Lagos Piassaba. This substance is strong, tough, and pliable like whalebone, very irregular in its thickness, some pieces being about the same diameter as ordinary Bahia Piassaba, while other pieces are nearly as thick as a blacklead pencil, but somewhat flattened. It is much darker in colour than the Brazilian product, and on account of its irregularity would apparently be useful only for mixing with the better known article. It is appa-



Fig. 121.—Embothium coccineum. Half-hardy shrub: flowers glowing crimson. (see p. 716.)

rently procured from the leaf-stalk of one of the Raphias. That such a material finds a sale proves that there is a demand for brush fibres, and that a really good substitute for Piassaba would be a commercial success; that such could be found amongst the varied Palms in the Brazilian forests we think there can be no doubt. What is wanted is something with equal, or even with greater strength and elasticity than that which we now use so largely. A brush fibre, new to us as such, but of very inferior quality, was shown in the American division of the Paris Exhibition last year. It was labelled as the fibre of the Palmetto, perhaps Sereneoa serrulata, Hook. f. It was of very uniform thickness, and of a bright reddish-brown colour, but it lacks strength and elasticity. Specimens of all these products are in the Kew Museums.

Turning now from the consideration of new vegetable resources to the development of old ones, we have that of the cultivation of the Castor-oil plant (Ricinus communis), which is so largely grown in India, has been taken up in some parts of Hungary, and that at the present time there are over 200 cultivators who are making experiments with the plant. The coming autumn will, it is said, show whether Hungary is likely to be able to compete with British India as a Castor-oil producing country. The experiments made hitherto have yielded excellent results, inasmuch as one culture gave 60 per cent. of oil and 40 per cent. of residue for oil cakes.

Under the name of Chinese Dates, large quantities of fruits are annually exported from China, the average being about 3000 tons per year for the last ten years from Chefoo, besides quantities from other ports, the exports from Tientsin alone in 1887 amounting to 4500 tons. These Chinese Dates are known under a number of varieties, as red, pink, southern, honey Dates, &c., and are furnished by varieties of Zizyphus vulgaris and Z. lotus, the honey Dates being the fruits preserved in sugar.

Genuine Chinese Star Anise, the aromatic fruits of Illicium verum, which is imported into India, America, and Europe for flavouring liqueurs, and spirits, is reported to be exceedingly scarce—indeed, it is said "that there is none available in China."

TREES AND SHRUBS.

LONICERA SEMPERFLORENS MINOR.

THIS small-flowered variety of the semperflorens Honeysuckle makes a splendid covering for pillars or arches in the conservatory or cool houses. Mr. Hudson has it growing at Gunnersbury House over an arch 10 feet high in the conservatory, which at the present time is smothered with its pale orange-red tubular blossoms. When not stiffly trained, the graceful sprays of flowers make it one of the best of plants for a trellis or arch. Cuttings of this species of Lonicera strike freely in the spring with the aid of a slight bottom-heat.

CERCIS SILIQUASTRUM (JUDAS TREE).

This subject of Western Asia is rarely met with in gardens, and for what reason it is hard to say, seeing that the tree is a very desirable and effective object during the month of May, the rosy purple flowers, which it produces with great freedom before the leaves become fully open, being very telling; moreover, the tree is quoted in all the leading catalogues of trees and shrubs. There are two old specimens of the Judas Tree here, which flower freely every year; they are about 25 feet high, are growing in a light dark loam, resting on a gravelly subsoil, and sheltered from the north and east; the soil, I may add, is uniformly moist. *E. M., Hants.*

AZALEA MOLLIS.

In many places one or other of the several varieties of this beautiful Japanese Azalea will be in full bloom out-of-doors during the present month. The flowers are very sweet, and range in colour from bright yellow to golden bronze. Although this plant does best in peaty soil and away from the shade of trees, it will do fairly well in any position and description of mould ranging between chalk and cold heavy loam. Planted either in masses or intermixed with other flowering shrubs in the grounds, or in close proximity to carriage drives, and frequented spots in the park and home woods, the effect is the same—very telling. Therefore, plants which have been forced during the winter months, and which have not yet been disposed of, should be turned out of the pots while quite moist at the roots and planted as indicated, putting a little peaty soil or leaf mould (if more easily obtained), about the roots, making the whole firm before giving water to settle the soil.

CERASUS JAPONICA FLORE PLENO.

Standards and pyramids of this and the numerous other decorative varieties of the Cherry now in cultivation, were until lately objects of great admiration in many nurseries, private and public gardens, especially in those in and about the towns of Bournemouth, Ilfracombe, and Folkestone. They are very telling when intermixed with the pink, scarlet, and purple-flowered Thorns (Cratægus) and, like these, they will succeed in almost any position (as long as they are not shaded by trees) and description of soil. *H. W. W.*

VEGETABLES.

GILBERT'S VICTORIA LATE BROCCOLI.

WITH us, this variety has been very good this year. It is self-protecting, the leaves well covering the heads until it becomes fully expanded. During the past fortnight we have been cutting immense heads of the purest white; and I would strongly advise those who have not yet given this variety a trial, to do so—they will not be disappointed. *G. Summers, Sandbeck Park, June 2.*

THE APIARY.

A NOVEL ENTRANCE TO A HIVE.

As I was paying my usual round of visits, I met an amateur carpenter, who is also a beekeeper, and who makes very good hives for himself. As he does not make them for sale, I can fully describe them for the benefit of my readers. The entrance, then, is at the centre of the bottom of the hive, and running across from side to side. That is, supposing the hive faces south, the entrance would run east and west. The entrance is very narrow; indeed, being only just sufficient for the bees to get in comfortably when loaded. The alighting board projects outwards about 3 or 4 inches, and slopes upwards to the entrance. An entrance of this sort contains everything essential to the comfort and well-being of the bees. First of all, no water can enter the hive from below. The alighting-board forms a grateful place for a loaded bee to rest on before walking up into its hive. Should a mouse desire to walk up, it could do so nearly as far as the entrance, but could not possibly get in, owing to the narrowness of the opening. Certainly there are no means in this hive of partially closing the opening. My friend says he never finds it necessary to close the entrance at all, but leaves it fully open both summer and winter. He says his bees are never robbed in this kind of hive. Somehow or other, stranger bees do not seem able to find the entrance, and those that do, meet with such an army of opponents that they gracefully, or ungracefully, retire at once. I have fully described this entrance because I believe it well worth a trial, and have commenced myself. Most beekeepers agree that there ought to be free ventilation, either at the top or bottom of hives, in winter. Here, then, is the very thing. Good circulation of air without draught, thus allowing the bees to be thoroughly packed at the top, over the frames.

The weather is now everything that could be desired for bees, and a good harvest may be expected, if suitable weather prevails for the next two months. On all hands we hear that a great stimulus has been given to the trade this spring, and that dealers in appliances are overburdened with orders. It is hardly necessary to say, give the bees plenty of room by adding frames and supers. It is not necessary to wait for the honey glut for this, but do it at once, so that when the time comes, the bees may have abundance of room for storage. *Agnes.*

HOME CORRESPONDENCE.

FRUIT PROSPECTS. — Unless there is better prospect for tree fruits elsewhere than here in Middlesex, the present year bids fair to be one of the worst for the fruit grower, for I have not gleaned one good report. The stocks of preserves cannot be now large, and makers for sale have been looking forward to the certainty of a good crop generally this season, so that it can hardly fail to force a sharp competition between buyers. The promise in the matter of blossom was a good one, but the set was bad. Plums and Pears seem to be the worst, in the summing-up of the grower, and Apples and Cherries are few. It must not be assumed that the caterpillar pest has anything to do with this barrenness. We have suffered very slightly indeed in West Middlesex from the caterpillar, the good cultivation of the soil serving to keep it in check. The barrenness is rather climatic than otherwise. There was, on the whole, last year, a very favourable time for the production of fruit buds, and these set in plenty, but still they have not stone-buds of the kind to give very high hopes. The comparatively open, soft weather in January, somewhat unduly early excited the buds to motion; then came a long spell of dull, cold weather, with a few severe frosts, and by the time the bloom was expanded, its vital forces were well-nigh exhausted. Bush fruits are both much blighted and thin, and the only really promising crop universally is the Strawberry, and its produce is now dependent upon the weather. *A. D.*

MILDEW ON VINES.—I have for many years paid periodical visits to the claret producing districts of France, and a few years since, noticed with great regret the fearful devastation amongst the Vines, caused by mildew. But the destruction caused by this pest is now arrested by a simple remedy which is generally adopted by the Vine-growers in this country, and is proved to be equally efficacious in other crops. I send it for publication in your paper, and if applied in the early stage of growth, crops of Potatos, Tomatos, and Rose trees will be entirely freed from this troublesome fungus. The mode of application is as follows: a large tin can containing 2 to 3 gallons is carried on the back, straps passing under the arms keep it in position; from the can a tube of sufficient length to come easily to the front of the body, is provided with a syringe, which enables the operator to apply the liquid in any direction required, by the aid of this simple machine. Remedy against mildew in Roses, Tomatos, Potatos, &c.:—1½ lb. quicklime; 3 lb. sulphate of copper; 20 gallons of cold water. Dissolve the sulphate of copper in cold water for two hours in one vessel, in another pour a little water by degrees on the lime, mixing it well till it becomes a milky liquid, then pour the latter into the former, stir them well, and add to the 20 gallons of water already provided. To be applied at intervals of three weeks, and always used fresh. *W. Smith, Bordeaux, May 27.* [The copper-sulphate, as we have often pointed out, checks the superficial growth of the Potato and Tomato fungus, but as it cannot reach the interior its advantages are limited. ED.]

PROPOSED PINK SHOW AT MANCHESTER.—A movement is being made with a view to holding a show of Pinks at Manchester during the month of July. It will be proposed that it take place on July 19 in the Botanical Gardens, Old Trafford, in connection with the Rose Show of the Manchester Botanical and Horticultural Society. Mr. Samuel Barlow has the matter in hand, and a circular will be issued asking for support to the proposal, and for subscriptions to a prize fund. There are a large number of growers of Pinks in the north and midland districts, and it is felt that, with their co-operation, a good exhibition could be made. Manchester is a centre readily reached from all parts, and as it is the desire of the promoters that the public should be

interested in the culture of the fragrant Pink, it is obviously a good arrangement to have the exhibition in connection with the annual Rose show at the Botanical Gardens.

THE WEATHER IN MONMOUTHSHIRE.—We experienced a hoar frost on the morning of May 30, the thermometer registered 30°, which severely crippled Potatos, Scarlet Runner Beans, and other tender plants. The common Bracken, Athyriums, and similar Ferns were also considerably injured. Our bedding plants were fortunately under protection, and escaped what might otherwise have been a serious calamity. *T. Coomber, Hendre Gardens, Monmouth.*

THE GARDENERS' ROYAL BENEVOLENT.—I have noted with pleasure the lists of promised contributions to be made to the funds of the Institution at the forthcoming annual dinner to be presided over by Mr. H. J. Veitch. I should like, however, to see more gardeners names appear on the lists as annual subscribers, for it must be borne in mind that every subscriber of £1 1s. per annum, is worth at least ten times as much as a donation of one guinea; and what better investment can a gardener make than by subscribing to this fund? None of us may forecast the future, or know what is in store for him. I have not the slightest doubt there are many of the craft now, up and down the country, who heartily wish they had begun to subscribe years ago, so as to be (if not fully) entitled to its benefits, to be at least in a fair way of soon being so, without any of the anxiety and trouble of election. Let me say that it is not yet too late to commence, and I know nothing would gladden the heart of Mr. Veitch more than to receive promises of annual support from gardeners who may not yet have subscribed. I have myself inspected the account-books of the Institution, which are models of exactness and business-like details, and was struck with the admirable manner in which they are kept. The worthy Secretary (Mr. E. R. Cutler), who has served the Institution so long and so well, is only too glad to have an opportunity of showing the books to anyone who takes an interest in the working of the Institution. If perchance, he is not already a subscriber, he will I know, endeavour to convince him of the great advantages the Institution offers to gardeners, and few will be able to resist his appeal. *James Hudson, Gunnersbury.*

PUYA CHILENSIS.—The plant figured in the *Gardeners' Chronicle* of May 31 flowered in the Abbey Gardens, Tresco, Isles of Scilly, for the first time about thirty years ago, and was the first specimen that had ever flowered in Britain up to that time. The photograph from which the engraving was drawn was taken by me about twenty-five years since, at the wish of the late lord proprietor, Augustus Smith, Esq., and copies were sent by Mr. Smith to Sir Joseph Hooker. The taller spike at that time was about 7 feet high, and in its early state of growth resembled a giant head of Asparagus. It has flowered several times since. *J. C. Tonkin, Isles of Scilly.*

—— I have often had the privilege of seeing this fine Bromeliad in the Tresco Abbey Gardens. It is growing behind one of the old Abbey walls, and forms a dense thicket of spring foliage. I have never seen it in flower, but the old spikes are allowed to remain on the plants as well as on the Agave americana, so that visitors at any season can judge of their nature. One of the most imposing shrubs in the gardens is what the late Mr. Vallance, *requiescat in pace*, told me was Senecio Fosteri, on the authority of Mr. Harpur Crewe or Mr. Lynch of Cambridge. I have not been able to find any mention of this shrub, nor is it given in Brown's edition of *Johnson's Dictionary*. It forms a big spreading shrub with large leaves, the reverse of which is white and downy as in S. Tussilaginis. If Mr. Lynch remembers it, he would benefit your readers in Cornwall by mentioning it. *C. A. M. Carmichael.*

IBERIS CORIFOLIA.—Where did this remarkably valuable species come from, and who originated it? I find one list of plants give it as having been introduced from southern Europe in 1739; if so, we have had it in cultivation for 150 years. I place it at the head of all the perennial Candytufts. What a nice green tufted plant it makes, and how freely it flowers; and its corymbs of pure white blossoms are as handsome and symmetrical as can well be. It is easily cultivated, and soon becomes a flowering plant. Last year I pulled a plant to pieces, and dibbled them into a cool and moist border, where they soon took root, and they make blooming plants sometimes the first, and certainly the second year. Some one once termed it the dwarfest and neatest of the perennial Candytufts. I am not sure it is quite the dwarfest, but that it is the neatest there can be no doubt. It appears to be the hardiest of hardy plants, it adapts itself to most soils, even heavy ones; it will flower on a shaded and moist border as on an open and dryish one, though the latter position is preferable. In some localities it may produce seeds; they have appeared in a few instances on my own plants, but as far as my own experience goes they are invariably infertile. If information exists as to its origin, I shall be pleased to be made acquainted with it. *R. D.* [Iberis saxatilis var. corifolia, South Europe. See *Bot. Mag.* t. 1642 (1814). Baker, in *Gard. Chron.* 1868, p. 712. Ed.]

EARLY STRAWBERRIES.—I have this day (June 2) gathered a very nice middling-sized fruit of John Ruskin, a new variety, sent out last year by Little & Ballantyne, Carlisle, and there can be no mistake whatever that this variety is the earliest in commerce. I have Laxton's King of the Earlies growing on the same border, which I fully believe will take fifteen days more to ripen; while the great Noble itself, growing immediately opposite, will be at least a fortnight before a fruit is ripe. I look upon this as a great gain in early Strawberries; we have numbers of first-class mid-season varieties, but there is yet room for very early and very late ones. I am this year growing Lovell's Late Pine as a late variety, which at present is just opening its blossom; it is free growing, most prolific and the flavour is good. *R. Gilbert.*

TASMANIAN APPLES.—These Apples seem to bear the long sea transport splendidly, and if they can be sent over in sufficient quantity, we ought to be able to procure sound good Apples throughout the summer months; the flavour is quite up to the mark. The quality of Fearn's Pippin and Rosemary Russet is superior to any specimens of these sorts I have ever come across in England. The Ribstones which I have, are not quite ripe enough to pronounce an opinion upon, but they are fine looking, firm fruits. What a chance there appears to be to make Apple orchards pay in this lovely island. However, it seems, as in most things, we have heard of the opportunity two years too late. *C. A. M. Carmichael, Gunnersbury.*

GLOXINIAS AT THE TEMPLE SHOW.—These were shown in splendid condition. Messrs. Sutton had a magnificent lot of plants, and it puzzled the spectators to know how they could have been got to the Temple without a blemish. They consisted of some of the best in cultivation, with a vigorous habit, large blooms in abundance, and showing great improvement. Prince of Wales is a superb variety that should be largely grown; Empress of India is a fine bloom and free. Messrs. J. Veitch & Sons' collection was a grand one, of even more sturdy growth, many of the varieties, particularly the red and scarlet, being the type of what a Gloxinia should be—being dwarf plants, and in some instances carrying dozens of flowers. Flambeau is splendid, also the scarlet Mrs. J. Donaldson, which is a perfect gem among Gloxinias. I had the pleasure of seeing these same plants last week at the Chelsea nursery, and could not but note the excellence of their cultivation, and the advance made in the past few years in habit, the set-up of the flowers, which come well above the leaves, their great substance, and these being erect, the colours of the interior are better seen than formerly. The blooms do not fall when their beauty wanes, but require to be taken off. This is a point of great importance, as formerly it was useless to grow these beautiful plants if they had to be shifted to houses at a distance; but now they can be removed without loss of flower, as was demonstrated at the Temple Show. These plants are frequently grown too warm, and shaded too much, and are better and dwarfer when given a fair amount of light in an intermediate-house. *G. Wythes, Syon House.*

NEW FIG ST. JOHN.—This new Fig, shown by Messrs. J. Veitch & Sons, Chelsea, at the Temple Show, will doubtless be a welcome addition to our list of good varieties. It is highly spoken of by the exhibitors, and the small bush in a small pot with a crop of nineteen fruits, proves it to be a free setter, and it is of fair size. One of its chief recommendations is the fine flavour of the fruit, which will soon appear at one of the Society meetings in a ripe state. Many good fruits often get passed over owing to their ripening at a date when their qualities cannot be tested at the Society's meetings; Melons often suffering from this cause—being either overripe or not sufficiently ripe. If St. Johns Fig could have been shown ripe it would have gained, what I think it deserved, a first-class certificate. It is very distinct in growth from other varieties, and will be valuable for pot cultivation, its free fruiting in a small size being in its favour. Fig trees which are not of rampant growth are always a consideration when fruit-houses are of small size, and especially when they fruit freely on the old wood, as does the St. Johns. The foliage is rather small, also an advantage, as more light will fall on the fruits than can occur with Figs having large leaves. The growth as seen was compact, but not weak and spreading, and no supports appeared to be required. *G. Wythes, Syon House.*

VEITCH'S MODEL BROCCOLI.—The worthy gardener at Sion House tells your readers, if this variety of Broccoli is sown at different times, it comes in at different seasons. This does not meet with my approval; because I believe, if sown in March, April, and May, it will all come in at the same time. Planting in north cold borders is the system which I advocate for very late heads. *R. Gilbert.*

TREATMENT OF BAMBOOS.—I would suggest planting Bamboos on their sides; layering them, in fact, leaving the leaves, or tops of the leafy shoots, only above the soil. As so treated, I find every joint of their stems throws out young shoots, and in this manner they may be very readily increased. Bamboos as planted thus horizontally, 2 or 3 inches below ground level, make well established clumps much more quickly than if planted erect in the usual way. *F. W. B.*

SNOWDROP DISEASE. — Last year (*Gardeners' Chronicle*, May 4, 1889) I reported the appearance of the Snowdrop disease in the gardens at Glamis Castle. The diseased clumps were carefully preserved by Mr. Whitton, with the view of ascertaining whether the bulbs had suffered from the presence of the fungus, Polyactis galanthina. The result has been very satisfactory. The bulbs have not been weakened, and no trace of the blight has been observed during the past season. *J. S.*

CHOU DE BURGHLEY.—I am a great admirer of the pithy articles penned by Mr. Markham in his departmental notes; still I cannot allow him to say, without a protest, that Chou de Burghley cracks its heart. I have grown it for many years, both early and late, but have never noticed one cracked, except in the spring, when it bursts and goes to seed. *R. Gilbert.*

ENGLISH-GROWN NARCISSUS AND OTHER BULBS.—As the season for "taking up" bulbs is fast approaching, I would remark that it has hitherto been considered by the British public that all bulbs to be good must come from Holland, but happily the English are fast gaining prestige in this matter—in fact, in many varieties it may be asserted at last England takes the premier position of the world. Take, for instance, English-grown N. Magni, N. Medii, or N. coronatus, and compare flower or bulb with those Dutch-grown, and it is palpable even to the uninitiated that ours are larger bulbs, although not so nice to look at—*i.e.*, they do not rise so clean out of the soil; but this, of course, is a secondary consideration. In ordering bulbs from Holland, the customer often omits to add the cost of carriage—another item of expense not charged for English-grown roots. It is to be hoped that my countrymen will henceforth encourage this branch of industry, there being no necessity whatever to order from abroad when we have so many clever gentlemen ("Quite English, you know,") connected with the trade, who can supply any variety in quantity, and who are willing to pay any reasonable amount (and sometimes unreasonable) for distinctly new varieties. The B. P. have only to peruse your valuable columns from September to December, and compare prices with Dutch catalogues and auctions, and I am sure they will see how beneficial to themselves it will be to encourage the home trade, bearing in mind that the bulbs are acclimatised, and are sent out carriage free. Whilst on this subject, it is strange to note that the locality where most bulbs are grown, and where they thrive of all places in in England the best, is the Holland division of Lincolnshire, where acres may be seen covered with a profusion of bloom. The London firms, I am glad to remark, extensively patronise these growers, often ordering upwards of 500,000 of a single variety, and I trust the time is fast drawing near when it will

not pay Dutch firms to appoint agents in England. These few remarks may call forth indignation and retaliation on the part of the foreigners, but I shall leave it to abler and more experienced hands to champion the cause. Apologising for occupying so much of your valuable space, *O. W. D'Alcorn, Spalding, Lincoln.*

AN ORNITHOLOGICAL OBJECT-LESSON.—When almost insane proposals are being made to destroy birds wholesale by poison or other means, I would invite attention to a charming object-lesson which was to be seen just beyond the window, by the side of which I now sit writing. Early in the spring, a large flower-pot having been used to cover a plant, was left close by, bottom upwards. Later, a bird was seen to issue from the hole of the pot, and on lifting the pot I found that a commencement had been made towards constructing a nest on the soil, covered by the pot. The builders proved to be that far from common bird, the Long-tailed Mousetit (Parus condatus). In time, having floored the whole of the soil within the pot with moss, hair, and other soft materials, a hollow was made in the ground, not just in the centre, but on one side, and this was lined with hair and wool, and also was so covered with the material, that search had to be made carefully before the nest was discovered. Presently, one egg, and then another, was laid, until about a dozen little whitish eggs, covered with brown spots, were deposited. Then the hen bird began sitting, and so tame was she, that when the pot was lifted off to show visitors the pretty sight, she sat still, and showed no fear. Finally, the eggs were hatched, and then began the labour of feeding. The titmouse is a voraciously insectivorous bird, and in feeding its nest of little ones for several weeks consumes myriads of caterpillars, and the object-lesson is found in the entrance and exit of the parent birds, apparently every minute, all day long, feeding the young. What these industrious birds are doing amongst the trees and bushes, literally millions of other birds are doing daily; and, but for their untiring labours, we might have hardly a green leaf left on the trees. I have grave doubts as to the value of insecticide poisons as compared with the labours of the small birds. *A. D.*

AN OLD VARIETY OF RHUBARB.—I have in cultivation the variety of Rhubarb mentioned in Loudon's *Gardeners' Magazine*, iv., 105, derived by me from my uncle's garden, Rev. T. Gisborne, named there. Can you tell me what it is now called, and to what species it belongs? It is a beautiful plant for tarts, for there are no woody fibres in the stalks, and therefore it has not to be peeled before it is used. Its colour, very dark scarlet, and its remarkable flavour render it a most acceptable plant. I have never seen it except in the late Mr. Gisborne's garden and my own. The want of woody fibres in the petioles seems to me very remarkable. Also what is the species to which the common cultivated Rhubarb belongs. I have found much difficulty in deciding these points. The red one seems to be undulatum; is the common green plant hybridum? *C. C. B.* [Rheum rhaponticum, or a variety of it. Rhubarb varies considerably when raised from seed. ED.]

VITALITY OF FERN SPORES.—In my work-room window a Palm has been growing from naked soil in a pot for four years; this spring a small Maidenhair Fern, and two other small Ferns have sprung from the soil; apparently from spores. *W. G. S.*

RAMONDIA PYRENIACA.—This species in very good here now in a pocket on the top of a 4-feet high wall, in partial shade, and bearing sixty fully open flowers and buds. Edelweiss, in full sunshine, is very silvery and bright, although our best plant is showing twenty flower-heads in partial shade. Indoors a Cattleya Warneri rivals the old C. labiata in size and colour, and Odontoglossum vexillarium, with nine spikes and about forty flowers, is fresh and beautiful. Iris susiana, in the open border, is fluttering its speckled wings in the sun, and a form of Iris sub-bifora (Brotero), from Mount Athos, has just flowered here for the first time. *F. W. Burbidge, Dublin.*

CHEIRANTHUS MARSHALLI.—Is not this fine and showy perennial in some danger of being lost to gardens? One occasionally sees plants of the pale-coloured C. ochroleucus, but very rarely C. Marshalli; and yet the last, from its depth of deep golden colour, is decidedly preferable to the paler type. It makes an excellent border plant, but prefers a fairly dry, open, and somewhat elevated position. I saw it stated a short time ago, that this showy perennial resulted from a cross made between the common Wallflower and an Alpine form. This is not correct; it came from a cross between C. ochroleucus and the annual Erysimum Peroffskianum, see *Gardeners' Chronicle*, August 28, 1875, p. 272, the latter, no doubt, being the seed parent, and if any one succeeds in obtaining seeds of C. Marshalli, it will be found that the seedlings very largely revert to E. Peroffskianum, and but very few are true to C. Marshalli. I have seen seedlings produced on several occasions with the same result. The best way of propagating C. Marshalli is to take cuttings in spring, putting them into pots of light sandy soil and rooting them under a handlight. Increase can also be had by dividing the plants in autumn, as it will be found that the side shoots put forth roots much as Pansies, Polyanthuses, &c., do, and if these are taken off, carefully potted, and kept in a frame for a time, they soon make good plants. But it would be a pity if this showy and useful plant were quite lost to gardens. *R. D.*

THE HARDY FRUIT GARDEN.

INSECTS AND ROOT WATERING.—Easterly winds, with scorching sun, have brought us quantities of aphis, as is commonly the case at this season. Prompt measures must be taken to ensure their destruction by the use of the hose and garden engine and soapsuds, clear water being applied afterwards with good force to clean off the dead. On light soils watering may now be necessary, but on heavy ones, if the ground was mulched, it will not be wanted. Peaches and Apricots need much water at this season, unless the drainage of the borders is imperfect. It should be remembered that one thorough watering is worth half-a-dozen driblets, especially to trees that have set a large quantity of fruit, and any stinting will lead certainly to excessive natural thinning of the fruit, and small size in what remains.

Summer Pruning.—By this time the disbudding of Peaches and Apricots will have been finished, and cutting in and stopping of gross shoots will require attention. It is a wrong supposition that trees trained on the extension system in its entirety are those which are chiefly liable to rush into too robust growth. My experience is, that it is rare to find watery shoots in a tree which requires pinching to maintain the proper balance of the sap. All leaders should be secured to the wall before they run the chance of injury from rain or wind. In gardens where the wall surface is great and labour limited, it is a great saving of time to fasten in the breastwood on wall trees with small twigs, pieces of Privet, or Willow, or even Bracken cut the previous autumn and dried. With these each shoot may be kept in its proper place by pushing the splints under the fastened branches. If the walls are wired, the work is more expeditiously performed. If portable copings have not been removed, frequent syringing of the trees will become necessary, also copious root waterings if the border be well drained. Pears on south and west walls, also the forwardest of the pyramids, will now be sufficiently advanced in growth to have the shoots stopped and thinned. Some years ago it was the practice to allow unrestricted growth of breastwood until the middle of the month of July, but now most good fruit growers constantly practice pinching of the stronger shoots, which invigorates the weaker ones, and leads to the formation of fruit-spurs; whereas July pruning produces a check, at the time when the half-swelled fruits are in the greatest need of encouragement. The early thinning of the fruits on Pear trees should not be done without thought, as many promising-looking fruits will fall off afterwards; heavily-cropped trees may, however, be relieved of some of their redundant fruits, by taking off those badly-formed.

Strawberries.—The plants, owing to the rainfall up to this date being much under the average, will need watering generally in light soils. Early varieties, such as Black Prince, Vicomtesse Héricart du Thury, &c., are all sure to suffer, unless they are kept growing freely. At this stage it is a good plan to water the soil with clear water, afterwards giving a soaking with manure-water. All plants are throwing up spikes in great abundance, and weak ones may be thinned out, regulating the matter according as the fruit is for show, private use, or, to be grown in quantity. *A. Evans, Lythe Hill.*

SOCIETIES.

ROYAL NATIONAL TULIP.

THE annual Exhibition of this Society took place on the last day of the great Whitsun Exhibition, a portion of the concert-hall being set apart for the purpose, but so large a number of exhibitors brought their flowers, that a considerable addition of table-room had to be made. The fixture appeared to exactly suit the Lancashire and Cheshire growers, and the Stockport men especially came in strong force. Mr. James Thurston, of Cardiff, a noted raiser and exhibitor of Tulips, said there had never before been such an exhibition of Tulips in Manchester. Exhibitors came in large numbers, and in some of the leading classes there were from ten and eleven to sixteen and seventeen entries.

In the class for twelve dissimilar Tulips, two feathered, and two flamed, in each class there were six competitors—an unusual number; and some of the exhibitors appeared to have experienced some difficulty in obtaining two feathered byblœmens, and in one or two cases they came perilously near to each other. A byblœmen that in its pencilling approaches a shade of rose, or a rose that has its colouring approaching black, are practically between the two classes, and serve to weaken a stand.

Turner Memorial Special Prizes.—Interest centred in the special prizes offered by the Turner Memorial trustees. The first was for twelve dissimilar named Tulips, six rectified and six breeders. There were four competitors, but one had to be disqualified, by reason of there being two byblœmen breeders the judges ruled were not dissimilar. In this class, Mr. Samuel Barlow, J.P., Stakehill House, Manchester, was 1st, with bizarres: feathered William Wilson, and flamed, Sir J. Paxton; roses: feathered, Modesty, and flamed, Mabel; byblœmens: feathered, William Parkinson, and flamed, Walker's Duchess of Sutherland. Breeders: bizarres, Sir J. Paxton and Hepworth's 27 A, a very beautiful bright red flower; roses, Annie McGregor, very bright, and Mrs. Barlow; and byblœmens, Glory of Stakehill and William Parkinson—a medium-sized, even, fresh, and bright stand of blooms. 2nd, Mr. F. H. Wood, Royton, with bizarres, Masterpiece, and flamed, Sir J. Paxton; roses: feathered, Heroine, and flamed, Mrs. Lomas, very fine; byblœmens: feathered, Mabel, and flamed, Talisman. Breeders: bizarres, Sir J. Paxton and Lord Delamere; roses, Miss Burdett Coutts and Annie McGregor; byblœmens, Alice Grey and Storer's No. 12.

The second class was for six dissimilar seedling Tulips, three rectified and three breeder. Here Mr. Barlow was again 1st, with bizarre-feathered Gill's seedling and flamed byblœmen Johnson's Bob Morley, and rose Miss Hardy (Hardy); his bizarre, rose, and byblœmen breeders being all seedlings raised by the late John Hepworth. Mr. James Thurston, Richmond Road, Cardiff, who had bizarred-feathered, rose flamed, and byblœmen flamed, and breeders, two bizarre and one byblœmen, all seedlings.

Rectified Tulips.—The cup class, as it is termed—that for twelve dissimilar Tulips, two feathered and two flamed of each class, brought six competitors. Mr. James Knowles, Stalybridge, being placed 1st with bizarres, feathered, Sovereign and Sir J. Paxton; flamed, Sir J. Paxton and Dr. Hardy; roses: feathered, Mrs. Hepworth and Conerby Castle; flamed, Amazon and Talisman; byblœmens: feathered, Heroine and Modesty; flamed, Triomphe Royale and May Tints. 2nd, Mr. W. Kitchen, with some capital flowers also, viz:—bizarres: feathered, Typo and Masterpiece; flamed, Typo and San Josef; roses: feathered, Minerva and Comte de Vergennes; flamed, Queen Henrietta and Mabel; byblœmens: feathered, Violet Amiable and Trip to Stockport; flamed, Adonis and Seedling.

Out of eleven competitors in the class for six dissimilar flowers, one of each class, Mr. D. Woolley, Stockport, was placed 1st with bizarres: feathered, Typo; and flamed, Sir J. Paxton; roses: feathered Mabel, and flamed Olivia; byblœmens: feathered, rose Triomphe Royale; and byblœmen, Talisman.

Maiden Growers.—Two flowers were required, one

feathered and one flamed. Here Mr. John Hayes was 1st, with a friz-feathered and flamed, but unnamed; 2nd, Mr. Samuel Johnson, Stamford, with bizarre flamed Sir J. Paxton, and byblœmen flamed Lord Frederick Cavendish.

Single Blooms.—These were staged in very large numbers, and the leading awards were as follows:—Bizarres, feathered, 1st, Mr. B. Simonite, Sheffield, with Masterpiece; 2nd, Mr. H. Housely, with Lord Lilford; 3rd, Mr. John Hayes, with Sir J. Paxton; bizarres, flamed, 1st, Mr. H. Housley, with Sir J. Paxton; 2nd, Mr. D. Woolley, with the same; 3rd, Messrs. Stuart & Mein with Dr. Harding: roses, feathered, 1st, Mr. John Hayes, with Industry; 2nd, Mr. W. Kitchen, with Comte de Vergennes; 3rd, Mr. Housley, with Alice, King of the Universe, and flamed Walker's Duchess of Sutherland; 2nd, Mr. W. Kitchen, with bizarres, feathered Paul Pry, and flamed San Josef; roses, feathered, Comte de Vergennes, and flamed Clio; byblœmens, feathered, Paul Pry, and flamed Seedling.

A similar class is also provided for half-guinea subscribers. Here Mr. H. Housley, Stockport, was 1st, with bizarres, feathered Lord Lilford, flamed Sir J. Paxton; roses, feathered Alice, flamed Annie McGregor; byblœmens, feathered Agnes, flamed Lord Denman. 2nd, Mr. R. Wolfenden, Royton.

Feathered Tulips.—The class for three varieties, one of each, brought a large competiton, Mr. Samuel Barlow being placed 1st, with admirable blooms of bizarre Sir J. Paxton, rose Annie McGregor, and by byblœmen Violet Amiable; 2nd, Mr. James Knowles, with bizarre Stover's Seedling, rose Industry, and byblœmen Conersby Castle.

Flamed Tulips.—There was a still larger competition in this class, and Mr. H. Housley was 1st, with bizarre Sir Joseph Paxton, rose Annie McGregor, and byblœmen Lord Denman; 2nd, Mr. Thomas Holden, Royton, with bizarre Sir J. Paxton, byblœmen Lord Denman, and a rose unnamed.

Roses, flamed.—1st, Mr. W. Kitchen, with Mabel; 2nd, with Madame de St. Arnaud.

Byblœmens, feathered.—1st, Mr. W. Dymock, Stockport, with King of the Universe; and 2nd, with a seedling.

Byblœmens, flamed.—1st, Messrs. Stuart & Mein, with Talisman; 2nd, Mr. D. Woolley, with the same.

There is a rule governing these classes, that the variety winning the 1st prize may win once again, with this exception all flowers awarded prizes must be dissimilar.

Breeder Tulips.—Great beauty and variety was manifested in breeder or seedling Tulips. Some of the bizarre breeders being of a bright rich red and scarlet shades; but many of them having shades of bronze and brown are somewhat dull-looking. The bright deep rose-coloured breeders, like Annie McGregor, are very beautiful and effective, the paler coloured tints like Mrs. Barlow, are not less winsome, and among the byblœmens there are charming tints of lilac and mauve, deepening to violet and purple. Occasionally a Tulip misses the breeder stage, and blooms for the first time a rectified flower. Some very promising seedlings bloomed this season by the Rev. F. D. Horner, never took on the breeder or self form.

The leading class was one for six dissimilar blooms, one of each. Here Mr. A. Moorhouse was 1st with bizarres, Sir J. Paxton and Dr. Hardy; roses, Miss Hindley and Mrs. Barlow; byblœmens, Leach's Seedling and Queen of May—all large and very fine. 2nd, Mr. Samuel Barlow, with bizarres, Sir J. Paxton and Hepworth's 27 A; roses, Annie McGregor and Miss B. Coutts; byblœmens, William Parkinson and Glory of Stakehill—a beautiful lot of flowers, but undersized. 3rd, Mr. W. Kitchen.

There were fifteen stands of three breeder Tulips, one of each class, and here Mr. J. Cliffe, Nesbitt House, Leeds, was 1st, with very fine blooms of bizarre, Hardwick's No. 28; rose, Queen of England; and byblœmen, Parker's King. 2nd, Mr. W. Kitchen, with bizarre, Sir J. Paxton; rose, Rose Hill's and byblœmen seedling. 3rd, Mr. A. Housley.

Premier Tulips.—The premier feathered bloom selected from the whole show was Masterpiece, from Mr. B. Simonite, pure rich golden ground, handsomely feathered with bronzy black. The premier flamed flower was Sir J. Paxton, shown by Mr. D. Woolley, one of the most constant and useful Tulips ever raised, whether in the breeder or rectified form; and one that will immortalise the raiser, William Wilson, for years to come. A bloom of this, shown by Mr. A. Moorhouse, was selected as the premier breeder; but the northern judges appear to have a great partiality for this flower, probably on account of its being so thoroughly reliable. *R. D.*

VARIORUM.

AGRICULTURAL RESEARCH ASSOCIATION.—Professor JAMIESON, the Director, has issued the following *Recommendation Circular for* 1890:—

MANURE.

For Roots.—2 cwt. per acre of steamed bone-flour, 2 do. ground coprolite, 2 do. slag, ½ do. nitrate of soda, ½ do. nitrate of potash, 15 tons farmyard manure.

For Grain Crop.—½ cwt. per acre of steamed bone-flour, 1 do. superphosphate, 1 do. nitrate of soda, ¼ do. nitrate of potash.

For Grass.—1 cwt. per acre of nitrate of soda, ¼ do. nitrate of potash, ½ do. superphosphate, ¼ do. steamed bone-flour.

Qualities of the above Manures.—The steamed bone-flour should contain about 12 per cent. phosphorus; the coprolite, 11 do. phosphorus; the slag, 6 do. phosphorus; the superphosphate, 6 do. phosphorus; the nitrate of soda, 15½ do. nitrogen; the nitrate of potash, 13 do. nitrogen and 36½ do. potassium. The steamed bone-flour should be nearly white, dusty, and almost as fine to the touch as Wheat-flour; the coprolite should be grey (not brown, yellow, nor red), and almost as fine to the touch as Wheat-flour; the slag should be brownish, and almost as fine to the touch as Wheat-flour. Each of these three forms of insoluble phosphate should be guaranteed that 90 per cent. passes through a sieve of seventy-five meshes to the inch. The superphosphate should be friable or powdery, and hardly adhere when grasped in the hand; the nitrate of soda should be pulverised, and passed through a ½-inch sieve; the nitrate of potash should be white, and in fine powder, like the finest table salt.

GRASS SEEDS.

		Lb. per Acre.
Perennial Rye		10½
Italian Rye		5½
Cocksfoot		2½
Meadow Fescue		3½
Tall Fescue		2
Dogstail		1½
Clover { English Red ... 3½ / Cow-grass ... 2 / White Clover ... 1 / Dutch ,, ... 1 / Yellow ,, ... 1 }		8½
		33

"Best, clean, pure seed" should be ordered, with guarantee of "proportion of germination," and "proportion of pure seed."

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending May 31, is furnished from the Meteorological Office:—

"The *weather* during this period has been generally fine over the greater part of England, but in Ireland and Scotland it has occasionally become unsettled and rainy. Smart thunderstorms were experienced over the south-west of England, and in some parts of Ireland, on the 25th. Showers of snow and hail occurred in the north of Scotland on the 30th.

"The *temperature* was high at the commencement of the week, when the maxima varied from 65° to 74° in Scotland, from 74° to 79° in Ireland, and from 69° to 81° over England. It soon fell, however, and became low for the time of year. During the latter part of the time the minima were unusually low. On the night of the 30th—31st, the sheltered thermometer fell to 29° in 'England, S.W.,' and 'Ireland, N.,' to 32° in the 'Midland Counties' and 'Ireland, S.,' and to between 33° and 35° in most other districts. In the 'Channel Islands' the lowest reading was 47°. The average value for the week has just equalled the mean in 'Ireland, S.,' but in all other districts it has been below, the deficit having ranged from 1 to 3°.

"The *rainfall* has been rather more than the mean in the Channel Islands, but in all other parts of the kingdom it has been less than the normal amount.

"*Bright sunshine* has been fairly prevalent in all districts excepting 'Scotland, N.' In that district the percentage of the possible duration was only 22, but over the greater part of England and Ireland the percentage ranged from 47 to 59, while in 'Scotland, W.,' 64 per cent. was recorded."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for week ending May 31.	Temperature. Accumulated. Above 42°, for the Week.	Temperature. Accumulated. Below 42°, for the Week.	Temperature. Accumulated. Above 42°, difference from Mean since Jan. 1, 1890.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	3 —	34	3	+ 129	— 70	1 —	102	19.8	22	27
2	2 —	50	3	+ 56	— 58	2 —	86	11.5	36	30
3	3 —	48	0	+ 25	— 93	2 —	74	8.1	35	28
4	3 —	65	0	+ 7	— 39	3 —	78	8.4	50	37
5	3 —	66	2	+ 8	— 26	3 —	72	8.6	55	32
6	1 —	84	0	+ 29	— 68	3 —	74	10.0	53	34
7	2 —	55	1	+ 79	— 73	2 —	90	19.0	64	32
8	3 —	63	0	+ 64	— 81	1 —	84	12.1	59	30
9	1 —	82	0	+ 27	+ 12	2 —	86	14.7	47	36
10	2	64	0	+ 32	— 55	1 —	95	12.0	59	33
11	0 av.	81	0	+ 21	— 14	2 —	98	18.2	49	35
12	1 —	84	0	+ 106	— 22	2 +	93	13.5	34	42

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, June 5.

A brisk business doing this week, but with heavy supplies prices remained unaltered. Strawberries are firm, but Grapes are with difficulty cleared at last week's quotations. Best Peaches in demand, samples being generally poor. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0	Foliage plants, various, each ...	... 2	0–10 0
Arum Lilies, per doz.	8 0	12 0	Fuchsia, per doz.	... 6	0–12 0
Aspidistria, doz.	...18 0	42 0	Heliotrope, per doz.	5 0	8 0
— speci. plants, each	7 6	10 6	Hydrangeas, doz.	...12	0–18 0
Azaleas, various, each	2 0	3 0	Ivy Geranium, p. doz.	3 0	6 0
Begonias, per doz.	6 0	18 0	Lilliums, various, per dozen ...	...18	0–36 0
Cactus, per doz.	...12	0–24 0	Lily of the Valley, p. doz. pots ...	...12	0–18 0
Calceolaria, p. doz.	6 0	9 0	Lobelia, per doz.	... 4	0– 6 0
Cyperus, per dozen	4 0	12 0	Marguerites, doz.	... 6	0–12 0
Dielytra, per doz.	9 0	12 0	Mignonette, per doz.	4 0	8 0
Dracæna terminalis, per dozen ...	...30	0–60 0	Musk, per dozen	2 0	4 0
— viridis, per doz.	12 0	24 0	Nasturtiums, p. doz.	4 0	6 0
Erica Cavendishii, per dozen ...	...18	0–48 0	Palms in var., each	2 6	21 0
— ventricosa, doz.	15 0	24 0	Pelargoniums, scarlet, per dozen	... 3	0– 6 0
Euonymus, in var., per dozen ...	... 6	0–18 0	— per doz.	... 9	0–18 0
Evergreens, in var., per dozen ...	... 6	0–24 0	Petunias, per doz.	... 4	0– 9 0
Ericas, various, doz.	8 0	24 0	Roses, various, doz.	12 0	24 0
Ferns, in var., doz.	4 0	18 0	— (Fairy), per doz.	8 0	10 0
Ficus elastica, each	1 6	7 0	Saxifrages, per doz.	18 0	24 0

*** Bedding plants in variety in boxes, and also in pots.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	... 1	6– 7 0	Peaches, dozen,	... 4	0–20 0
— Tasmanian, case	15	0–20 0	Pine-apples, St. Michael, each	... 2	0– 6 0
Grapes, lb.	... 1	6– 3 0	Strawberries, lb.	... 1	0– 4 0
Lemons, per case	... 12	0–20 0			
Melons, each	... 1	6– 3 6			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, per 100	...12 0- ...	Mustard and Cress, punnet ...	0 4- ...
Beans, French, lb. ...	2 0- ...	Onions, per bunch ...	0 5- ...
Beet, red, per dozen	1 0- 2 0	Parsley, per bunch...	0 6- ...
Carrots, per bunch...	0 6- ...	Rhubarb, per bundle	0 6- ...
Cauliflowers, each ...	0 3- ...	Seakale, punnet ...	2 0- ...
Celery, per bundle ...	1 6- 2 0	Shallots, per lb. ...	0 6- ...
Cucumbers, each ...	1 0- 1 6	Spinach, per bushel...	6 0- ...
Endive, per dozen ...	2 0- ...	Sprue, per bundle ...	1 6- ...
Herbs, per bunch ...	0 4- ...	Brussel Sprouts, pr lb.	0 3- ...
Leeks, per bunch ...	0 3- ...	Tomatos, per lb. ...	1 0- ...
Lettuces, per dozen...	1 6- ...	Turnips, per bunch, new	0 4- ...
Mushrooms, punnet	1 6- ...		

POTATOS.—Jerseys, 11s. to 13s.; Maltas, kidneys, 10s. to 15s.; rounds, 10s. to 13s.; Canaries, 10s. to 14s.; Lisbons, 7s. 6d. to 8s. 6d.; Cornish, 12s. to 13s. Markets dull. Old Potatos quiet. *J. B. Thomas.*

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilons, 12 bun. ...	2 0- 4 0	Marguerites, 12 bun.	3 0- 6 0
Azaleas, doz. sprays	1 0- 1 0	Pelargoniums, scarlet, 12 spr.	0 4- 0 6
Bouvardias, per bun.	0 6- 1 0	— dozen sprays...	0 6- 1 0
Calla æthiopica, 12 bl.	3 0- 5 0	Primulas, double, 12 sprays	1 0- 1 6
Carnations, 12 blms.	1 0- 2 0	Pæonies, 12 bunches	6 0-18 0
Cornflower, 12 bun. .	2 0- 4 0	Pansy, or Heartsease, 12 bunches ...	1 0- 2 0
Eucharis, per dozen	4 0- 6 0	Poppies, various, doz. bunches	1 6- 6 0
Gardenias, 12 blooms	1 6- 3 0	Pyrethrum, 12 bun.	3 0- 6 0
Iris, various, 12 bun.	6 0-18 0	Roses, Tea, per doz.	0 6- 1 6
Ixia, doz. bunches ...	3 0- 6 0	— coloured, dozen.	2 0- 4 0
Heliotropes, 12 spr.	0 6- 1 0	— French, doz. ...	1 0- 2 0
Lilac, white, Fr., bun.	4 0- 6 0	— red, per dozen ...	2 0- 4 0
Lilium, var., 12 bl....	0 6- 4 0	— Safrano, dozen...	1 0- 2 0
Lily of the Valley, per doz. bunches...	8 0-12 0	— outdoor, 12 bun.	6 0-12 0
Maiden Hair Fern, do.	4 0- 9 0	Ranunculus, 12 bun.	3 0- 4 0
Mignonette, 12 bun.	2 0- 4 0	Spirea, doz. sprays...	0 6- 1 0
— French, per bun.	1 6- 2 0	Stephanotis, 12 spr.	1 6- 3 0
Myosotis or Forget-me-nots, 12 bun. ...	2 0- 4 0	Tuberoses, 12 blms....	0 6- 1 0
Narcissus, various, doz. bun.	1 6- 6 0		

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *June* 4.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, write that to-day's market, as might have been expected, was most sparsely attended, with almost a complete absence of business. No attention whatever is just now devoted to Cloverseeds. A few parcels of Trefoil have been changing hands. There is still a demand for sowing Tares. Blue Peas firm. Birdseeds unaltered. Feeding Linseed slow. Rapeseed and Mustard steady.

CORN.

Averages.—Official statement of the average price of British corn, imperial measure, for the week ending May 31:—Wheat, 32*s.* 11*d.*; Barley, 29*s.* 5*d.*; Oats, 19*s.* 10*d.* For the corresponding period last year:—Wheat, 29*s.*; Barley, 21*s.* 2*d.*; Oats, 18*s.* 1*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *June* 4.—Good supplies of fresh vegetables, new and old Potatos, demand fairly active. Short supply of fruit, demand good. Prices: Cabbages, 1*s.* 6*d.* to 5*s.* per tally; Cauliflowers, 2*s.* 6*d.* to 6*s.* do.; Radishes, 3*s.* to 5*s.* 6*d.* do.; Spinach, 1*s.* to 1*s.* 6*d.* per bushel; Asparagus, 1*s.* to 2*s.* per bundle of 100 heads; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Greens, 1*s.* 6*d.* to 2*s.* per dozen bunches; spring Onions, 1*s.* 6*d.* to 2*s.* do.; Parsley, 1*s.* to 2*s.* 6*d.* do.; Mint, 2*s.* to 2*s.* 6*d.* do.; Horseradish, 1*s.* to 1*s.* 4*d.* per bundle; Cos Lettuces, 6*d.* to 1*s.* per score; Cabbage do., 6*d.* to 1*s.* per dozen; Endive, 1*s.* to 1*s.* 6*d.* do.; Mustard and Cress 1*s.* 6*d.* to 2*s.* per dozen baskets; Egyptian Onions, 7*s.* to 7*s.* 6*d.* per cwt.; Beetroots, 4*d.* to 8*d.* per dozen; natural Rhubarb, 1*s.* 6*d.* to 2*s.* 6*d.* per dozen bundles; foreign Tomatos, 2*s.* to 3*s.* per box; Gooseberries, 4*s.* 6*d.* to 5*s.* 6*d.* per half-sieve.

POTATOS.

BOROUGH AND SPITALFIELDS: *June* 3.—Scotch Regents, 35*s.* to 45*s.*; Magnums, black, 37*s.* 6*d.* to 40*s.*; Lincolns, 40*s.* to 60*s.*; Yorks, 55*s.* to 75*s.*; Kent and Essex, 50*s.* to 55*s.*; Scotch, 70*s.* to 110*s.*; Imperators, 40*s.* to 70*s.*; New: Malta and Canary Islands, £8 to £11; Jersey, £10 to £12 per ton.

SPITALFIELDS: *June* 4.—Quotations: — New: Jersey rounds, 6*s.* to 6*s.* 6*d.* per cwt.; do. kidneys, 7*s.* to 7*s.* 6*d.*; do. flukes, 8*s.* to 9*s.*; St. Malo rounds, 6*s.* to 6*s.* 6*d.*; do. kidneys, 7*s.* to 8*s.*; Lisbon rounds, 5*s.* to 5*s.* 6*d.* per cwt. Old: Magnums, 35*s.* to 70*s.*; Regents, 35*s.* to 70*s.*; Champions, 40*s.* to 50*s.*; Imperators, 40*s.* to 75*s.*; Hebrons, 30*s.* to 40*s.* per ton.

NOTICES TO CORRESPONDENTS.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are solicited.

ADDRESS: *E. N.*, who sent a note about Pelargonium seeding, must send his full name and address, not necessarily for publication, but as an earnest of good faith.

ANTHURIUMS DOUBLE-SPATHED: *F. H.* Yes, there have been many such. Petals of Anthurium are exceedingly minute.

BAMBUSA PALMATA: *B. Latour Marliac.* The plant figured by Mr. Burbidge in our number for May 24, p. 641, under this name, is the Arundinaria Veitchii of N. E. Brown, *Gardeners' Chronicle*, April 27, 1889, p. 521. It is also the Bambusa Veitchii, of Carrière, in *Revue Horticole*, 1888, p. 90.

BEGONIA SEMPERFLORENS ALBA: *F. H.* Yes, obtainable at most nurseries. There are several varieties—carminea, gigantea and rosea, and there may be one of these with variegated foliage.

BOOKS: *D. Croll.* The list appeared in our issue for January 4, p. 13.

COST OF COMMENCING BUSINESS WITH GLASSHOUSES: *Flos.* We are quite unable to answer your question in the absence of all details.

FASCIATION: *B.* This is probably due to overgrowth from a too large supply of food. The consequence of this is that an abnormal number of buds is formed. These are carried up by the growth of the primary shoot, but do not, except to a relatively small extent, separate one from the other, or lengthen into shoots.

GROWTH ON ORCHID PEAT: *Camjee.* We cannot ascertain what it is. Send some more, packing it in some moist medium.

INSECTS: *Old Subscriber.* The grubs sent are those of a weevil.

LEARNING TO PRUNE FRUITS: *Flos.* The matter is not so simple as you may suppose, and to learn it properly you should take lessons in the particular branch you wish to master from a gardener who is a master of the art. M. du Breuils' *Fruit Trees*, from the French (Lockwood & Co., 7, Stationers' Hall Court, Ludgate Hill), would be of considerable assistance.

MELON LEAVES OUT OF CONDITION: *J. S.* We can detect neither fungus or insect work on the leaves sent; the faint, pallid, wavish spots are, perhaps, mere scorchings, or they may be caused by some error in treatment, or by something wrong at, or in, the roots. It too often happens that the mere sending leaves to us for an explanation of ill-health, is like sending a lock of a dying man's hair to a doctor, with a request for the name of the ailment the man is afflicted with.

NAMES OF PLANTS: *F. B.* 1, Centaurea montana, white form; 2, Olearia Gunniana; 3, Hemerocallis flava; 4, Barbarea vulgaris, double flower; 5, Lupinus polyphyllus; 6, Lupinus, white var.—*Southampton.* Aguga reptans, Bugle.—*Young Florist.* Asphodelus ramosus.—*Berbados.* Very near Oncidium sarcodes, but uncertain if it be a new species, or a peculiar and distinct variety. Please send when it flowers again.—*A. Z.* Metrosideros robusta.—*J. W. B.* 1, Photinia; 2, Lonicera hirsuta; 3, Cytisus Adami×, a cross between C. purpureus and C. Laburnum; 4, Berberis vulgaris, purple-leaved variety; 5, Polygala vulgaris; 6, Geum rivale.—*A. C.* Phytolacca decandra.—*A. H. H.* Dendrobium lituiflorum.—*Camjee.* Dendrobium mesochlorum; Epidendrum varicosum.—*W. H.* Buddleia globosa.—*Thos. Evans.* 4, C. Mendelii, a very fine form, with richly-coloured lip; 6, also good—both these beyond the average; 5, ordinary light coloured; 7, a fairly good Mossiæ; 8, large-flowered form, with prettily-mottled lip.—*W. T. S.* 1, Habenaria viridis; 2, Orchis pyramidalis; 3, Stachys sylvatica; 4, Senecio, no flowers; 5, Œnanthe crocata; 6, Hippocrepis comosa; 7, Ranunculus arvensis.—*Captain X.* Saxifraga Maweana; Orobus luteus; Lithospermum purpureo cœruleum.—*W. S. C. P.* 1, Iris spuria; 2, Iris Gueldenstœdtii; 3, Eremurus caucasicus, 4, Biscutella lævigata; 5, Saxifraga rotundifolia; 6, Senecio squalidus.—*G. Paul.* Orchis ustulata.—*L. G., Rugby.* Asphodelus ramosus.—*No name with specimens* 1, Saxifraga Andrewsii; 2, S. cuneifolia; 3, Veronica dentata; 4, Cerastium tomentosum; 5, Sedum Sieboldi; 6, Sedum rupestre; 7, Saxifraga hypnoides.—*H. G.* 1, Oncidium hastatum, a fair variety, tolerably common in gardens as O. stelligerum; 2, Dendrobium Wardianum; 3, Cattleya Forbesii. *H. King.* Lælia Boothiana (syn. Cattleya lobata); it is a very fine variety, but we do not know if the name rosea has been applied.—*George.* Thunia Marshalliana.—*O. Orpet.* 1, Aërides crispum; 2, Dendrobium lasioglossum.—*C. Stewart.* Your Cattleya gigas is, as you suggest, a remarkably fine variety.—*F. Briggs.* 1, Miltonia vexillaria; 2, Trachelospermum jasminoides; 3, Odontoglossum Rossi majus; 4, Onychium japonicum; 5, Gymnogramma ochracea.—*Carnation.* The Fern is Pteris argyrea. We cannot undertake to name florists' varieties of flowers.—*J. L.* Asphodelus ramosus. The other specimen is a Kale, or something of that kind.—*J. N., Jersey.* 1, Picea orientalis, probably, but we cannot be sure from the piece sent; 2, Sequoia gigantea (Wellingtonia); 3, Ilex (Holly), perhaps latifolius; 4, Pinus pinaster; 5, Pittosporum Tobira; 6, Prunus Padus; 7, Eucalyptus globulus.—*L. L.* 1, Iris versicolor; 2, Oxyria reniformis; 3, Rubus nutkaensis; 4, Anemone narcissiflora.

PARIS GREEN: *J. C.* Paris Green is arsenite of copper, and is applied when mixed with water. Wa should not advise its use on Cabbages.

PELARGONIUM HARRY HIE-OVER: *F. H.* Is a dwarf single-flowered variety, now not much employed. We have no knowledge of a double one.

PHLOX FRONDOSA: *C. W. D.* The only references I can find for Phlox frondosa are in Vilmorin-Andrieux, *Fleurs de Pleine Terre*, p. 866, where it is merely quoted, "P. frondosa, Hort.," as a synonym of P. subulata, L.; and in Nicholson's Dictionary, where it is considered to be a distinct variety of P. subulata. There are no specimens named P. frondosa in the Herbarium. *N. E. B.*

POTATO: *A. P.* The example forwarded to us is putrid throughout. Such a state of things is common where Potatos at first slightly diseased have been stored. The seed, as you say, may have been bad, but no nurseryman would knowingly send out bad seed. *W. G. S.*

STRAWBERRY CLUMPS: *Young Gardener.* It will be the fourth year of their age in 1891, and Strawberries are usually less prolific—at least, of large fruits—at that age, than young plants. There is no reason to suppose that the plants, if carefully removed with a good mass of soil to each, would not succeed when planted in a bed in the low house; but young plants raised from the earliest runners, would give more and better fruit.

STRAWBERRY AUGUSTE NICAISE: *G. Wythes.* The fruits were well developed, indeed some were very large, and the flavour good for indoor fruit. As a variety for mid-season and late forcing, it is excellent.

SULPHATE OF COPPER FOR VINES: *H. C.* See p. 713 of this issue.

TOMATOS FLAGGING: *G. Restall.* Injury to the stem or main roots by weevils, moles, mice, or too strong manure, especially artificial ones, may be the causes; but as you do not furnish us with the least bit of information, we are unable to assist you further.

WARTS ON VINES: *C.* These are outgrowths from the surface of the leaf, resulting from a want of adjustment between the amount of moisture supplied and the quantity that can be evaporated from the leaves; in other words, from a moist, stuffy atmosphere. The remedy is, to give more air.

CATALOGUES RECEIVED.

EDEY & SON, Steam Joinery Works, St. Neots, Hunts—Hives and Bee Furniture.

HEINRICH STRAUSS, Cologne, Germany—Orchids and Seedling Palms.

WILLIAM BULL, 536, King's Road, Chelsea, London, S.W.—New and Rare Plants.

COMMUNICATIONS RECEIVED.—Herr Max Leichtlin (with many thanks).—H. E., Vichy.—Professor Oudemanns, Amsterdam.—Professor E., Berlin.—W. W. & Sons.—A. McK.—W. R.—B. F.—F. W. B.—Messrs. Clibran.—D. H. S.—R. B. & Co.—W. N. White & Co.—J. Stevenson.—Sutton & Sons.—E. C.—T. Whillans.—B. S. Williams & Son.—C. T. Druery.—H. T. S.—J. W.—W. C.—R. A. R.—N. E. B.—Visitor.—J. O'B.—F. R.—J. S.—Wild Rose.—H. E.—Forestry.

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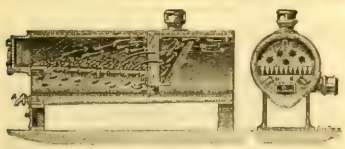
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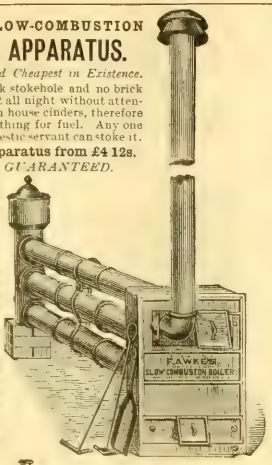
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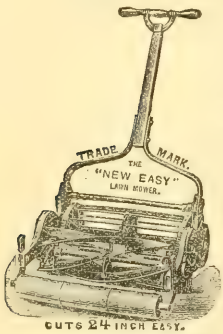
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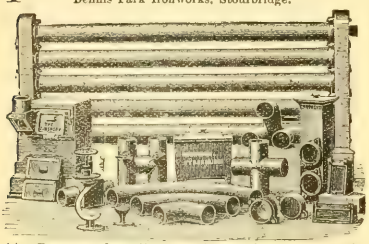
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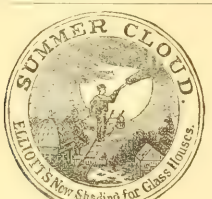
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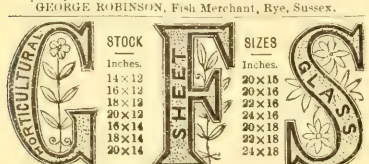


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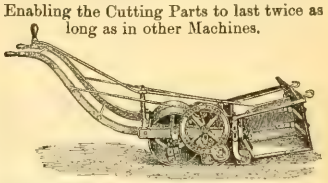
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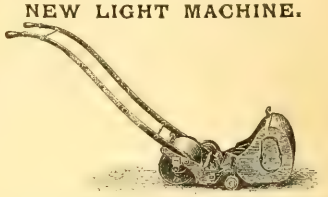
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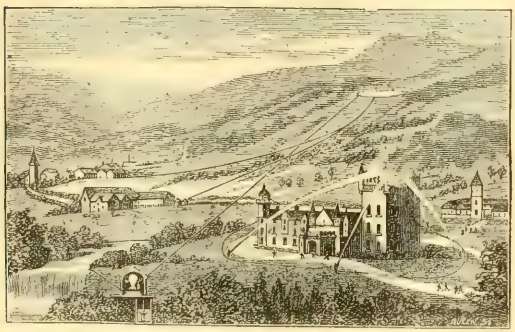
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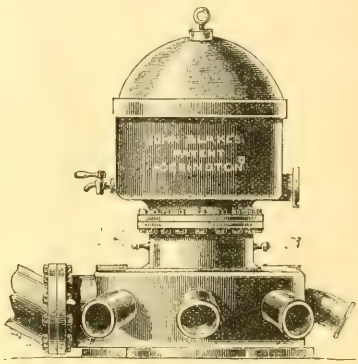
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His Grace the Duke of Devonshire.
His Grace the Duke of Westminster.
His Grace the Duke of Cleveland.
His Grace the Duke of Portland.
His Grace the Duke of Sutherland.
His Grace the Duke of Leeds.
The Most Hon. the Marquess of Ripon.
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Lieut.-Colonel Loyd, Lillesden, Hawkhurst.
Colonel Mitford, Mitford Castle, Northumberland.
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Colonel France-Hayhurst, Davenham Hall, Northwich.
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Captain Townshend, Wyreham.
Captain Bosanquet, Broom-y-Close, near Ross.
Messrs. The Lancashire and Yorkshire Railway Company.
Henry Sandbach, Esq., Hafodunas, Abergele.

JOHN BLAKE, HYDRAULIC ENGINEER, ACCRINGTON, LANCASHIRE.

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

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THE GARDENERS' CHRONICLE, Vol. VI., Third Series, JULY to DEC., 1889.
W. RICHARDS, 11, Wellington Street, Strand, W.C.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $4.30 for Twelve Months.
Agent for America:—E. H. LIBBY, Manager, "The American Garden," 70, Spruce Street, New York, to whom American Orders may be sent.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.
FLORAL PARADE and FEAST of FLOWERS, THURSDAY, June 26. Those wishing to take part in the Parade are requested to send their entries to the Secretary as soon as possible to ensure a good position in the procession. Schedules of Prizes, Entry Papers, and all information, to be obtained at the Office in the Gardens.

CRYSTAL PALACE.
SATURDAY, July 5.
THE NATIONAL ROSE SOCIETY'S GRAND EXHIBITION OF ROSES.
Intending Exhibitors must give notice in writing of the Classes in which they intend to Exhibit to the Hon. Secretaries, National Rose Society, Crystal Palace, S.E., on or before Tuesday, July 1.

ROYAL AQUARIUM, Westminster.
GREAT ROSE SHOW and FÊTE,
also
EXHIBITION NATIONAL PINK SOCIETY,
and
CONFERENCE BRITISH FRUIT GROWERS' ASSOCIATION, on JUNE 27 and 28. Schedules and all particulars of
Mr. WILLIAM HOLMES.
Frampton Park Nurseries, Hackney, London, N.E.

TWICKENHAM HORTICULTURAL and COTTAGE GARDEN SOCIETY.
The ANNUAL SUMMER SHOW will be held on WEDNESDAY, July 2, in the Grounds of Orleans House, by kind permission of W. Cunard, Esq. Entries must be forwarded not later than Friday, June 27, to the Hon. Secs., of whom all particulars may be had on application.
JAMES J. G. PUGH, Hon. Sec.
2, Heath Road, Twickenham.

PRIMULAS—PRIMULAS—PRIMULAS.—Twenty-first year of distribution. Williams' Superb Strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, same price; also double white PRIMULAS, 6d. each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

NOTICE.—The AMERICAN PLANTS at Knap Hill are now in bloom, and may be seen daily—Sundays excepted.
The Nursery is readily reached by train to Woking Station. The RHODODENDRONS and AZALEAS in Rotten Row are supplied by ANTHONY WATERER,
Knap Hill Nursery, Woking, Surrey.

New Catalogue for 1890, just published, price 1s.
MR. WILLIAM BULL'S Illustrated and Descriptive CATALOGUE of ORCHIDS, and NEW and RARE PLANTS.
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free. P. MCARTHUR, The London Nursery, 4, Manda Vale, London, W.

FOR SALE, CHEAP, Large Specimen Exhibition Plants, ERICAS MARNOCKIANA, JACKSONII, TURNBULLII, RETORTA, &c., 5 feet through; ALOES, YUCCAS, CAMELLIAS, PALMS, &c. Price, and full particulars, from
J. B. YOUNG, Bridge of Allan.

CLEARANCE SALE of BULBS, at Reduced Prices, for present planting, to bloom in Autumn. Gladioli, Anemones, Ranunculus, Tigridias, Tuberoses, &c., all in fine condition. Price LIST, free on application, to
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To the Trade.
FERNS!—FERNS!!—FERNS!!!—In twenty most saleable kinds—Adiantums, Polypodiums, Cyrtomiums, Pteris, &c. Adiantum cuneatum, large stuff, ready to pot at once in 5-inch pots, 18s. and 24s. per 100; Pteris cretica cristata, and a few other kinds, from stores, 6s. per 100, 50s. per 1000.—J. SMITH, London Fern Nurseries, Loughborough Road, Brixton, S.W.

TO ORCHID GROWERS.—SPHAGNUM MOSS, fresh and clean, 5s. per sack. Collected as ordered.—G. CARRADICE, Monument Place, Kendal.

HENRY SQUELCH, North Row, Covent Garden, FRUIT SALESMAN and COMMISSION AGENT, Importer of Bananas, and all kinds of Madeira and Canary Island Produce.
H. SQUELCH is open to RECEIVE CONSIGNMENTS of CHOICE BLACK GRAPES, MUSCATS, TOMATOS, CUCUMBERS, PEACHES, and all kinds of Hothouse Produce.
H. SQUELCH'S connection is amongst the best business houses in the United Kingdom, and he gives personal attention to all consignments. Account of Sales forwarded day of Sale. Cheques weekly or as desired. Empties and Labels supplied. Bankers, London and County Bank. Warehouses and Banana House, James Street, Covent Garden, W.C.

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26, Russell Court, Catherine Street, Strand, London, W.C.

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GARDENERS' CHRONICLE.—Any Vols. or Numbers between 1856 and 1874. WANTED TO BUY. Address, CHILCOTT, 60, Stanhope St., Newcastle St., W.C.

Sow in June.
SUTTON'S PRIZE GLOXINIAS.—The strain which attracted so much attention and admiration at the Royal Horticultural Society's Show in the Temple Gardens, May 28 and 29, 1890, and awarded the Society's Silver-gilt Flora Medal. The *St. James's Gazette*, May 29, said:—"The noble show of Gloxinias of Messrs. Sutton & Sons, of Reading, must be noted. If it were a question of beauty only, no Orchid surpasses these superb plants as Messrs. Sutton have developed them. They are perfect in form and splendid in colour." Price of seed 2s. 6d. and 5s. per packet, post-free. SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, Reading.

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JOHN LAING AND SONS, Nurseries, Forest Hill, S.E.

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Both extra strong.
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CHOICE DAHLIAS.—12 New Cactus Dahlias, including Prince of Wales, Prince Albert Victor, Lady Brassey, Lady Marsham, Black Knight, Our Leader, for 6s.; also 100 of the best exhibition sorts of Show, Fancy, Pompons, and Singles, true to name, from 3-inch pots, sample dozen for 2s. 6d. Packing free for cash with order.
CHARLES COLEBROOK, Royal Nurseries, Grimsby.

GRAND NEW COLEUS, "DUCHESSE OF FIFE."
First-class Certificate (Reading Horticultural Society). A fine new and distinct variety. The habit is wonderfully sturdy and compact. The leaves are deeply notched at the edges. The colour is bright scarlet shaded with deep crimson, the edges are narrowly lined with pale green. This is without doubt an excellent variety, and when known is sure to become a general favourite. Plants 3s. 6d. each (ready in May). Post and package free for Cash with Order only. Sent out by the raiser,
G. PHIPPEN, F.R.H.S., Nurseryman and Florist, Reading.

SAMUEL SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire, begs to offer the following, of which he has made a specialty for the last twenty-six years:—
PRIMULAS: PRIMULAS: and CINERARIAS, finest possible strains, the latest new colours and improved forms as sold in Covent Garden. Good Plants for next autumn and winter blooming, 1s. 6d. per dozen, 10s. per 100; extra strong selected, 2s. per dozen, 12s. per 100.
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T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2 and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
T. JANNOCH, Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

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The most complete and exhaustive Treatise on Grapes and their Culture ever published.
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To the Trade.
ELEPHANT and MONARCH SWEDES.—We have a good stock of these splendid sorts at moderate prices.—HARRISON AND SONS, Seed Growers, Leicester.

THOMSON'S IMPROVED VINE and PLANT MANURE. This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney
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SALES BY AUCTION.

Wednesday Next.

A quantity of Japanese MAPLES and other Plants, from Japan; FERNS, PALMS, TUBEROSES, TIGRIDIA GRANDIFLORA.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, June 18, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Friday Next.

1000 ONCIDIUM TIGRINUM, ODONTOGLOSSUM INSLEAYI LEOPARDINUM, and 200 lots of Established ORCHIDS, by order of J. Larkin, Esq., who is changing his residence, including Cattleya Mossiæ, C. Dowiana, C. gigas, C. Mendelii; Aërides and Saccolabiums in variety, Cypripediums, Odontoglossum vexillarium, Sobralia xantholeuca, Calanthes, Angulоas, Miltonias, Dendrobiums, fine specimens of Lælia purpurata, Angræcum Leonis, and many other fine plants. Also a quantity of ORCHIDS in Flower, and about 200 Green TREE FROGS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 20, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

The Celebrated Studley House Collection
of ESTABLISHED ORCHIDS.
Absolutely without reserve.

HIGHLY IMPORTANT SALE of the FIRST PORTION of this renowned COLLECTION, the whole being remarkable for splendid culture and condition, and including a great proportion of plants matchless in point of rarity, by order of F. G. Tautz, Esq., who is compelled to relinquish their cultivation in consequence of a change of residence.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, June 24 and 25, at half-past 12 o'Clock precisely each day, the FIRST PORTION of this SUPERB COLLECTION. Amongst the many fine things included in the First Sale, the following may be specially mentioned:—

Cypripedium cenanthum superbum	Cypripedium Bosserianum
,, Amesianum	Lælia elegans Blenheimensis
,, Crossianum Tautzianum	,, ,, Studleyana
,, Measuresianum	,, callistoglossa
,, Arthurianum	,, elegans Morreniana
,, leucorrhodum	,, ,, Measuresiana
,, Morganiæ	,, ,, stelzneriana
,, platyrenum	Cattleya Percivaliana alba
,, Lathamianum	,, Mendelii gloriosa
,, De Witt Smith	,, Reineckiana
,, porphyrochlamys	,, Fausta delicata
,, Wallacrianum	,, Gaskelliana alba
,, Laforcadei	,, Trianæ Empress
,, macropterum	,, Wagneri
,, concolor Tongkiensis	,, Mendelii Studleyana
,, Marshallianum	,, ,, Wallacei
,, vexillarium	,, ,, Wilsoni
,, Leeanum superbum	,, Loddigesi candida
,, pycnopterum	Odontoglossum vexillarium Measuresianum
,, Saundersianum	,, Insleayi splendens aurea
,, Winnianum	,, vexillarium superbum
,, Tautzianum	,, triumphans album
,, tonsum superbum	,, Pescatorei melanocentron
,, micranthum	
,, Mrs. Charles Canham	
,, Charles Canham	Dendrobium rhodostoma
,, selligerum majus	,, nobile Cooksoni
,, dilectum	,, ,, album
,, villosum aureum	Dendrochilum filiforme

N.B.—The whole of the Plants will be submitted to the hammer, and in no case will any plant be sold privately. The Catalogue is now in course of preparation, and will be ready in a few days, when copies will be forwarded on application.

Brunswick Nursery, Tottenham.
Expiration of Lease. First Portion.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, on the Premises, The Brunswick Nursery, Tottenham, N., close to the White Hart Lane Station, G. E. R., on THURSDAY, June 26, at 12 o'Clock, the erection of ten GREENHOUSES and ten PITS, with the Hot-water Piping, Boilers, and Brickwork; 120 moveable Lights; also a large quantity of Stove and Greenhouse Plants, Ferns, Chrysanthemums, Ampelopsis Veitchii, &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Brunswick Nursery, Enfield Highway; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

On Wednesday Next.—Ashford, Middlesex.

FRUIT FARMS, MARKET GARDEN, and ACCOMMODATION LANDS, in Lots to suit Small Capitalists and Investors, the purchase-money being payable by instalments extending over nine years; 73 acres of important Freehold Land, having the extensive frontage of 2564 feet to the main road from Ashford to Feltham; one mile distant only from Ashford Station on the London and South Western Railway, and 17 miles from London, thus being within easy reach of the metropolitan markets. The land is situate in a popular residential locality, and the nature of the soil renders it peculiarly adapted to the Cultivation of Fruit, Flowers, and Vegetables, an industry extensively carried on in this neighbourhood. The present Sale therefore, affords an opportunity for Purchasing Small Freeholds in a proverbially healthy locality, and developing the combined advantages of residence with a lucrative, pleasant, and refined occupation. With possession on completion of purchase.

MESSRS. HUMBERT, SON AND FLINT are instructed to SELL the above by AUCTION, at the Mart, Tokenhouse Yard, E.C., on WEDNESDAY NEXT, June 18, 1890, at 2 o'Clock precisely, in numerous Lots.

Full particulars may be had of Messrs. R. S. TAYLOR, SON AND HUMBERT, Solicitors, 4, Field Court, Gray's Inn, W.C.; at the Mart, E.C.; and of the Auctioneers, 11, Serle Street, Lincoln's Inn, W.C., and Watford, Herts.

Thursday, June 26.
ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 26, at half-past 12 o'Clock precisely, a fine lot of ESTABLISHED ORCHIDS, chiefly in Flower and Bud, from various collections.

Gentlemen desirous of ENTERING PLANTS for this SALE will please SEND PARTICULARS NOT LATER THAN THURSDAY NEXT.

Thursday, June 26.

94,000 fresh SEEDS of KENTIA FOSTERIANA just received direct, in fine order.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 26.

On view morning of Sale, and Catalogues had.

Manchester.—Thursday, June 19.

IMPORTANT SALE of exceedingly choice ORCHIDACEOUS PLANTS, numbering 700 lots, a large portion in flower, and the whole in exceptionally fine condition, comprising Burlingtonia decora, Bulbophyllum species, Cattleya Bowringiana, Gaskelliana, Leopoldii, Mendelii Duchess of Marlborough, Mendelii Duke of Marlborough, Schilleriana and Warnerii; Cœlogyne barbata, cristata, elata, Massangeana, pandurata, and Sanderiana; Cypripedium Dayanum, grande, hirsutissimum, Lawrenceanum, Pearcei, Schroderi, selligerum majus, Sedeni candidulum, and Warnerii; Calanthe vestita oculata gigantea; Dendrobium aggregatum majus, Brymerianum, crassinode, Dearei, Falconerii, Jamesianum, Jenkensii, and Wardianum; Epidendrum leucochilum, macrochilum, nemorale, rhizophorum, stamfordianum, and Wallisii; Lælia anceps alba, anceps stella, and purpurata; Masdevallia Harryana; Maxillaria grandiflora and venusta; Mormodes luxatum eburneum, Odontoglossum Alexandræ, crispum, citrosmum; grande, nebulosum, Pescatorei, pulchellum majus, and vexillarium; Oncidium alta violaceum, Marshallianum, ingratum, stelligerum, sphacelatum, and varicosum Rogersii; Schomburgkia tibicinus, Trichopilia suavis, and Vanda teres, including many grand plants and mosses.

MESSRS. ARTINGSTALL AND HIND beg to give notice that they have been honoured with peremptory instructions from his Grace the Duke of Marlborough, in order to make room for other flowering plants, to remove from Blenheim Gardens, Woodstock, and SELL by AUCTION, on THURSDAY, June 19, 1890, at the commodious Exchange Rooms, Market Place, Manchester, a Portion of his Very Costly and Rare Collection of Established ORCHIDS.

May be viewed from 10 to 5 o'Clock on the day prior to Sale. Catalogues are now ready and may be obtained, together with further particulars, on application, personally or by post, from the Auctioneers, 15, Princess Street, Manchester.

Cut Flowers, Plants, and Bulbs.

We hold Sales, several each week. Reference to senders of years standing. Particulars on application

MESSRS. POPE AND SONS, Sale Rooms, 6, Phillip Street, adjoining Market Hall, Birmingham.

FOR DISPOSAL, a NURSERY. A fully stocked and most desirable Nursery, in excellent order. Good reasons for selling. Immediate possession. Part of the purchase money can remain on at interest.—Apply to C. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE SOLD, a full going JOBBING and HARDY PERENNIAL GROWERS' BUSINESS, together with Stock in Trade and Goodwill. The old-fashioned Cottage, and Land whereon the concern is being carried, is also for Sale. Consequently a grand opportunity offers itself for one with small capital to secure both freehold and business.

Apply, W. SPENSER, Florist, Tangley Park, Hampton.

FOR SALE, a Freehold NURSERY, about 4 acres, 9 miles from London. Forcing and Greenhouses, well stocked; 6 roomed Cottage, Stables, and other Buildings. Price £1500; half can remain.—T. GROVE, Hayes, Middlesex.

FOR SALE, a small NURSERY, freehold, in a growing neighbourhood. 5 good Houses, well heated; Stabling, Cottage, Potting Shed, &c. Good opening for an industrious man.

Apply, Mrs. G. FOSTER, 230, Peckham Rye, S.E.

TO BE DISPOSED of, an old-established FLORIST BUSINESS, with Residence and Conservatory, near Maida Vale. Moderate Rent. Possession at June Quarter. Small sum required for Fixtures and Stock-in-Trade.

For Cards to View, and further particulars, apply to Mr. S. BARNETT, Estate Agent and Valuer, 88, High Road, Kilburn, N.W.

ORCHARD LAND.—Full of fine Fruit Trees, in splendid condition, close to Hampton Station, containing about 4½ acres, well adapted for Market Gardeners, Florists, &c., or would make a most desirable site for Building Purposes. Price £1200 immediate Purchaser, including all the choice Fruit Trees, £325 per acre. Large portion may remain on mortgage, if desired.

Mr. JOHN EMBLETON, Suffolk House, Hampton Hill.

To Nurserymen and Others.

TO LET, on long Lease, a NURSERY, well situated in the best part of St. John's Wood. Good Greenhouses, Sheds, Pits, and Stabling.

Apply on Premises, Waverley Nursery, near "Eyre Arms," St. John's Wood, N.W.

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TO BE LET, on Lease, an old-established NURSERY, occupying good position in a most fashionable Residential District. There are 12 Greenhouses, with several Pits, large Show-house, and 3 acres of Land. Vendor will grant Lease for 21 years. Stock at a valuation.

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TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Crown Lands, Eltham Nursery, Kent.

TO BE LET, from Michaelmas next, about 35 acres of valuable LAND, in the town of Eltham, as a Nursery or Market Garden. For particulars, apply to Messrs. CLUTTON, 9, Whitehall Place, London, S.W.

To Florists.—Knightsbridge, London.

TO BE LET, in this very busy and aristocratic thoroughfare, a handsome SHOP, with good House, overlooking Hyde Park. The rent is very nearly let off, but possession of the whole could be had if desired. The business has been carried on for many years.

Mr. ELLIS, 176, Brompton Road, S.W.

ORCHIDS. THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have just received large and fine importations of the following and many other ORCHIDS:—

Cattleya Trianæ,	Odontoglossum luteo-purpureum,
Odontoglossum vexillarium,	Oncidiums undulatum, fuscatum,
,, Roezlii,	Pescatorea Dayana,
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Full particulars will be sent post-free, on application to the Company, The Vineyard and Nurseries, Garston, near Liverpool.

VANDA TERES.—A large Importation just received, price 3s. 6d. each; taken by the dozen, at 2s. 6d. each; by the hundred, at 2s. each.

Also, at very low prices, a large Importation of DENDROBIUM FIMBRIATUM OCULATUM, D. DALHOUSIANUM, D. FORMOSUM GIGANTEUM, D. AGGREGATUM MAJUS, D. BENSONIÆ, AËRIDES LOBBII, CŒLOGYNE LENTIGINOSA, and SACCOLABIUM BLUMEI LONGIRACEMOSUM.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants and Orchids, 536, King's Road, Chelsea, London, S.W.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 18s. to £10 per 100, free on rail.

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GENERAL BELGIAN HORTICULTURAL AGENCY. General Dépôt for Palm Seeds.
DE HERDT AND STRECKER, Antwerp.
Telegrams—"STRECKER, Antwerp."

Plant-houses for special cultivation of SEEDLING PALMS in store pots, situated at Merelbeke (near Ghent), Belgium. FR. DE METER, Manager.

Trade Offer.

ARECA BAUERI, 22s. per 100.
,, LUTESCENS, 18s. 6d. per 100.
,, SAPIDA, 7s. 6d. per 100.
CHAMÆROPS FORTUNEI, 22s. per 1000.
COCOS WEDDELIANA, 12s. per 100.
CORYPHA AUSTRALIS, 38s. per 1000.
EUTERPE EDULIS, 30s. per 100.
GEONOMA GRACILIS, 37s. 6d. per 100.
KENTIA BALMOREANA, 30s. per 100.
,, FORSTERIANA, 30s. per 100.
,, CANTERBURYANA, 60s. per 100.
LATANIA BORBONICA, 30s. per 1000.
PHŒNIX CANARIENSIS, 18s. per 1000.
,, RECLINATA, 37s. 6d. per 1000.
,, TENUIS, 18s. per 1000.
PTYCHOSPERMA ALEXANDRÆ, 8s. 6d. per 100.
SEAFORTHIA ELEGANS, 7s. per 100.
Samples are only sent per dozen at the wholesale price.

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HIGH-CLASS FLOWER SEEDS

For Present Sowing,

POST-FREE AT PRICES QUOTED.

	Per packet—s. d.	s. d.
Auricula, choicest Alpine, mixed	...	1 0
Calceolaria, tigred and spotted, from a grand strain	1 6 and	2 6
Carnation and **Picotee**, very choice, from finest named flowers ...	1 6 and	2 6
Cineraria hybrida, new, dwarf, large-flowered	1 6 and	3 6
,, ,, very choice mixed, the older type, splendid strain ...	1 6 and	2 6
Hollyhock, Chater's Prize Double, very fine mixed	1 6 and	2 6
Pansy, Daniel's Prize Blotched, magnificent varieties	1 6 and	2 6
Primula sinensis, choicest red, white, or mixed	1 6 and	2 6
,, Crimson King, magnificent	...	1 6
,, alba magnifica, superb white ...	...	1 6
Polyanthus, Gold-laced, very fine ...	...	1 6
Sweet William, Daniel's Prize, superb ...	...	1 0
Stock, Brompton Giant, scarlet	...	1 0
,, East Lothian, scarlet, white, purple, or mixed		1 0
Wallflower, Double German, six superb varieties		2 0
,, choicest mixed	6d. and	1 0

DANIELS' BROS., Nurserymen, NORWICH.

TROPÆOLUM SPECIOSUM.—Hardy scarlet climber, strong plants established in pots. 1s. 3d. each, 12s. per dozen. Free by post or passenger train.
HOWDEN AND CO., The Nurseries, Inverness.

RICHMOND HORTICULTURAL SOCIETY.

The SUMMER SHOW will be held in the Old Deer Park, Richmond, on WEDNESDAY, June 25, 1890. For Schedules, and all particulars, please apply to

J. H. FORD, Hon. Sec.

22, George Street, Richmond.

GRAND ROSE SHOW, Bath.

THURSDAY, July 3.

FIRST PRIZES—NURSERYMEN—72 varieties	...	£8 8 0
" " " 36 "	...	4 0 0
" " AMATEURS —36 varieties	...	5 0 0
" " " 24 "	...	3 0 0

The Second and Third Prizes in proportion. Several other Classes for Roses, Bouquets, Strawberries, and Plants. 31 Classes in all. Entries Close June 27. For Prize Schedules, apply to B. R. F. PEARSON, W. JEFFERY, } Secretaries.

2, Northumberland Buildings, Bath.

WORKSOP ROSE and HORTICULTURAL SOCIETY.

Affiliated to the National Rose Society.

President—His Grace the Duke of Portland.

The FIRST ANNUAL EXHIBITION will be held on THURSDAY, July 10, 1890. Special Prizes for Roses, Group of Plants, Fruit, and Cut Herbaceous Flowers will be offered. Open to all England. For Schedules, apply to

GEORGE BAXTER, Hon. Sec., Worksop.

WOLVERHAMPTON HORTICULTURAL SHOW

AND FLORAL FETE,

JULY 15, 16, and 17.

Open to all England. Classes for PLANTS, ROSES, BOUQUETS, &c. Gentleman's Gardeners' Classes, open to Staffordshire, Shropshire, Warwickshire, and Worcestershire. Portions of the Park are allotted for exhibits of Horticultural Appliances, and applications for space should be made at once to

Mr. W. A. GREEN, Jun., Hon. Sec., Corporation Street, Wolverhampton.

WILMSLOW and ALDERLEY HORTICULTURAL SOCIETY.—The above Society will hold its SECOND ANNUAL SHOW in Hawthorn Hall Field, Wilmslow, on FRIDAY and SATURDAY, July 25 and 26 next. Schedule of Prizes (£140) on application.

T. W. MARKLAND, C. E. H. ROBSON, } Hon. Secs.

LIVERPOOL HORTICULTURAL ASSOCIATION.

ALTERATION OF DATE.

The ELEVENTH SUMMER EXHIBITION will be held in Sefton Park, on SATURDAY and MONDAY, August 2 and 4, 1890. Not as previously advertised, July 16 and 17. Schedules on application to

EDWARD BRIDGE, Secretary, 3, Cedar Terrace, Tarbock Road, Huyton, near Liverpool.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PLYMOUTH MEETING,

June 23, 24, 25, 26, and 27, 1890.

DICKSONS, Nurserymen & Seedsmen, CHESTER,

(Limited)

will be pleased to meet with their Customers and Friends, at their

STAND, No. 273.

A CHARMING BED,

Always Bright and Tidy,

Made by planting ALTERNANTHERAS, beautiful foliaged sorts, golden yellow, bronze red, magenta rose, &c., at 2s. 6d. per dozen; Rooted Cuttings, 12s. per 100. ECHEVERIA METALLICA, E. AGAVOIDES, each, 9s. and 12s. per dozen; E. FARINOSA, 6s. per dozen—three splendid sorts, very scarce. PACHYPHYTUM BRACTEOSUM, splendid light glaucous green, 6s. per dozen. SEMPERVIVUM TABULÆFORME, distinct, 6s. per dozen. HERNIARIA GLABRA AUREA, beautiful golden yellow, growing close to soil, 2s. 6d. per doz.

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Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
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And in 6d. and 1s. packets.

To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST AND SON, 152, Houndsditch, London

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Quality, THE BEST in the Market. (All sacks included.)

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. 6d. each; 10 sacks, 12s. 6d.; 15 sacks, 17s. 6d.; 20 sacks, 20s.; 25 sacks, 24s.; 50 sacks, 37s.; 100 sacks, 65s.; 200 sacks, 40s.; Truck load, loose, free on rail, 30s.

GENUINE ORCHID PEAT, 8s. 6d. per sack; 5 sacks, 40s.; BEST BROWN FIBROUS PEAT, 5s. per sack; 5 for 22s. 6d. BLACK FIBROUS PEAT, 4s. 6d. per sack; 5 for 20s. COARSE SILVER SAND, 1s. 6d. per bushel; 14s. half ton; 24s. per ton. Yellow Fibrous Loam, Compost, Leaf and Peat Mould, 1s. per bushel. Tobacco Cloth, 1s. 3d.; Paper, 1s. per lb. Special Manures, Peat-Moss Litter, Crushed Bones, Virgin Cork, Shell Shingle, Charcoal, Mushroom Spawn, and Russia Mats.

GARDEN NETTING, 2 yards wide, 1½d., or 100 yards, 10s.; 4 yards wide, 3d., or 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3½d., 2 yards, 6½d. per yard. TIFFANY, 38 in. wide, in 20 yard pieces, 3s. 6d. per piece.

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DAHLIA STAKES, and all kinds of Flower Sticks, Cheapest in the Market. Marquees, Tents, Flags, and all kinds of Garden Tools and Sundries.

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To all Grubs, Aphis, Lice, Red Spider, Thrip, Mealy Bug, Caterpillars, &c., &c

PERFECTLY HARMLESS } to the Hands and Skin, but will cure Ringworm in Animals, and all diseases produced by parasites.

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A combination of Hydrocarbon Oils, made soluble in Water, for destroying ALL INSECTS & PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage.

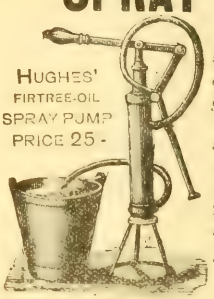
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Directions with each.

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Convenient, Inexpensive—Easily applied—Lasts all the Summer, and can then be easily washed off. 1s., post 1s. 4d. For Fixing Bloom of Azaleas, &c., and for Cut Flowers. **HUGHES' FLORAL CEMENT.**

A great boon to Florists and all lovers of Flowers. Dries instantly. Sold in bottles, 1s. & 2s. Per Post 3d. extra.

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We are now booking orders for FALL delivery at following LOW PRICES:

No. 1, 4 to 6 inches in circumference, £2 per 1,000.
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Orders for 10,000 and over, 4 shillings less per 1,000.

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Rare and Valuable Orchids.

MR. F. C. LEHMANN, German Consul at Popayan, New Granada, has entrusted me with the sale of the following rare and valuable ORCHIDS, collected by him in Ecuador and New Granada, in 1887 and 1888, all of which are now offered in perfectly established plants, viz.:—

CATTLEYA AUREA, 10s. 6d. and 15s. each.
,, TRIANÆ. Popayan varieties, 3s. 6d. and 5s.; very strong, 10s. 6d.
ODONTOGLOSSUM CIRRHOSUM, 5s. and 7s. 6d.
,, CRISPUM LEHMANNI, 3s. 6d., 5s., and 7s. 6d.
,, EDWARDI, 10s. 6d. and 15s.
,, HALLII LEUCOGLOSSUM, 15s. and 21s.
,, ,, XANTHOGLOSSUM, 10s. 6d. and 15s.
,, ROEZLII (Miltonia), 5s. and 7s. 6d.
,, VEXILLARIUM RUBELLUM (Miltonia), small plants, 5s.; fine strong plants, 12s. 6d.
ONCIDIUM KRAMERI, several plants on each block, 5s. and 7s. 6d.; per block.
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,, PYRAMIDALE, rare and very pretty, with dense, upright panicles of golden yellow flowers with conspicuous clear white centre, 7s. 6d. and 10s. 6d.
,, UNDULATUM, very rare and most beautiful, belongs to the macranthum section, 21s. and 31s. 6d.
TRICHOPILIA FRAGRANS ALBA (Pilumna nobilis?), all segments clear white with orange-yellow eye, very sweet-scented, 3s. 6d., 5s., and 7s. 6d.

Orders will be executed in strict rotation, and forwarded, POST AND PACKAGE FREE, to any part of Great Britain or Continent. The stock being very limited, early orders respectfully solicited. Terms for cash only, either by Post-office Order or Crossed Cheque, made payable to

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COLEUS VERSCHAFFELTI, bedding crimson, 8s. per 100, 75s. per 1000.
IRESINE LINDENI, dark crimson, good bedder, 6s. per 100, 50s. per 1000.
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SILVER VARIEGATED May Queen (Turner's), Princess Alexandra, Flower of Spring, 12s. per 100; Little Trot, dwarf, 12s. per 100; Prince Silverwings, 12s. per 100; Lady Plymouth, 10s. per 100.
GOLD LEAF Crystal Palace Gem, 12s. per 100; Happy Thought, 12s. per 100.
BRONZE McMahon, Black Douglas, The Czar, the best bedders, 15s. per 100.
TRICOLOR Mrs. Pollock, 15s. per 100; Sophie Dumaresque, Lady Cullum, Sir R. Napier, 18s. per 100.
DOUBLES, F. V. Raspail, fine scarlet; M. Thibaut, pink; M. Baltet, best white, 12s. per 100.
TROPÆOLUM Vesuvius, 10s. per 100; Mrs. Ellis, best dwarf scarlet, 10s. per 100.
FUCHSIAS, in twelve good named sorts, 8s. per 100.
PELARGONIUMS, Show and Decorative, from single pots, good, 2's, per 100, 3s. per dozen.

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Rare and Valuable Orchids.

MR. RICHARD PFAU has entrusted me with the sale of the following rare and valuable ORCHIDS, collected by him in Costa Rica, viz.:—

BARKERIA LINDLEYANA, or perhaps B. SPECTABILIS, nice plants with sound breaks, 5s. each.
CATTLEYA DOWIANA, good plants, semi-established, 7s. 6d.; ditto, strong established plants, 15s. and 21s.
ODONTOGLOSSUM KRAMERI.—According to Collector this very fine species will always remain scarce, being very rare in its native country. He says it is the fine dark variety, much superior to the lighter coloured variety from Chirequi. Nice plants with sound breaks, 25s.; fine strong plants, 42s.
,, CERVANTESII MAJUS.—This very pretty and distinct var. has larger flowers, and several flowers on a sp ke, much superior to type. Nice plants with sound breaks, 3s. 6d., 5s., and 7s. 6d.
ONCIDIUM ANSIFERUM, or new species, only a very few nice plants with sound breaks, 7s. 6d.
TRICHOPILIA COCCINEA ATRORUBENS.—The entire lip of a deep blood-red colour, very fine var. Fine established plants, 7s. 6d. and 10s. 6d.
,, COCCINEA SUB-ALBA.—One single plant only found by collector, entire lip pure white, very faintly suffused with pink, a small blood-red stain deep down in the throat—very beautiful and distinct. Nice established plants, having flowered with me, 25s.
,, SUAVIS SUPERBA.—The best, highly spotted variety. Fine established plants, 10s. 6d.
TRICHOCENTRUM PFAVII. — A pretty winter flowerer. Small established plants, 5s. and 7s. 6d.
UTRICULARIA ENDRESII MAJOR, with flowers twice as large as the type—very fine. Sound bulbs in native soil, 7s. 6d.

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CRUSHED BONES in all sizes, for **VINE BORDERS, LAWNS, POTTING, GRASS LANDS, &c.**

Also BONE MEAL for POULTRY FEEDING.

GARDEN GUANO, DISSOLVED BONES, SPECIAL MANURES and FERTILISERS

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AGENTS WANTED — AGENTS WANTED.

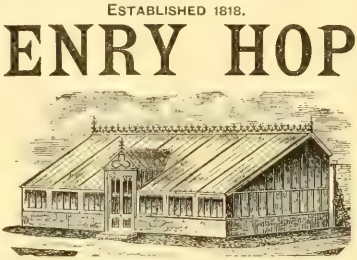
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HIGHLY CONCENTRATED—MIXES INSTANTLY WITH WATER. For use in the **Conservatory, Greenhouse,** and **Vinery; Flower** and **Kitchen Garden,** the **Hop-yard,** and the **Orchard.**

Practically Tested by Practical Gardeners. Acknowledged to be the most Perfect Insecticide yet Invented.

From Mr. R. TURVEY, Head Gardener to Sir Richard Webster, Q.C., M.P., Winterfold Gardens, Cranleigh, Surrey.—"Yours is the best Insecticide that has come under my notice; it not only destroys the "pests," but imparts a healthy look to the plants."

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Further Testimonials and all particulars Free on application.

PRICES—Carriage Paid to any Address:—1 pint, 1s. 6d.; 1 quart, 2s.; ½ gal., 3s.; 1 gal., 4s. 6d.; 2 gals., 8s. 6d.; 4 gals., 14s.
Special Quotations for Larger Quantities. Sole Inventors and Proprietors:—

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4	Gallons, sufficient for 100 gallons of water...	£0	6	6
8	,, ,, 200 ,, ,, ...	0	12	0
16	,, ,, 400 ,, ,, ...	1	2	0
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1 gal. Sample Tin, tin free, 2s.; 2 gals., tin free, 3s. 6d.

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Vineries, Stoves, Greenhouses. Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equal'ed. We only do one class of work, and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm from the smallest to the largest. **Hot-water Heating Apparatus,** with really reliable Boilers, erected, and success guaranteed in all cases. **Melon Frames, Sashes, Hotbed Boxes, &c.,** always in stock.

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THE

Gardeners' Chronicle.

SATURDAY, JUNE 14, 1890.

NOTES FROM MEXICO.

AS a recent stay of some three months in the northern and less frequented parts of Mexico afforded me an opportunity of studying the climatal conditions of that region, and to a small extent the flora, a *résumé* of my notes may not be devoid of interest. During February, March, and April, my business occasioned a considerable amount of rough travelling, ranging from Nogales, a small Mexico-American town on the frontier between Arizona and Sonora, Hermosillo, the present capital of Sonora, some 170 miles to the south, and Arispe, the former but now abandoned capital, about 70 miles to the east. This last-named city is quite dissevered from general commercial activity by the absence of all railway connection, or any roads better than hill trails and river beds. Nogales stands at 4000 feet above the sea-level, and is situated amid countless low, rounded hills, resembling in their parched and stony character nothing so much as heaps of reddish road metal. At varying distances towards all points of the compass, bare and equally arid-looking precipitous mountains of some 2000 or 3000 feet additional elevation bound the view, and at that season (January) occasionally showed a little snow. There are generally two rainy seasons here—one setting in about the end of June and continuing into August, the other beginning in November and lasting until January. In the intervals, little or no rain falls, and all the smaller watercourses run dry. I was too late for the winter spell of rain, but was so close upon the heels of it than I was detained for some time at Nogales through the River Sonora being in flood, and the consequent impossibility of travelling through the district it traversed, the river bed being the only road. Incidentally I may mention, that a trip of 70 miles necessitated 156 fordings, many of which, owing to shifting quicksands, were very ticklish passages.

At Nogales my enforced stay gave me a capital opportunity for exploration, and I was speedily very much struck by the fact that not only were numerous species of the drought-loving family of the Cacti associated intimately in the shallow rocky cañons between the hills with the moisture-seeking tribe of Ferns, but that the various species of both were growing vigorously and quite uninjured in a temperature which produced icicles fully 5 feet long upon the tank at the railway dépôt close by, and permitted snow, in sheltered spots, to lie in actual contact with the plants for days together. The air, immediately the sun set, became intensely cold, due to the elevation and brilliant clearness of the atmosphere. I was informed, and have no reason to doubt it, that over 20° of frost were registered one night during my stay, while the heat of the sun during the day burnt the skin off my face. The Ferns I found here were Nothochlæna rufa, N. dealbata, N. Newberyi, N. sinuata, Gymnogramma hispida, Pteris ternifolia, P. ornithopus var. brachyptera, Pellæa marginata, P. pulchella, Cheilanthes elegans, and C. Eatonii (?), to which I added later a species of Lastrea much resembling L. nova-boracensis, an Anemia, and a seedling Adiantum very like at that stage A. capillus veneris, but too young to discriminate with certainty.

All the Ferns I have specifically named are cultivated in this country as greenhouse species, but it is quite obvious from the above facts that, given a dry atmosphere, and the vigour of constitution engendered by exposure, they can stand a considerable amount of frost with impunity. The same remark applies to the Cacti with which they were associated, the species of which, however, were not numerous, though the apparently barren hills, on closer acquaintance, revealed a great number of plants, chiefly Mammillaria, one species of which formed large heaps of ten or a dozen finely corrugated balls, greyish-white, with innumerable thorns, and 5 or 6 inches in diameter. These flower in April, and produce a ring or corona of pink, or, in some cases, primrose-coloured blossoms, round the upper portion of each ball, the whole clump presenting a most charming appearance. Here and there were two varieties of Opuntia—one with very long thorns, dark green leaves, and decumbent habit; the other erect, with light glaucous green and apparently almost thornless leaves: but woe betide the incautious handler, for it is not the obvious thorns which are to be feared, but the insidious minute ones, which cover the warty projections from which the former spring, and which detach themselves immediately they touch the skin, and only make their presence known later, when they have been accidenially rubbed in, and produce intense irritation; sharp eyes and a pair of tweezers being the only remedy.

Associated with the Cacti on the hillsides are several species of Yucca and Agave; one of the latter, locally termed the Mescal plant, forms huge Pine-apple-like basal masses, from which the thick fleshy leaves spring. These pseudo Pine-apples are the source of the potent native spirit Mescal, which resembles pure water in appearance, but by no means in taste or effect. In crossing the country, trains of donkeys are frequently met with laden with these roots, denuded of their leaves, which they are carrying to the various Mescal ranches or rude native stills which are scattered about the locality.

Trees are fairly plentiful along the wide torrential watercourses, or "arroyas" above Nogales, Walnut trees especially, whence the name of the place (Nogale, Walnut tree). Upon these a species of Mistleto grows, not very unlike ours, but with shorter leaves. Later on in my travels I found the Mesquite (Acacia) trees laden with two very different species, in which the leaves were almost entirely aborted, the plants consisting of long pendulous stalks bearing the blossoms. From the way the two were associated, I suspected the two apparent species to consist of separate sexes of one, but circumstances prevented me from verifying this, and promised specimens were not obtained for me. The natives asserted that the leaves, *i.e.*, stalks, if collected, dried, and smoked as cigarettes, were a powerful remedy for coughs, so powerful indeed that a whiff or two sufficed to give relief. These Mesquite trees, with hard red wood, and Black Oaks, together with the Walnut trees aforesaid, form the chief timber of that district. The natives are very improvident. To light a fire at the base of a fine tree, and return eventually to gather the *débris*, being their common mode of procedure, on their own account, though under a contract they are adepts with the axe.

The entire absence of timber proper on the hills, and the torrential character of the rains, amply account for the absolutely soilless condition of the surface, which consists entirely of smaller or larger stones, the arroyas or watercourses being often wide channels of sand and boulders, affording ample evidence of furious streams in the rainy season, though in the dry, even the rivers occupy but a streak of the available channel, and the minor streams disappear altogether.

Leaving Nogales, I next proceeded to Hermosillo, some 170 miles to the south, and lying at a considerably lower elevation—about 1000 feet above the sea. Here it was intensely hot in the first week in February. The railway thither from Nogales runs for the greater part of the way through a wide flat plain, covered with Cacti, the species, size, and variety increasing gradually as we proceeded and descended, until, at length, they assumed all the varying types of tree, shrub, bramble, and creeping weed, the genus Cereus especially doing its best to ape them all, C. candicans throwing up in all directions its tall bunches of huge Cucumber-like branches, full 20 feet high, while other members of the family formed tangled masses of interminable snake-like undergrowth, like Brambles, and the ground generally was dotted over with diminutive members of this and other species, round, oval, and sausage-shaped. A more curious or decided contrast to the vegetation of our open lands in England could hardly be conceived.

Just before reaching Hermosillo, the plain suddenly narrows, and the boundary hills are then seen to be literally bristling with enormous specimens of C. candicans, mixed now with Opuntias and various members of the Yucca and Agave genera, resembling bunches of bayonets radiating ferociously in all directions. Another minute or two and—Hey! presto!—all is changed. Tall Palms in clumps, heavily-laden Orange trees, sweet and sour, forming now the salient features of a quite tropical outlook, and showing where cultivation has made its mark; while over the hedges, which are choked with large Bamboos and Castor-oil plants, we catch glimpses of the densest and greenest conceivable crops of corn. The immediate proximity of the Sonora River, and the consequent facilities for irrigation, lie literally at the root of this change, which is very striking, half a mile sufficing to alter the vegetation from the most arid types to those of a quite opposite nature. My journey thence took me right up the Sonora River to the city of Arispe, through an ever-changing panorama of rugged mountain scenery of the most interesting character, both geologically and botanically, the dryness of the climate affecting both features very markedly. All along the route the rocky boulder-strewn hill and mountain sides, literally bristle with Cereus candicans, called by the natives Pitayos, which, anchored in chinks and crevices at all angles, shoots out its huge Cucumber-like limbs in bunches of a score or more, and as many feet long. Cereus giganteus I did not meet with here; but in one spot, about 30 miles from Nogales, I came across about thirty or forty huge specimens, all located upon one hillside, and averaging probably about 30 feet high. These are called Saguaros by the natives. These differ from C. candicans by springing singly from the rocks, and branching sparsely and much later.

It was early in the year for flowers, but towards the end of my stay, many very beautiful things were in bloom; among them were three species of Œnothera, one with pale yellow blossoms, so like our common Primrose, that for some time while passing it in the early morning on horseback it deceived me; another had somewhat larger white flowers, and finally Œ. taraxacifolia with its splendid large white blooms in masses a foot or more across, became very conspicuous all over the country as soon as the sun went down. As all these three species had Dandelion-like leaves, the name given to the largest loses distinctive value. Eschscholtzia californica took the place of our Buttercup. Wild Tobacco is a weed everywhere, even in the streets of Arispe. This city, which consists now mainly of the *débris* of adobe (sun-dried bricks) buildings, whole streets having perhaps only one or two habitable dwellings, is built mainly on a bed of lava, and the country at the back of it consists of a series of low table-lands, called *mesas*, cut up into watercourses, all dry when I was there. These *mesas* form the habitat of countless formidable Cacti, Opuntia echinocarpus, bristling with long white thorns, which the miners in the locality seriously declared to me they were capable of projecting for some distance at passers-by. As usual, however, when this was disproved by experiment, the report was deftly shifted to a different species in another region. Anyhow they are "kittlecattle" to meddle with, the smaller thorns existing in myriads, while the larger are so acute and strong as easily to penetrate stout leather boots. These plants form numberless spherical bushes about 3 or 4 feet high, and 2 feet through, on trunks about a foot in height. Strange to say, although it would be extremely difficult and dangerous to insert a well-gloved hand into the mass of branches, I repeatedly saw birds' nests in the very centre, and birds flying in and out with impunity. The joints of the short segments of which these branches are formed are extremely brittle, and a blow with a stick strews the ground with fragments. These speedily root where they lie, and thus serve to propagate the plant, independently of the Pear-shaped fruits, which also are found rooting in the same fashion, and throwing up small plants by budding independently of the contained seed.

In the orchards about the city a large species of the ordinary Opuntia, *i.e.*, with pear-shaped joints to its stem, is cultivated for its fruits, and grows to a fair-sized tree, with joints a foot or more in length, but with smaller blossoms than some of the wild kinds. Each of the decayed joints contains several flat hard woody network-like plates of a very beautiful pattern, which it occurred to me might well be utilised for cabinet work. Pomegranates and Oranges are associated with these. Wild Grape-vines are common, but I had no opportunity of judging of the merits of their fruit.

Early in April the Cacti were blossoming, also some of the Yuccas. A wild Opuntia bush, covered densely with huge primrose-coloured flowers, was a sight worth seeing, and only ranks second in my memory to a Yucca, about 4 feet high and two feet through, which I came across in a rocky cañon, and bore a solid looking mass of hundreds of pure white Lily-like blooms, some four or five huge spikes being bunched together. It was so brilliantly white that my horse shied at it, and I tried in vain to get a close view.

On the hillsides, up the Sonora River, half-way between Hermosillo and Arispe, and at some 2500 feet elevation, I remarked a considerable number of curiously deformed trees scattered about among the clumps of Cereus. The upper branches were all bent down and distorted, and on examination and inquiry I found they had all been killed down about half-way by an exceptionally severe frost the previous winter. No signs of damage to the Cacti were visible; hence, C. candicans, though absent at 4000 feet, must be able to stand some amount of frost. The native name of the tree is Palo Blanco, or the white stick, its bark being quite white. I also saw a few flowers of a pure waxy-white, about the

size of half-a-crown. The species is unknown to me. I observed slight white frost in this district as late as March.

On my return journey through Texas, I noticed children at the railway dépôts selling baskets of Echinocacti and other species, and specimens of the Resurrection plant (Selaginella lepidophylla), which they collect on the adjoining prairie and sell for a few cents per basketful. A specimen of the Selaginella, dry and shrivelled when bought, after three weeks' sojourn in my portmanteau, became a beautifully fresh and vigorously growing rosette of true Selaginella type within twelve hours of its immersion in water. Here, however, Mexico was behind me, and so I close my notes. *Chas. T. Druery, F.L.S.*

Orchid Notes and Gleanings.

CATASETUM BUNGEROTHI.

In reference to the proposal to change the name of C. Bungerothi for that of C. pileatum, against which Mr. Linden has entered a protest on p. 618 of this volume, I may be permitted to say a few words, as I think the whole evidence in favour of the change is of a very unsatisfactory nature. About the time when I described C. Bungerothi, the late Professor Reichenbach was at Kew, but I do not quite remember if I had actually sent my description to Mr. Linden, or was then preparing it, but I believe I had just dispatched it. I do, however, most clearly remember talking to Reichenbach about the plant, and showed him either Bungeroth's drawing, or a tracing from it, and asked his opinion of the plant, which was that he had never seen anything like it.

A few weeks after the publication of C. Bungerothi, Reichenbach published his second description of C. pileatum, without any reference to his previous description of it, or to C. Bungerothi.

Now I submit that when he published this second account of C. pileatum, he must have known if it bore any resemblance to the drawing of C. Bungerothi, which, although a poor one, is sufficiently good to make the plant unmistakable, especially as I had a short time previously brought the drawing prominently before his notice. Yet, not only does he make no allusion to it then, but afterwards, when the plant became well known, he never published any statement to the effect that the name C. pileatum belonged to it. And those who were best acquainted with Reichenbach, will, I think, for the most part agree with me that he would not be likely to let another name take precedence over one of his own if he could clearly show that they were synonyms, which he could most easily have done in this case if they are so. The only evidence we at present have that C. pileatum is the same as C. Bungerothi, rests upon the statement made by Reichenbach, in two private letters. I am far from saying that his statement is not true, but, until it can be verified, I think it should be received with some caution.

In the original description, C. pileatum is compared to C. cernuum and C. naso, both of which are quite unlike C. Bungerothi; added to this, we have the testimony of Mr. Linden, father and son, that they do not remember sending any flower like that of C. Bungerothi to Reichenbach; and M. Linden further writes to me that they had no collector in Venezuela at that time; there is also his statement to myself that he had never seen anything like it, and Reichenbach's memory was of such a wonderfully tenacious order, that it seems incredible he should have described a flower (evidently from fresh, although slightly withered material) of such a remarkable species as C. Bungerothi, and then fail to recognise it from the drawing. All this appears to me to tell against the probability of C. pileatum being the same as C. Bungerothi; had it been certain, his public silence on the point appears incomprehensible. But as the matter can neither be proved or disproved until another twenty-four years have passed, and there is certainly some element of doubt about it, I think it better to retain the name of C. Bungerothi for the plant, until it is clearly shown to be identical with C. pileatum. *N. E. Brown, Herbarium, Kew.*

New or Noteworthy Plants.

CATTLEYA LABIATA, *Lindl.*, var. WAROCQUEANA, *n. var.* (?)

At the meeting of the Royal Horticultural Society held on May 13 last, a newly imported Cattleya was exhibited by M. Lucien Linden, of Brussels, under the provisional name of C. Warocqueana; but as the flowers had only expanded on the journey from Belgium, and, moreover, the plant, not being yet established, it was hardly in a condition to pass an opinion upon it. Botanically it is a form of C. labiata, using that term in its broadest sense, but the exact relation it bears to the other existing forms is a difficult matter to decide. It is said to be from a part of South America previously unexplored, though what part it may be I have not the slightest suspicion. M. Bungeroth, of Catasetum fame, is the collector, and expresses the opinion that it represents a new and distinct form of great beauty, and, he having travelled much in the Mossiæ, Mendeli, and Trianæ districts, ought to be in a position to judge. The materials now sent by M. Lucien Linden are ample, and consist of two (wild) dried flowers, a photograph of the flowering plant, five coloured drawings, a fine-flowered raceme of living flowers, and a living plant bearing a three-flowered raceme, the latter being kindly presented to the Kew collection. These materials show a rather wide range of variation, and M. Bungeroth speaks of a dozen well-marked varieties, one of which is white. The wild dried flowers are 6½ inches across, and bear much resemblance to the original C. labiata, the sepals and petals being of a rosy-mauve shade, the front lobe of the lip crimson-purple, behind which is a well-defined deep yellow area, which extends along the disc, and the side lobes are rosy-mauve. Two of the coloured figures are very similar, but with the undulating margin of the lip much paler. A third has the same part very deeply coloured, without the pale margin and yellow disc. A fourth has the yellow disc well developed, with a very small crimson-purple blotch, the rest of the lip being of a much lighter shade. The fifth form is almost white, except the small purple blotch and very small yellow disc. The Kew plant had a three-flowered raceme, in which the veining of the lip strongly recalled the form chocoensis, though in other respects much deeper in colour; it was also a little fragrant; the five-flowered raceme is darker in colour, and quite without the yellow disc. Lastly, the photograph shows a four-flowered raceme, with the lip beautifully undulate. The flowers produced after importation are far smaller than the dried ones, showing the exhausting effect of a long journey. Such is the character of this variable but beautiful plant, which may be provisionally named as above, in honour of Mr. G. Warocqué, President of the Orchidéenne of Brussels, and one of the administrators of the Horticulture Internationale of the same place. The relation it bears to other forms of C. labiata is the more difficult to determine, because of the range of variation it exhibits, and the absence of information as to its habitat, and must be left until the plant becomes fully established. *R. A. Rolfe, Herbarium, Kew.*

POTATO EXPERIMENTS, 1889.

A most interesting and useful series of experiments on the growth of the Potato have for some years been in progress at the Agricultural Experiment Station, at Kentucky; the results of the 1889 investigations having recently been published in *Bulletin*, No. 22, may conveniently be considered under the following heads:—

1. Test of Varieties.
2. Methods of Planting.
3. Preparation of Seed.
4. Testing the Effect of Fertilisers.

The conclusion arrived at from the year's trials are thus briefly summarised:—

1. Many new varieties produced a larger yield than either the Early Rose or Burbank. Notably among the large yielders may be named the Irish Wonder, producing 389 bushels per acre; General Logan, 296; Lombard, 281; American Magnum Bonum, 280; while the Burbank and Early Rose produced respectively 209 and 184 bushels per acre.

2. The trench system of planting produced no marked effect as to the yield over the usual method of planting.

The yield was greater in forty-eight out of fifty-five trials, when Potatos were planted 14 inches apart in the row than when planted 20 inches. On the contrary, the proportion of large to small Potatos was in favour of the 20-inch planting.

3. Planting large whole Potatos largely increased the yield over planting Potatos cut to two eyes, or cut in two, or small whole Potatos.

The yield was in proportion to the weight of seed-tubers planted.

4. The yield of Potatos was largely increased by the use of fertilisers containing potash. Where fertilisers containing no potash were used, a less increased yield was obtained.

5. A profit was obtained by applying potash manures, or fertilisers in which potash was one of the ingredients.

The following explanation and discussion of the experiments may prove of service.

Test of Varieties.

The soil of the experimental station farm on which all the investigations are made, is what is called a "Blue-grass" soil. It is derived from the limestones of the Trenton group of the Lower Silurian. These limestones in general are rich in phosphoric acid. The subsoil is a light-coloured clay, not easily permeable by water, and therefore the ground is generally wet and cold in the early spring.

Cotton-seed hull ashes containing 32·66 per cent. of potash, at the rate of 400 lb. per acre, were applied to each plot in the row, and well mixed by the use of a hoe before the Potatos were planted.

For seed, medium sized to large Potatos were cut in pieces as nearly of equal size as possible, and containing from two to three eyes each. These were planted cut side down, one half of each plot 14 inches apart, and the other half 20 inches, in rows 3 feet wide.

All the varieties were planted April 6, and covered to a depth of about 4 inches. At the third cultivation they were earthed up.

The following table shows the yield of those varieties giving a total of over 200 bushels, equal to 5 tons per acre. The Potatos were planted 14 inches apart in the row:—

No.	Name of Variety.	Bushels per Acre.		
		Marketable.	Small.	Total.
1	Irish Wonder	211	178	389
2	General Logan	245	51	296
3	Lombard	193	88	281
4	American Magnum Bonum ...	237	43	280
5	Dakota Red	211	64	275
6	Nevada White	206	64	270
7	Yellow Elephant	193	71	264
8	Alexander's Prolific	179	64	243
9	Burpee's Superior	202	40	242
10	Wells's Jumbo	208	32	240
11	Governor Cleveland	192	48	240
12	Summit	160	67	227
13	Salt Lake Queen	184	40	224
14	Cayuga	188	31	219
15	Silver Skin	171	48	219
16	Charter Oak	174	44	218
17	Brownell's No. 31	171	45	216
18	White Beauty of Hebron ...	168	46	214
19	Burbank	157	52	209
20	American Giant...	176	32	208
21	McFadden's Earliest	160	45	205
22	White Elephant...	149	53	202

The foregoing results show that the Irish Wonder exceeds all others in total yield, but two others exceed it in quantity of marketable Potatos. In studying these results, the fact should not be overlooked, that a variety, showing a greater or less yield than some other in any one year, is not conclusive proof that it will do so year after year.

Quality of the Different Varieties.

While the yield should have its influence, the quality must have due consideration in the selection of Potatos. A good yielder may be worthless on account of its poor quality. The quality of a Potato is supposed to depend on the amount of starch it contains, or, as the dry matter is mostly starch, it is often taken as a standard by which to judge the quality. The size of a Potato has also its influence. A good Potato should contain from 23 to 25 per cent. of dry substance, or, in other words, should not contain over 77 per cent. of water.

In a comparative trial which was made, the following is the order of quality, showing the first ten in order from the twenty-two varieties given in the foregoing table of produce:—Nos. 8, 17, 7, 9, 22, 21, 12, 4, 11, and 3; that is to say, No. 8, Alexander's Prolific, was the best as to order of quality; and No. 17, Brownell's, second in order, and so on.

Preparation of Seed.

Five plots of ground were used in these experiments. They were each one-eightieth of an acre in size, and in the same field adjacent to the plots on which the varieties grew. They received the same treatment as to manure and cultivation as the varieties. Northern-grown Early Rose was the variety used. In all the plots the Potatos were planted 14 inches apart, and in rows 3 feet wide.

On plot 1 were planted selected large Potatos cut to two eyes; No. 2 same, cut in two; No. 3, selected large Potatos, planted whole; No. 4, small Potatos, planted whole; No. 5, medium Potatos, cut to two eyes.

The following table shows the yield of Potatos under the different methods of seeding in quantities per acre:—

Plot.	Form Planted.	Bushels per Acre.			Amount Planted in Bushels.
		Marketable.	Small.	Total.	
1	Large, cut to two eyes	133	51	184	8
2	Large, cut in two ...	...	...	278	24
3	Whole (large) ...	213	131	344	48
4	Small (whole) ...	173	99	272	17
5	Medium two eyes ...	128	59	187	6

These results show that by planting large whole Potatos there was an increased yield over the usual method of planting of nearly 100 bushels per acre of merchantable Potatos. This is stated to be the third trial, and each time the result has been the same, that is, by planting large whole Potatos, instead of cut tubers, there follows an increased yield in the crop.

This is further substantiated by comparing results obtained by many similar experiments throughout the country, although it does not agree with experiments made in Germany and elsewhere.

Whether it will pay to plant large whole Potatos, rather than medium or cut tubers, depends largely upon the season and the price of seed Potatos, as well as the price of the harvested crop.

Effect of Fertilisers on Potatos.

The field on which these experiments were made is quite level, the plots being each one-twentieth of an acre in size, and separated from each other by paths 3 feet wide.

The variety of Potatos planted was northern-grown Early Rose, of large size, each Potato being cut in two and planted cut-side down, 14 inches apart in the row; rows 3 feet wide. Manures sown and Potatos planted April 5, 1889.

The following Table gives the amount of different manures applied per acre, the yield of Potatos, and the order of quality:—

Plot.	Fertiliser used.	Amount per acre.	Quality of Potatos.	Yield per acre.		
				Marketable.	Small.	Total.
		lb.		Bush.	Bush.	Bush.
1 & 5	Without manure	...	6	59	56	115
2	Nitrate of soda ...	160	8	43	61	104
3	Acid phosphate ...	400	4	31	53	87
4	Sulphate potash ...	160	1	137	21	158
6	Nitrate of soda ..	160	7	90	62	161
	Acid phosphate..	400				
7	Nitrate of soda ..	160	3	227	41	268
	Sulphate potash	160				
8	Acid phosphate	400	3	243	44	287
	Sulphate potash	160				
9	Acid phosphate..	400	5	172	47	219
	Sulphate potash	160				
	Nitrate of soda ..	160				
10	Gypsum	160	2	84	52	136

The results show that the yield of Potatos was largely increased by the use of sulphate of potash, either when used alone or in combination with nitrate of soda, or acid phosphate, or both. It appears that neither acid phosphate or nitrate of soda, when used separately or in combination with each other were of much benefit, but that when either was used with sulphate of potash the results were beneficial as to yield, the greatest yield being produced when both were applied together with potash. The tubers on the plots receiving potash were noticed to be smoother, larger, and more even in size. It is further shown in the foregoing table that the quality of the Potatos was the best with sulphate of potash alone, second best with gypsum, and third best when potash formed one of the constituents of the manurial application. *J. J. Willis, Harpenden.*

PÆONIES.

A visit to any well-found garden would reveal the fact that the Pæony is the flower of this particular period of the year, a position which it shares with the Irises of the germanica, squalens, and pallida groups, wedged in, as it were, between the last of the great family of the Daffodils and the Roses. Without the Pæonies the garden in early June would be sadly deficient in bold floral forms, gorgeous colouring, and some fragrance, for some Pæonies—notably P. Broteri, a single, crimson flower, is fragrant.

The glowing colours of Pæonies, their great variety, especially of single-flowered varieties, of which Messrs. Kelway & Son, Langport, Somersetshire, are now the greatest raisers in this country, were to be seen to great advantage at the meeting of the Royal Horticultural Society, at the Drill Hall, James Street, on Tuesday last.

On the same occasion the history of the flower in this country, and to some extent, on the Continent, was most interestingly discoursed on by Mr. George Paul, and scientifically treated by Mr. R. Irwin Lynch, of Cambridge Botanic Garden. The first-named gentleman mentioned amongst the foremost hybridisers and collectors of the Pæony in our country, Parker of Tooting, and the elder Salter of the Versailles Nursery, Hammersmith—long since covered with houses; and the Osbornes, of Fulham; and abroad, Keteleer, the Van Houttes, and Van Geert. The greatest activity was experienced early in the fifties, Mr. Paul recollecting that the trade in Pæonies was then so great, that orders remained unexecuted from deficiency of plants.

Doubtless, many thousands of these but poorly-established plants perished from want of due care in the first winter, and from improper planting, or want of due preparation of the soil. Despite these almost inevitable losses, the Pæonies may still be found in honoured places in numerous gardens throughout the length and breadth of the country.

Soon afterwards, the fashion of employing immense quantities of half-hardy and tender plants in the decoration of the flower garden led to the general retirement of this plant, and many another as good to the shrubbery border, the reserve garden, the woodland walk, and in many instances, we fear, to the rubbish-heap. But the horticultural dial has gone backwards of late years, and we gladly welcome the return to a more natural style in decorative gardening, in which these and other hardy herbaceous perennials can find a place.

In Mr. Paul's remarks on the culture of the herbaceous Pæony, and his paper mainly treated of these species, the following practical instructions as to planting were given:—"The land should be deep naturally, or be made so by trenching it, or taking out spacious holes; plenty of rotten manure should be dug into the soil, and if some good loam could be added to the staple it would be of benefit to the plants. In fact, all the preparations should be those required by a plant that would occupy a certain station for a number of years without removal. Planting is best done between the months of November and February, and small plants are better than large ones. Before being planted, all the old soil should be washed clean off the roots. The depth at which the roots should be planted is 3 inches below the surface, and planting should always be followed by a mulching of half-rotten dung, thick enough to keep frost from the roots.' We would add that mulchings are desirable in after years, not so much to ward off frost—for the roots, when established, are not liable to injury in that way—but as a stimulus to growth; and more so is this mulch required when the plants are in outlying positions in the pleasure grounds, or in borders of shrubs.

We reproduce in our illustration (fig. 122) forms of single Pæonies. That seen at the upper part of the illustration is P. corallina, a crimson flower, and foliage more divided than in P. officinalis. It has become naturalised on an island in the Severn. The flower in front is P. albiflora, a species bearing branched flower-stalks, and flowers either rose-coloured or white. There are many varieties of this native of China in our gardens showing a wide range of colour, and blooming at a rather later part of the season.

We reproduce in fig. 123, P. corallina, to show habit and foliage. Mr. Lynch's paper, dealing chiefly with the classification of Pæonies by means of their leaves and carpels, was necessarily of considerable length. He is, perhaps, the best authority on the subject existing, and his rather abstruse discourse was of such a nature that he was able to obtain close attention from his audience from the beginning to the close.

HEREDITY.

There are two rival hypotheses which claim to explain the phenomena of heredity. Darwin [*Provisional Hypothesis of Pangenesis*], supposes that every cell in any living thing throws off infinitesimally small gemmules, which mingle in its fluids. Eventually the germ-cells of the reproductive organs will contain gemmules of all parts of the body, and so from the pollen-grain and ovule the features of the parents are reproduced. Thus, the parental features are reproduced not only through the seed, but owing to these microscopical gemmules floating in the juices of a plant, the parental features can also be reproduced from almost any part of a plant—leaf, stem, root—by what are called buds.

It happens that all the features are not reproduced in all the generations. Certain features in some generations are suppressed, but reappear in some subsequent generation. This Darwin explains by some of the gemmules remaining dormant, but retaining the power of growth in some other generation, when circumstances are more favourable for their development. This phenomenon of re-

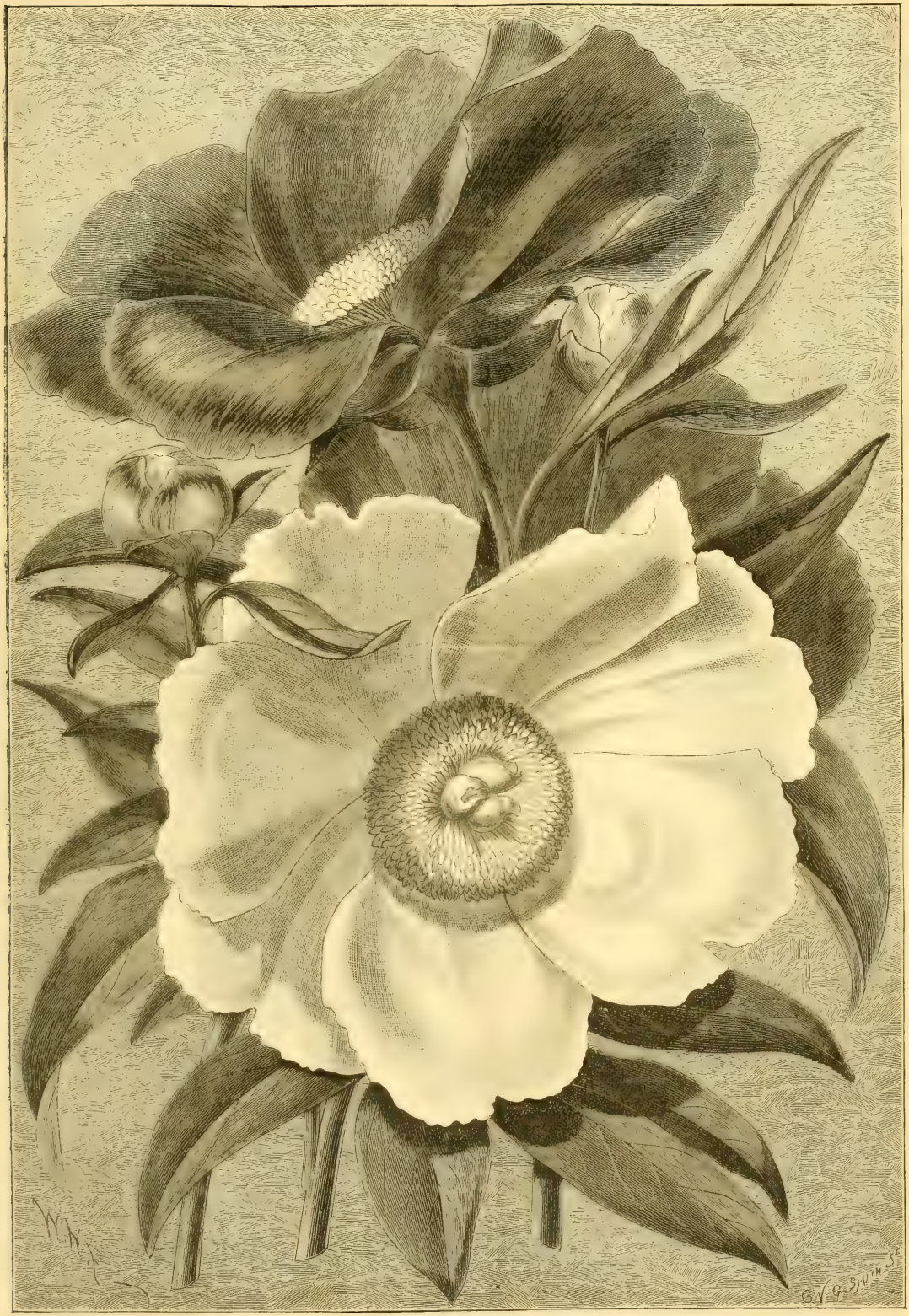


FIG. 122.—SINGLE FLOWERED PÆONIES. (SEE P. 736.)

appearance of certain ancestral features is commonly called reversion.

Weismann's theory, if I understand it rightly, supposes that in the beginning of time living things consisted only of protozoa and protophyta, that is, unicellular animals and plants floating about in water, like microscopic soap-bubbles. That these reproduced themselves by subdivision. In their unicellular state they were influenced by surrounding conditions, and therefore gave rise to varieties. These varieties, by subdivision, reproduced a number of similar varieties. Every cell, it must be understood, was reproductive organ and body, or "soma," in one.

In the process of evolution, however, and by imperfect subdivision, a number of unicellular cells became clustered together, first in small numbers, and then in larger numbers. Such compound bodies are technically called metazoa and metaphyta, that is, multicellular animals and plants. We can form a better conception of these clusters by blowing through a tube into a solution of soap. On the surface a froth or cluster of bubbles will be formed.

Presumably, every cell of a compound body was originally a reproductive organ. This, however, must have been a cumbersome and inconvenient arrangement in the struggle for life. Fancy a bunch of reproductive organs multiplying by subdivision and clinging together! It is clear that if a division of labour were to occur, it would be beneficial to the whole cluster. Some of the cells would remain procreative organs, while others would turn into simple vegetative organs, that is, feeders and protectors, not only of themselves, but also of the procreative cells. Thus it is supposed the foundation was laid of all animals and plants as we see them to-day, viz., a body which corresponds with its surroundings, and which gives cover to an organ of procreation. The reader must not of course be very particular about time, such things are measured by the clock of the universe, in which a hundred million years are as nothing.

Now Weismann explains heredity by the subdivision of those primordial-cells which have continued as reproductive cells, containing germ-plasm. It is clear, according to his theory, that the modern germ-cell, whether of animal or plant, is only a piece of that unicellular creature which lived, it may be, hundreds of millions of years ago.

He does not admit that the somatic or body-cells have any influence in varying the generative cells, and therefore acquired habits of the body cannot be transmitted to future generations. The only variations he admits in the offspring are congenital, or such as are brought about by the mixture of the contents of the male and female reproductive cells. Therefore, the splitting up of the sexes in separate individuals, each having a long and distinct line of ancestors behind it, is conducive to variation in the offspring, which variation is laid hold of by natural selection, and worked up into species, genera, &c.

That part of Weismann's theory, which supposes the germ-plasm of to-day to be a piece of the germ-plasm of unicellular bodies in the beginning of time, and its variation by marriage of male and female germ-cells appears satisfactory; but the other part of his theory, viz., that the body or somatic cells have no influence in producing variations in the offspring is hardly believable. He says that the only office of these somatic cells is that of nourishing and protecting the germ-cells, or reproductive cells.

Supposing that all living things were originally unicellular, we must suppose that both germ-cells and somatic cells must have originally been germ-cells. These he admits were influenced by their surroundings. Then, by what manner of reasoning does he exclude the influence of surroundings now that it is the somatic cells, which constitute the surroundings of the germ-cells? Either there is a flaw in Weismann's chain of reasoning, or the modern surroundings of the germ-cells—the body—still continue to influence the germ or reproductive cells, in however small a degree.

Be all this as it may, the object of my putting these rival theories before the reader is to suggest, by the help of Weismann's theory, what may be a new idea.

According to Weismann, both germ-cells and body-cells were originally germ-cells, the body-cells being germ-cells turned to another purpose. In other words, they are abortive germ cells, which, in the course of the struggle for life of the individual, have been utilised for various purposes. These abortive germ-cells are now the various tissues of plants and animals. If so, we may have here a possible solution of the pangenesis puzzle. The lizard can remake its tail, a bit of leaf of certain plants can bud out the whole plant—reproductive cells and all. The pangenesis theory explains this by germs of all kinds of tissues circulating in the fluids of living things, and capable of reproducing the features of the parents.

By the help of Professor Weismann's theory, all this can, I think, be otherwise explained. The somatic, or body-cells, are nothing but abortive germ-cells turned to other purposes. Therefore, under certain circumstances and stimuli these originally germ-cells, but provisionally abortive or tissue-cells, may again be roused from their abortive tissue state to their active germ-cell state, and by reversion made to reproduce the whole parent form again.

Of this sort of reversion we have innumerable instances in plant-life. In the Begonia not only a bit of leaf can reproduce the parent plant, but even a hair of the epidermis can do so in Begonia phyllomaniaca. Thus, by the help of Weismann's theory, the phenomena we see would admit of more reasonable explanation than by the theory of pangenesis.

Then, to understand the ease with which the somatic-cells, influenced by their surroundings, could in turn influence the germ-plasm, as its surroundings, it is sufficient to have heard Lord Rayleigh's lectures on electricity at the Royal Institution. One becomes impressed with the facility with which bodies can become polar. He took an iron bar, which was not magnetic. This he ascertained by trial with the galvanometer. He then held it in a certain position with reference to the earth's magnetism, and simply gave the bar a few taps. By retrying it with the galvanometer, he found it had become magnetic. The slight vibrations produced by the tapping were sufficient, under the influence of the earth's magnetism, to make the molecules of the bar polar. Every function in the body of animals is under the influence of the nervous electricity. In plants it has not been ascertained that there is any tissue analogous to the nerve-tissue of animals, yet their cells are eminently sensitive to heat, light, and, presumably, to electro-magnetic disturbances.

How these subtle influences can be prevented from first influencing the body-cells, and through them the germ-plasm of the reproductive cells, we have yet to learn. If there is any function more influenced than another by changes, it is the reproductive function. By simple change of surroundings, both animals and plants, although apparently perfectly healthy, often refuse to breed. This being so, even if we exclude the intervention of the body-cells, we must admit the direct influence of surroundings on the germ-plasm.

However impossible it may be to believe that the body-cells have no influence on the germ-plasm, I believe that by the help of Weismann's theory, we can explain the budding of the whole of the parental features from almost any part of certain plants. The somatic cells, though abortive germ-cells, are nevertheless in certain plants also potential germ-cells. In these plants either all the tissue-cells are potential germ-cells, or dormant germ-cells are scattered about among the abortive ones. Which of these it is will have to be left a good deal to the imagination.

The difference between Darwin's pangenesis and Weismann's pangenesis would be, that the former supposes infinitesimally minute germ-cells circulating in the fluids, while the latter would suppose every cell either actually or potentially filled with the germs of the future being. *E. Bonavia, M.D.*

RAILWAY RATES.

ALMOST before the majority of the trade has fully realised the enormous interests which are involved in this matter, the Board of Trade Inquiry has concluded its sittings. We do not wish to infer that the inquiry has been a hurried one, nor that all matters brought before Lord Balfour of Burleigh and Mr. Courtenay Boyle have not received from them that patient consideration which their importance deserves; on the contrary, we cannot speak too highly of the very great care—not only on matters of principle, but also on the most minute details affecting the various trades—which has been bestowed by them. The inquiry was necessarily of a most complicated nature, and called for not only judicial calmness, but great concentration of thought on the part of the tribunal.

The agitation on the subject of Railway Rates and Charges commenced as far back as 1846, in which year a parliamentary committee reported that a revision of them had become imperative; but, notwithstanding this report, it was not until the year 1854 that an Act of parliament was passed relating thereto. In the course of working out this Act, it was found that other provisions were necessary, and in 1868 another Act of parliament was passed, followed by still another in 1873. During this period parliamentary committees were continually considering the subject, and the Railway and Canal Traffic Act, 1888, was the outcome of the report made to parliament by a committee which inquired into the incidence of railway rates during the sessions of 1881–2.

It need scarcely be said that the traders of the country, and not the railway companies, were mainly instrumental in thus keeping the matter before the attention of parliament, and the above dates show that, however tardy the redress was, it came at length (or was believed by the traders to have come) in the Act of 1888. If the railway companies had carried out the spirit as well as the letter of the Act, the matter would have been considerably simplified. As a matter of fact, the schedules of revised classification and maximum rates and charges submitted by the railway companies in pursuance of the Act, were not in the form, and did not supply the information required by the Act, and it is mainly attributable to this fact that the inquiry has been so long pending. So soon as the schedules were deposited with the Board of Trade, they were eagerly sought for by all sections of traders, and objections were speedily formulated, and in due time lodged, not, however, before an extension of the time allowed by the Act had been granted.

The inquiry commenced on October 15, 1889, and terminated on May 21, 1890. Between these dates, Lord Balfour of Burleigh and Mr. Courtenay Boyle sat eighty-five days, of which sixty were devoted to hearing English evidence on principles, and speeches of counsel, eight to hearing Scotch evidence, four to hearing Irish evidence, and thirteen days were devoted to the consideration of the important subject of classification. The questions on principles alone amounted to 43,692; and the official minutes occupy a space of 3926 folio pages, but a perusal of these (if one could be found courageous enough to attempt it), would scarcely convey to the mind of the reader any definite idea as to the effect of the evidence and arguments submitted to the tribunal. Evidence was given at the inquiry on behalf of the horticultural trades by Mr. William Paul (Waltham Cross), Mr. R. C. S. Carrington (Richard Smith & Co., Worcester), Mr. Fraser (Leyton), and Mr. Goodchild, Secretary to the Nursery and Seed Trade Association, Limited.

The course now to be adopted will be for the Board of Trade to submit to Parliament a provisional order applicable to the London and North Western Railway Company and the Great Western Railway Company as fairly representative lines, and thus the matter will again come before Parliament, and unless prominent attention be called to the matter, the provisional order will quietly glide through its necessary stages, and when this has been done it will have the effect of an Act of Parliament, and be enforced accordingly.

Our space will not allow of a critical examination of the evidence adduced, either by the railway companies, or on the part of the traders; nor can we, in an article such as this, attempt, with any idea of success, to place before our readers any adequate notion of the degree to which their interests as traders are affected, but we reserve for ourselves the right of commenting on the report of the tribunal when issued; meanwhile, the trade should bear in mind that the ultimate battle will have to be fought in the House of Commons, and we would strongly recommend that they should bring to bear all the influence they have with their representatives in Parliament, in order to induce them to take an active interest in the matter, so that, when it comes on for discussion, they may be in a position to defend the interests of the traders of the country against the combined attempts of the railway companies to obtain advantages over them.

ORCHIDS AND OTHER PLANTS AT THE GRANGE, HACKBRIDGE.

The collection of A. H. Smee, Esq., is one that is rich in fine forms of Cattleya Mendelii and C. Mossiæ, good varieties of Odontoglossums, and many other rare or curious botanical plants. Scores of plants of the finest varieties of C. Mossiæ were in bloom on the occasion of my visit, each being different in some way from others, or marked by some special feature. White forms are found, commencing with the white C. M. Wagnerii; then followed by C. M. Reineckiana, a C. Wagnerii, as it were, but with a broad expansive lip, with crimson marblings; C. M. Arnoldiana comes next, with blush-coloured flowers, the labellum freckled with purplish-rose. Of the coloured petalled forms, the C. M. Schroderiana, a plant which attracted so much attention at the Temple Show of 1889, was remarkable; its petals of a pale rose colour, and the rounded and frilled lip devoid of the usual purple colour, but with white primrose and pink colours instead. Another handsome variety, Cattleya Mossiæ Mrs. Smee, is represented by a specimen with twenty-one flowers, of a warm shade of rose, the large labellum displaying bright orange at the base, on which is a violet-crimson oblong blotch, and the lip is finely crimped at the lavender coloured margin. C. M. majus, from the collection of the late Major Lendy, is fine; C. M. Southgatei, richly coloured, but not so good as the superb C. M. Londinensis, another *souvenir* of the Royal Horticultural Society's Temple Show of last season, and which has the finest flower and richest lip of any, although C. M. Rothschildiana and other finely-coloured varieties were in flower to compare with it. C. Mossiæ Smeeana has very delicately tinted flowers, the labellum brightly marked, and the old C. M. aurantiaca, with an almost wholly orange labellum, forms a variation which is not often seen in recent importations of the plants. Among the less showy forms was a singular-looking small-flowered C. Mossiæ, the edge of whose lip is quite flat and unfringed, presenting much the same appearance as an ordinary C. Mossiæ would do if the lip were clipped. Among the C. Mendelii were many handsome varieties, but all in point of beauty fell short of C. M. Hackbridgensis, which is a charming novelty—the sepals and petals white, the petals with a heavy rosy-crimson tip, and the lip of a glowing crimson colour. It is not one of the largest, but it is certainly one of the most attractive and novel of Cattleya labiata; C. Schroderæ and C. S. alba, too, were in bloom; also C. labiata Warnerii and other species, all of which seem to grow and flower well in the new Cattleya-house, the ventilation in which is novel, but perfect. Air is introduced at the bottom, near the level of the hot-water pipes; at two-thirds of the height of the house, at the eaves, the entire sides of the ridge may be lifted; and into a trough running along the ridge at the highest point from end to end the heated air passes through openings and out into the air through three openings which are fitted each with a movable cowl. In the East Indian-house an experiment is being carried out (Mr. Smee and his clever gardener, Mr. Cummins, are fond of trying feasible new methods) of growing Phalænopsis on concrete slabs, used as blocks, and suspending them against the wall, and in other parts of the house. The plants which were unhealthy when placed on these slabs have become strong, and their roots cling to the concrete readily. Some sickly plants of Angræcum Ellisii were also so fixed with similar good results. Several fine species were in flower in this house, the most noteworthy being a charming form of Phalænopsis speciosa with several spikes, the sepals mostly coloured with rich rose, whilst the petals are white with a large rose blotch. P. Manni is also in bloom here.

In a house among a good display of Odontoglossums and Masdevallias, we found the remarkable Odontoglossum crinitum sapphiratum, a hybrid in which O. Wallisii is supposed to have played a part; O. Smeeanum, another hybrid, and a most puzzling thing. It is not O. Andersonianum, or O. Wilckeanum or O. elegans, or O. mulus, or any other known variety, but it has some of the features of all four.

In the flowering house, nicely set up with Ferns and flowering plants, a good display of Cattleyas, Lælias, Odontoglossums, Cypripediums, &c., was observed, and many uncommon species, as Brassia caudata, B. antherotes, Ornithocephalus grandiflorus, Sarcanthus paniculatus, Oncidium candidum, O. macranthum hastiferum, O. pulvinatum, O. Janieriense, &c. Here, too, were fine specimens of Epidendrum vitellinum, Vanda suavis, Sobralias, Cypripedium caudatum, C. Elliottianum, and a fine lot of Odontoglossum citrosmum arranged by the cool-looking bay filled with Todea superba. In bloom in this house were fine examples of Odontoglossum luteo-purpureum hystrix, and O. Pescatorei; and some grand flowers of Cattleya citrina, which filled the house with fragrance. Every part of the Grange Gardens is interesting, and Mr. Smee and his gardener work together to maintain its interest. Here in the valley of the Ferns, now beautiful with the frondage of British species, are many exotic species, such as Struthiopteris germanica, and the still more stately S. pennsylvanica, Adiantum pedatum, Onoclea sensibilis, &c. On staging placed over the water were the Orchids, whose summer treatment outdoors has hitherto given such good results. Here in a sheltered bend is a specimen of Todea intermedia that is 6 feet across, and is only protected by a frame with plate-glass lights made specially for it.

In the conservatory are the tree Ferns and a specimen of Cereus peruvianus, 12 feet in height; the flowering plants of the season being arranged among them. Outside, the beds of herbaceous perennials make a great show in front of banks of shrubs which were gay with Rhododendrons and scarlet Hawthorn. The most showy flowers now are the white and blue forms of Centaurea montana, large patches of scarlet Geum, tufts and edging of Statice armeria, and Saxifraga umbrosa, and other species. Here flourishes the graceful Digitalis, the golden Chrysobactron Hookeri, the many-coloured Irises, and a host of other things, all of which must have added to the attraction of the Orchids in flower, the opportunity to inspect which nearly 2000 visitors availed themselves of on the occasion of the opening of the gardens to the public on June 1. *J. O'B.*

FLORISTS' FLOWERS.

THE CARNATION AND PICOTEE.

We may hope that the forthcoming exhibition of the National Carnation and Picotee Society, at Chiswick Gardens, will be superior to any of its predecessors, and that the Conference, on July 22, will be the means of extending a knowledge of these delightful flowers in regard to their culture as exhibition plants, and the best methods of border culture. Carnation and Picotee growers should well digest the subject matter of the various papers which will be read at the Conference, as well as contribute, where possible, something to the discussion which will follow the reading of the papers. Three papers will be read—viz., one on "Border Carnations," by Mr. R. Dean; "The Florists' Carnation and Picotee for Exhibition," by Mr. H. Turner, of Slough; and "The Carnation and Picotee as a Town Flower," by Mr. M. Rowan, of Clapham. The three subjects to be treated in these papers embrace a wide range, affording an opportunity for every kind of cultivator to take part in the discussion, and I hope that such an excellent opportunity will not be lost.

The exhibition Carnation and Picotee have certain well defined limits, known to all florists; but in these days of activity in raising and hybridising, the various classes have been and are still being extended. Many cultivators of Carnations and Picotees are greatly puzzled as to the different classes, or sections, into which their favourite flowers are divided; but these divisions are simple enough, and need but a practical demonstration at an exhibition to make the matter clear. This kind of teaching is of more value than any explanation which could be given in print, without any ocular demonstration at the hands of a florist.

The bizarre Carnations are commonly placed first, and have two colours on a white ground, viz., scarlet and maroon; crimson and purple; pink and purple. The next three classes have one colour, flaked on a white ground, viz., purple, scarlet, and rose.

The white ground Picotees also have six classes, viz., light and heavy red; light and heavy purple; light and heavy rose, or scarlet. There are, therefore, twelve easily defined classes according to colour, and the older florists did not admit anything else into their classification of these flowers. They also defined the height of the flower-stem, the width of the flowers, the length, breadth, and substance of the petals; the arrangement of the petals; the curvature of the edge of petals; the length and substance of the calyx, &c.

The yellow ground section has found a place in the National schedule ever since the establishment of the Society in the South. Improvement in this group was not very rapid at first, and for some years no more was done than merely to mark time; but the last few years have seen some changes, due, to a certain extent, to the greater number of exhibitors in this class; last year, there being four times more than at any previous exhibition, and the prospects for the present season are better than ever. Flowers of one colour only, whatever that colour may be, are termed selfs, and a nondescript group with fantastic colours finds a place among the fancies. These are usually run seedling flowers of other sections, mottled or spotted.

The selfs and fancies form classes much admired and exhibited, although the true florist cares nothing for them. With regard to tree Carnations, these are usually grown under glass; but it will be found on placing them out-of-doors that they do much better during the period from the end of May until September. The roots must not be cramped for want of space in the early stages of their growth, a check at that time not being readily recovered from. I find a little fibrous peat added to the Carnation compost is a good thing for perpetuals; and it is essential that the plants be kept free from greenfly. One stick may be placed to each plant for support, the side-growths being fastened loosely to it. *J. Douglas, Ilford, Essex.*

PLANTS AND THEIR CULTURE.

The Plants of the Stove.—Plants will have made rapid progress if the treatment has been that which was advised in my previous Calendars, but a very small amount of fire-heat will have been necessary, except during exceptionally clear, cold nights; and this is of great importance, as the use of the apparatus, together with increased sun-heat, causes insects that infest plants to multiply enormously, rendering the gardeners' labours in plant cleaning excessively tiresome. Occasional supplies of weak liquid manure and much water will be needed by all strong-growing and well-rooted plants. Plants,

especially strong-growing ones, should not suffer for want of root-space. Many of the plants for autumn blooming may be repotted, so as to secure early growth and maturity. Pits and frames may be utilised for growing some of these plants, closing these structures early in the afternoon, and airing them with care. The plants so grown will be sturdy, and, being close to the glass, will not get drawn. The hardier stove plants, such as Palms, Rhopalas, and Dracænas, which have made early growth, may now be transferred to greenhouses and conservatories, not affording them much water for a short time after removal from the warmer house, and placing them out of the way of cold draughts. Some of these plants will be benefited by the greater amount of space allowed them to develop.

used in place of cow-dung. The cuttings of Gardenia struck in the spring will require to be shifted into larger pots, keeping them very clean, as previously advised. Syringing with Bentley's soluble petroleum will destroy mealy-bug; mixing readily with water, it is not dangerous, like ordinary petroleum. Ixoras coming into bloom may be removed to a drier and cooler house, where they will last longer in perfection. When Ixoras are required for cutting, sparingly supply them with water, if in the cool-house.

Anthuriums should be watered with weak liquid manure, and any plant in full bloom may be removed to a cooler house for a time, if it be desirable to retard the plants.

Dipladenias coming into bloom require a liberal

THE ORCHID HOUSES.

EAST INDIA HOUSE.—The Saccolabiums in this house furnish a quantity of flowers at a dull season; and with such species in flower as S. ampullaceum and S. curvifolium, followed by S. Blumei majus and S. cœleste, much may be done in keeping the house gay with bloom until the autumn; the last-named plant has the sweetest perfume of any of the genus.

Dendrobium nobile and D. Wardianum should be watched, so that none of the early-flowering plants are allowed to get dry at the root, for when this occurs, the already half-formed pseudobulbs are very



FIG. 123.—PÆONIA CORALLINA: FLOWERS CRIMSON. (SEE P. 736.)

Gesneras—zebrina and others—should now be shifted, if a few of these were placed in small pots as advised; and any tubers left over at the last potting should be shaken out of the old soil and started into growth, using small pots for the purpose. G. Doncklaarii is a fine decorative species, worth growing.

Gardenias, now nearly over, may, in the case of old or unsightly plants, be thrown away, and the plants of moderate size examined, the shoots shortened back, and when they have recommenced to grow, be repotted, keeping them close for a time, and a little bottom-heat may be afforded them to induce early and free growth. A moist, warm pit is a good place for Gardenias in summer. Equal proportions of turfy peat, fibrous loam, decayed cow-dung, with some charcoal broken small, and coarse silver-sand, make a good potting compost. Bone-dust may be

supply of water, and occasionally liquid manure. Late plants may be repotted, and the shoots tied out. Stephanotis floribunda will last in bloom longer if the plants are removed to a cooler house, and are best when the growths are trained separately on strings just under the roof. These may be readily removed entire when in bloom. Clerodendrons likewise, do well in a house cooler than the stove, but syringing them overhead must be discontinued when the plants are in bloom, and decayed flowers removed daily. These plants remain in bloom for weeks when this practice of taking off spent flowers is followed. When flowering is over, give the plants stove treatment, and plenty of weak liquid manure. If the plants are small, shifting them into larger pots will do good. Creepers on the roof should be attended to before their shoots get entangled. *G. Wythes, Syon House, Brentford.*

apt to break again into growth at the base—always a misfortune, in throwing the plant out of its regular season of flowering; but if a very long season of rest be not afforded it, free growth is hindered the following year.

Miltonia Morelliana, now coming into flower, delights in heat and moisture; as also M. spectabilis. Hung up to the roof, these plants grow and flower freely. Amongst Aërides now flowering may be mentioned A. Godefroyæ, which is a grand variety of A. affine roseum, but with flowers as large again as those of the type, and much brighter in colour.

Unremitting attention should be paid to destroying insects, and no day should pass without someone being deputed to examine the young roots of Phalænopsis for lurking cockroaches. These pests eat the roots on the under side near the points. It is a good practice to lay down some poison once a week, as by

so doing the small insects that are apt to get introduced in new plants are destroyed. The sponging of the leaves of the plants, scrubbing the pots, and stages, &c.; are details of work which should not be neglected at this season. Nothing in this house will be likely to suffer from overhead syringing done in the morning with the exception of Calanthes. The temperature must be kept up to 75°, with a rise of 15° by day. *A. G. Catt, Parkfield, Hallow.*

THE FLOWER GARDEN.

The planting of all kinds of bedding plants should be carried on speedily, so as to allow the plants when in the soil the benefit of the genial showers which continue to fall in nearly all parts of the country. Attention should be paid to the stopping of shoots of the various kinds of plants, and their training and regulation; also to the removal of blossoms from Pelargoniums, Calceolarias, Verbenas, Petunias, &c., until the plants have become somewhat established. Carpet-bed plants require a good deal of manipulation, so that the designs in the beds be kept intact.

In dry situations, and where the soil is light, the flower-beds are the better for being mulched with leaf-mould, spent Mushroom-bed dung, or Cocoa-fibre, the moisture being thereby better retained in the soil than when it is left bare. A mulch is also a great economiser of labour in dry weather, not much watering being required. Where mulching is not resorted to, a frequent slight hoeing of the beds should be made, especially after heavy rains or artificial waterings. When the bedding is completed, the beds, walks, and lawns, should be tidied up; and Box-edgings still left untrimmed should be clipped without further delay. Where there has been a large amount of work in the removal of spring plants, in manuring and preparing of the beds, the tidying up will not be perfect if a coating of new gravel be not given to all the walks in the neighbourhood of the flower garden.

The Herbaceous Borders.—The plants in borders will be benefited by the soil being mulched with short dung. The foliage of all kinds of bulbs, as it dies away, should be cut off, and the bulbs taken up, or their site marked with a short stump, or a label; surplus bedding-plants or annuals being planted near by, but so as not to injure them. Stake and tie securely all subjects that require it, and continue to pay attention to this matter, otherwise winds will spoil their beauty.

Beds of Gladiolus should be well stirred on the surface until the plants are in vigorous growth, when a good mulching of dung will be of benefit to them. Seeds of Sweet William, Wallflower, Delphinium, Aquilegia, Digitalis, Canterbury Bells, &c., may still be sown in the open air, and the seedlings should be frequently dusted with quicklime to defend them from slugs.

Sweet Peas should receive their supports before they fall over on to the ground. Convolvulus, Canary Creepers, Murandyas, Lophospermum, Lonsa, &c., should also get support from stakes in the early stages of their growth. *D. C. Powell, Powderham Castle, Devon.*

FRUITS UNDER GLASS.

Strawberries in Pots.—The latest batches of British Queen will now be ripe, and the house may be utilised, after a good cleansing, for Melons, Cucumbers, or Tomatos, strong plants of which have been specially prepared for the purpose. In cold districts the latest Strawberries are sometimes protected with cold frames. These may be in pots, or planted out, and, under good management, fine fruit is obtained. The fruits must be suspended, or slugs and mildew will disfigure them. In the Midlands, Laxton's Noble is ripe out-of-doors in the middle of the present month, the plants being raised from runners planted out in August on a south border. The fruits are superior as regards flavour to any grown in pots indoors, and the variety may be regarded as an acquisition. The securing of the earliest and strongest runners is an important factor in Strawberry forcing, and steps should soon be taken to obtain them; the plants will then be sturdy, and will fill their pots with healthy roots, and the crowns, which should be single ones, will be plump and well matured by the end of the season. The best early runners are obtained from rooted runners put out in the reserve ground in August of the previous year. La Grosse Sucrée, President, Noble, Auguste Nicaise may be included among the varieties grown for forcing. In spring the blossoms of these mother plants should be cut off, so that the forces of the plants may be utilised in making runners. All blind or degenerated plants must be removed as soon as such are noticed.

In layering we use clean dry pots, with a moderate amount of drainage, and ram the compost—a turfy loam one year stacked—into the pots, but leaving sufficient space for watering. Five-inch pots are best for the earliest forced plants, and 6-inch for late ones. Arrange the pots conveniently for watering purposes. Stop runners at the first joint beyond the layer, which must be kept in its place with a peg, &c., till rooted. Sprinkle the layers every evening, and attend carefully to the watering of the pots. When rooted, cut the runner from the parent plant, and rearrange them thinly on beds of coal ashes.

Fig Houses.—Ripening Figs must have abundant ventilation, or the fruit will be deficient in colour and flavour. Do not overcrowd the foliage, but thin out useless shoots. The stopping of shoots must cease in the early house. Trees for next year's forcing should have their second crop of fruits severely thinned, in order to economise the strength of the trees. Allow the sun's rays entry to the house as much as possible, to give colour to the fruit and ripen the wood. Train the shoots thinly, and tie them loosely to the trellis, if planted out.

Figs in shallow borders will require copious waterings with manure water, and should the mulchings have become occupied with roots, another dressing may be added to the old. To keep red-spider in check, use the syringe as much as the ripening state of the fruits will permit. The small white scale common on Figs increases fast at this season, and attacks the fruit as well as the shoots. It must be removed by hand, no insecticide being allowable. This species of scale is best dealt with when the trees are dormant.

A species of red-rust attacks the foliage, and it is probably caused by a draughty ventilation, or the steam arising from syringing highly-heated pipes. There is, so far as I know of, no remedy for this evil. Brown Turkey is still our sheet anchor, but Negro Largo and Grosse Verte are good and fruitful varieties, making short stubby growth, suitable for early forcing, or permanent planting in shallow borders, and doing well in pots. Cuttings of dormant wood, struck in spring, will commence fruiting nicely the third or fourth year afterwards. These little bushes can be so managed as to produce fruit of good quality in succession, taking one crop only in a year, and then resting them out-of-doors, where they should not be exposed to rough winds, which are so hurtful to their foliage. *W. Crump, Madresfield Court, Malvern.*

THE HARDY FRUIT GARDEN.

The Protection of Fruit.—Strawberry beds on which the fruits have begun to change colour should have fish-nets put over them. We put a wire-netting sufficiently close in the mesh to exclude blackbirds, &c., all round the beds, pegging it to the ground, and fastening it to short stakes to keep it upright; iron or wooden rods are bent across at intervals to keep up the fish-netting, which is laid on the top. So managed the gathering of the fruit is conveniently done. The same kind of protection, but with rods of different length, is employed for Currants, Gooseberries, and Raspberries. By using wire-netting for the sides, the fish-netting lasts much longer, and the birds are effectually kept out. The fish-netting is fastened to the top of the wire-netting.

Peach and Nectarine.—Some gardeners believe that blister on these fruit trees will be cured on the advent of warm weather; but the fact is that the warmth seems to increase the evil. There is nothing for it but to pick off all the injured foliage; remedies, so far as my knowledge goes, there are none. But the leaves once removed, the young wood grows apace. The curl of the leaf is due to aphis, and these insects are very troublesome this season. Sometimes it is caused by root inaction, cold soils, and consequent immature wood. Insecticides which are strong enough to kill the fly are apt to be damaging to the fruits in their present stage, and the safest thing to use at this moment is tobacco-dust, a puff of which from a pair of bellows is generally sufficient to dislodge them, and a copious syringing clears away those that are left. Continue to pinch and cut back the young shoots, and train in all necessary wood for next year. Any tree which has a light crop is sure to show very strong growths, and timely attention must be given to such in training and stopping, and giving the wood full exposure to light. On these vigorous trees the new growths may be pinched closely, which is preferable to disbudding them at this season. *A. Evans, Lythe Hill, Haslemere.*

THE KITCHEN GARDEN.

The Brassica Tribe.—Brussels Sprouts should now be planted out in large breadths, 3 feet apart for the Otterspool variety, and a little less for the dwarf varieties. Let the quarter be free and open, and unshaded by fruit trees, and plant firmly on soil not made too rich. Light soils, or those containing much trenched-in manure, must be consolidated by trampling, or loose Sprouts will form. Give seed-beds a thorough soaking with water before removing plants for planting; and again afterwards, to settle the soil, and fill up holes. If the ground be very dry, dip the plants in puddle, and draw a little dry soil over and about the roots.

Cauliflowers, including Veitch's Autumn Giant and Self-protecting, should be planted, allowing more space between these two varieties than is usual with Walcheren. Lift the plants with a trowel, and plant them with the same implement, not breaking the ball. Cauliflowers want considerable quantities of water throughout the growing season. Plant the late summer Cauliflowers on well-dunged, deeply-dug soil; but for Autumn Giant, poorer soil, free of rank manure, is more to be advised. Early-planted Cauliflowers may be supplied occasionally with manure-water, doing this copiously.

Kales, Sprouting Broccoli, &c., may be planted in an open site, either on ground by themselves or between the rows of early Potatos. The first-named is the better way, and in that case they should stand 2 to 2½ feet apart. Make the soil firm to induce sturdy growth.

Cabbages and Savoys. Any of these vegetables may be planted, but in warm parts of the country it is yet too early to plant them in quantity. The early Ulm Savoy needs not more than 1 foot space from plant to plant, whilst Drumhead should stand at 20 inches apart, and in rich land at still more. Another sowing should be made of Coleworts and Little Pixie Cabbages, to plant out after some of the summer crops are cleared off.

Scarlet Runner Beans may be sown, the seed being put in at 6 inches apart in the rows, and if the weather be dry, water the trenches before covering up the seed. Earth up the early sown Beans, and put the stakes to them before injury is done by wind.

Celery.—The main crop plants, now large enough, may be put into the trenches. It is important that Celery never gets checked by want of water or otherwise, and if the trenches have been properly prepared in advance, all that is required is to water the beds of pricked out plants before lifting, and remove a few at a time and plant, watering them at once. The afternoon is the best time to plant at this season, unless it be showery weather. All fresh-made trenches need to have the dung and soil well trodden before being planted. I have an idea that Celery from new seed is inclined to come with pithy leaf-stalks.

Continue to plant Lettuces in quantity, according to demand, selecting cool aspects. Make frequent sowings of Lettuces, Mustard and Cress, and Radishes, Chervil, and other quick-growing herbs. Top the early sown Broad Beans, and make another sowing of the early long-pods or Mazagan Beans. *H. Markham, Mereworth Castle, Maidstone.*

Dried Bananas.—We have received from Mr. Rodwell, of George Town, Demerara, some specimens of Fig Bananas, the flavour of which was rich and luscious, but which, from defective packing, were slightly mouldy on arrival. If this defect can be overcome, we think there might be a market here for these delicious fruits. We learn that they were dried in heated sand at a temperature of about 150°.

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

Correspondents sending plants or fruits to be named, or asking questions demanding time and research for their solution, must not expect to obtain an answer to their enquiries in the current week. Specimens should be carefully packed and numbered, and not more than six should be sent at one time.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

THURSDAY, JUNE 19.—Linnean Society.

SHOWS.

WEDNESDAY, JUNE 18.—York Gala (three days).
THURSDAY, JUNE 19.—Ryde.
FRIDAY, JUNE 20.—Scottish Pansy.

SALES.

WEDNESDAY, JUNE 18, Japanese Maples, Ferns, Palms, &c., at Protheroe & Morris' Rooms.
FRIDAY, JUNE 20, Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—61°.2.

The Theory of Heredity.

THEORIES and hypotheses are not in general viewed in any favourable light by the so-called practical man. Nothing is more common than to hear from his lips the expression, "an ounce of fact is worth more than a ton of theory." Nothing is more certain, however, than that such an expression represents only a fraction of the truth, and that fraction seen from one standpoint only. Moreover, experience shows that if he wants facts, there is no surer way of bringing them to light than the discussion to which a theory gives rise.

The practical man, without knowing it, avails himself of information which in his forefather's time, nay, even in his own, was a matter of speculation. If he confines himself to what he himself has seen with his own eyes, and learnt by his own experience, his range must of necessity be extremely limited, even supposing him to have seen correctly, and to have interpreted faithfully—assumptions that are not likely to be admitted as correct by anyone except himself. That word interpretation is very significant. The bare fact or facts observed by the practical man are of no value, either from a scientific or a strictly practical point of view, till they have been correlated with others, and their meaning made clear—interpreted in fact.

Theory is the correct interpretation of facts, and as such of permanent value, while hypothesis is the conjectural rendering made use of, provisionally, as steps may be, to afford the observer a more convenient and comprehensive standpoint, but to be no longer used when the purpose is served, or when some other hypothesis is devised to give a wider range of vision. Observation, comparison, inference, hypothesis, theory, these are the progressive stages through which the worker in natural science must pass in his search after truth. If from necessity or choice the worker confines himself to one department only, his capabilities as a practical man are necessarily limited in direct proportion. The theory of evolution, the hypothesis of natural selection, seem at first sight of too abstract and impractical a nature to be of any value to the cultivator. But let any one who remembers the *status quo ante* DARWIN, take cognisance of the wonderful advance in science, and of the wealth of facts—of facts, we repeat, which has been put at the disposition of the cultivator as a direct consequence of these theories, and he will be forced to admit that the practical man must have been a gainer in spite of himself sometimes, and that he will be increasingly so in the future, as the knowledge so obtained gradually filters into the brain, to be handed down to his successors as inherited experience!

We are led to make these remarks, in view of the discussions now rife, as to the manner in which the characteristics of living creatures, animals, or plants, are transmitted from generation to generation. The subject is a very abstruse and difficult one, but it touches upon the principles and even the practice of the cultivator at so many points, that it is not inappropriate to refer to it here. All creatures begin their existence in the simplest and most homogeneous manner; the simplicity of construction is rarely permanent, but usually gives way gradually to complexity of organisation, so that we find a mass of tissue, the "soma" of WEISMANN, whose office is to obtain nourishment and to increase by subdivision; and from this are evolved in course of time, and according to circumstances, the reproductive elements male and female. By the blending of the sperm and germ elements, a new creature is formed by division as before. Dr. WEISMANN thus draws a distinction between what he calls germ-plasm and soma-plasm. The germ-plasm has, in his opinion, hereditary endowments, and can be influenced by external conditions; moreover, it is, in his opinion, limited to a certain series of cells, while the somatic cells have no such hereditary endowment, and the changes and modifications produced in them by external conditions are not transmitted. We cannot pursue the subject further without entering into technicalities, which are not strictly necessary for the comprehension of the main point at issue; but we may refer to an address before the Linnean Society by the Rev. Professor HENSLOW on the 5th inst., and of which we append an abstract; as well as to an article by Dr. BONAVIA on the same subject in another column (p. 736).

Illustrations of the hereditary transmission of "acquired" characters were shown by Dr. MASTERS in the shape of a series of contorted Teazel stems received from Dr. DE VRIES, of Amsterdam, and which were the offspring of similarly distorted parents. Peloria, double flowers, and numerous other acquired conditions, are familiar to the gardener as reproducible by seed, and therefore offer exceptions to Dr. WEISMANN's hypotheses, which he has to explain in some way or another. In the meantime, whether his particular views be ultimately accepted, or whether they be found incorrect, and discarded accordingly, their discussion must serve to bring out a host of previously unknown facts, and to make clearer a number of those already gained to science, and of these the practical man will, as we have said, have the benefit.

Mr. HENSLOW, on the occasion above referred to, limited his observations to three propositions maintained by Dr. WEISMANN.

1. That there is a continuity of "germ-plasm" maintained in a "certain series of cells," from the germ-cell of the parent to the germ-cell of the offspring.

2. That characters acquired by individuals during their life-time by "use, disuse, practice, neglect, variations of nutrition, light, moisture, and climate" (p. 387) are not hereditary, and cannot be transmitted, because the influence of the "environment" can never reach the germ-cells.

3. That the transformation of species is due (i.) to direct changes in the germ-plasm of the germ-cells, effected by external influences; or else (ii.) by combinations of distinct germ-plasms by sexuality.

I. With regard to the first point, he showed that as plants can be propagated by the vegetative system anywhere, provided there be "embryonic cells" present, and a sufficient local nutriment within the tissue to develop roots, the theoretical germ-plasm must be generally diffused, and not localised in some definite (but unknown) track, as Dr. WEISMANN imagines.

II. and III. Mr. HENSLOW cited three cases in which characters acquired by plants during their lifetime were hereditary, viz.:—(i.), Parsnips raised by Professor BUCKMAN in 1848, from wild seed sown in a prepared border, showed "improvement" in the first season. This was more pronounced in the second generation from seed raised from the plants so cultivated; (ii.), Plants watered with salt-water by M. LESAGE developed a fleshy foliage similar to that of maritime plants. He found that seed saved from Cress thus treated showed a still further advance towards the "maritime" character in the second generation; (iii.), Professor BAILEY raised Squashes of different kinds from different soils, which proved to be hereditary.

It is to be observed that in the first two cases, no germ-cells existed while the roots of the Parsnip and the leaves of the Cress were being formed, as the development of the vegetative system of plants always precedes that of the reproductive. In the last case, the fruit was formed after the germ-cells of the flowers had ceased to exist. Mr. HENSLOW then pointed out that if the effects of the environment can and must be registered only in the germ-cells, as Dr. WEISMANN supposes, the time at their disposal is too limited. Thus in annuals the vegetative system is exposed to the environment for weeks; that of trees and shrubs it may be for years, and an Agave may require fifty years before it blossoms; but the time of flower (which alone contains the germ-cells), lasts but a few hours only. In Ferns, too, there are no germ-cells at all, these being confined to the ephemeral prothallus.

Mr. HENSLOW observed that he might (if it be thought necessary) appeal to Dr. WEISMANN's theory in support of his own contention, that the adaptations in flowers to insect fertilisation had been brought about by the direct influences set up by the insects themselves, for the germ-cell in the ovule and the sperm-cell in the anther were directly irritated by the visiting insects, and so capable of receiving impressions which manifested themselves in hereditary adaptations to the insects.

With regard to the last position, that sexuality is a cause of variation, it would seem that the remarkable constancy of specific character which prevails in Nature is somewhat adverse to the theory; but under cultivation variability is the general feature. This Dr. WEISMANN attributed to "panmixia," or indiscriminate crossing, in consequence of the withdrawal of natural selection. Dr. WEISMANN maintains that this will bring about atrophy; but hypertrophy, not atrophy, is the most frequent characteristic of cultivated plants.

Dr. WEISMANN says, that by "panmixia" there "follows a mixture of all possible degrees of per-

fection, which must, in the course of time, result in the deterioration of the average development of an organ" (p. 292). But he has overlooked the prepotency of a healthy parent. Thus a "semi-double" flower crossed by a "single" one gives rise to "singles," and not to a deteriorated offspring.

Hence, as far as plants are concerned, there does not appear to be anything which countenances Dr. Weismann's theory as represented in his book; but supposing the hypothetical substance, germ-plasm, to be really necessary, if it be generally diffused through a plant, one can account (1) for the universal production of buds capable of propagation; (2) for the acquisition of acquired and adaptive characters; (3) for their conveyance (by the aid of protoplasmic continuity) to the germ-cells when they arise, and so for hereditary character of acquired adaptation.

If this be so, the question arises, Is there any necessity for germ-plasm at all? May not protoplasm be capable of effecting all the phenomena of plant-life?

Water-Lily House, Cambridge Botanic Garden. — The view of the Water-lily house, Cambridge Botanic Garden, reproduced in Fig. 124, gives a good idea of a useful kind of structure for growing the beautiful Water-lilies and other aquatics of tropical and subtropical regions. As at the Royal Gardens, Kew, the tank occupies the greater part of the area of the house, and is surrounded by a path. Around the glass walls of the house, creepers of various species are grown on trellises, affording some amount of shade in summer, and giving a furnished appearance to the structure. A tank for Lilies is made usually 2½ to 3 feet in depth, with a cemented or stone floor resting on a very solid foundation. A drain exists at the lowest point, and an overflow drain near the top of the tank; and some few pipes from the heating apparatus are conducted through it, for the purpose of warming the water when the plants are starting into growth, and for some time afterwards. It is not an uncommon practice to run the water out of the tank when the foliage of the perennial inmates begins to die off; and place the plants to rest in tubs of water, kept in some other warm house. By so doing, the heating of the tank in the cold weather is unnecessary, and the house may be devoted to other plants for a time.



Fig. 124.—Water-lily house, Botanic Garden, Cambridge.

Cattleyas and Lælias at Lord Rothschild's.—At Tring Park, where a house is set apart for C. gigas, C. Dowiana, and others of this group, a fine display of bloom was to be seen recently of the varieties of C. gigas, which, notwithstanding the fact of their blooming heavily each year, are very healthy, and magnificently flowered. One of the richest in colour is C. g. Shuttleworthii, but the whole of the stock of these plants, either by reason of good culture, or lucky selection, has large and richly-coloured flowers. In the other Cattleya-houses C. Mossiæ, C. M. Reineckiana, are fine, the latter illustrated by us, August 9, 1884, having again had fifteen flowers on it this year. C. M. Wagneri is also good; and the varieties of C. Mendelii profusely flowered. There is also a houseful of Lælia purpurata in bloom, a houseful of white and coloured L. anceps, many of the specimens being 2 feet in diameter; a sprinkling of Odontoglossum plants in flower; a good display of Anthuriums; and the Vanda teres, which are planted out, and the Phalænopsis are in grand health—V. teres having still many splendid spikes, although large numbers have been removed.

New Potatos in May. — The first English-grown new Potatos of the season seen in the Horncastle part of Lincolnshire were on Saturday, May 31, sent to the Horncastle market by Mr. T. Kime,

of Mareham-le-Fen. They were very quickly all sold at 6*d.* per pound. The variety was that known as Sharpe's Victor, a very early kind. It is a circumstance unprecedented in the Horncastle district for new Potatos to be for sale in the market in the month of May. Hitherto, June 12 has been regarded as the earliest date, but Mr. T. KIME, who enjoys the reputation of being a great authority in Lincolnshire on Potato culture, has beaten the record by nearly a fortnight.

THE "ILLUSTRATION HORTICOLE."—In the last-issued number of this publication are plates of Malpighia ilicifolia, discovered in Cuba in 1838 by M. Linden. The plate (t. 103) is taken, life-size, from the plant introduced by him in 1841, and it is now a small shrub 18 inches in height. The leaves are like those of the Holly, and dull green, and the flowers are rosy-pink; and of Azalea indica var. Mdlle. Marie Vervaene, white, with rose flakes, semi-double (t. 104).

FLOWERS AND PLANTS FOR THE LONDON POOR.—We have received the following appeal from F. E. TRIPP, Hon. Sec. Flower Distribution Branch, Kyrle Society, 14, Nottingham Place, W.:—"The summer having returned, I again ask your kind permission to bring before your readers both the need of flowers for the London poor, and the gratitude with which they are received. As you are aware, the number of open spaces has much increased, with their increase comes also a demand for plants of all kinds for stocking them, so that we shall be thankful for gifts of these, or for money to purchase them. I shall be very much obliged if any intending donors either of flowers or plants would communicate with me in the first instance. I will then forward the address to which their kind gifts may be sent direct, as there being no storage place at the office, packages cannot be received there."

"KEW BULLETIN."—The June number, now before us, contains an article on compressed or tablet tea, dealing with the methods of its manufacture at Hankow, and at Chungking in Thibet. Timber trees of the Straits Settlements forms the subject of another paper. It contains much useful information on a great number of different species, giving the weights of a certain number of cubic inches, and of a cubic foot of each, and native names of the trees. Cotton in West Africa forms the subject of another paper.

NOMENCLATURE OF GARDEN PLANTS.—By LINNÆUS, what would now be termed florists were designated anthophili (flower-lovers), who in his day applied to their plants names which excited astonishment, "*vocabulis stuporem excitantibus.*" He goes on to say that this is a separate department of knowledge, "*propriam scientiam adeptis solis manifestam,*" and warns the botanist off in these terms:—"*Castra itaque eorum nullus sanus botanicus intret.*" This may or may not be advisable—we express no opinion; but that by the same rule the anthophili should abstain (as they did in LINNÆUS' time), from making use of botanical nomenclature for Orchids and other plants not botanically registered and described, and applying it to varieties, "*nec definita nec definienda et numero pene infinita.*"

CARNATIONS AT TRING PARK.—Such favourites are Carnations with Lord ROTHSCHILD, that six houses full of Souvenir de la Malmaison are in bloom at the present time. The fine plants are marvellously well flowered. One house contains the rose-coloured Princess of Wales, which is of the the same form as the older S. de la Malmaison, but colour is of rose of varying shades, the darkest shade being towards the centre of the flower. Many hundreds of plants in all stages of growth are found in cold frames, and serve to keep up the succession of these beautiful flowers to a late period of the year. Notwithstanding the large quantity of this one plant which one finds in bloom here, the manner in which the plants are displayed excludes the idea of there being too many; for instance, one bank of them is set up in the old conservatory, its mossed back wall planted with Ferns, and the roof and the pillars clothed with climbing plants, forming a nice setting; another houseful is arranged with Maidenhair Ferns, and so on. For a yellow Carnation, C. Germanica is considered the best variety, and a large house is filled with it. The plants are just now coming into bloom. Mr. Hill manages these things to perfection, and lengthens out their flowering stage to the utmost.

THE CARNATION AND PICOTEE UNION.—The annual exhibition of Carnations and Picotees will take place at Mr. DODWELL'S garden, Stanley Road, Oxford, on August 5. The schedule of prizes remains much the same as heretofore, with the exception that in the case of the class for single blooms of Picotees, the red-rose and salmon-pink-edge flowers will be shown together, and divided into classes for broad-edged, medium edged, and light-edged flowers; and the same will be observed in the case of the purple-edged Picotees, from deep purple to lilac. In addition, special prizes are offered from the sale of Mr. R. Ellis's new yellow-ground Picotee Maud—the 1st, for a decorative group of cut blooms, to be shown on a space not exceeding 7½ square feet, without cards, but with foliage of its own or other plants — singly grouped or bunched, either in full flower, partly expanded, or in bud, at the option of the exhibitor; the 2nd is for six buttonhole bouquets, and the 3rd is for a lady's bouquet. The main object in offering these prizes is for the purpose of illustrating the decorative value of Carnation blooms.

FROST IN NORTH WALES.—A correspondent at Mold, in Flintshire, writes:—"My thermometer registered 4° of frost on the night of June 7, and a good deal of damage was done in the garden amongst Potatos, Beans, and other plants."

ORCHID CATALOGUE.—The Dutch Orchidophile Club has published a supplementary *Naamlijst*, comprising the names and synonyms of certain species and varieties not included in the former publication. We believe that these very useful lists can be obtained from THR. L. L. QUARLES v. UFFORD, Spiegelstraat 8, La Haye, Holland.

VIENNA "LAND AND FORESTRY JOURNAL."—Under the title of *Land und Forstwirthschaftliche Austellungs-Zeitung*, the official organ of the General Committee of the Forestry Exhibition now being held in the Austrian metropolis, came into being on May 14 last, and will be issued weekly until the end of the exhibition, October 15. It contains numerous illustrations of exhibits, long and short notices of forestry groups collectively, and specially; official notices, programmes, guide to the city and neighbourhood, and much miscellaneous information valuable to visitors.

THE EARLIEST STRAWBERRY.—In the collection of varieties growing in the Royal Horticultural Society's Gardens at Chiswick, the variety Crescent Seedling has proved itself to be the earliest this season. Ripe fruits were to be seen on June 9.

LINNEAN SOCIETY.—At the evening meeting, to be held on Thursday, June 19, at 8 P.M., the following papers will be read:—"Observations on the Protection of Buds in the Tropics," by M. CRESSE POTTER, F.L.S.; "On the Vertical Distribution of Plants in the Caucasus," by Dr. GUSTAV RADDE.

IRISES AT CHISWICK.—These, which have been well described as the Orchids of the flower garden, make a gay display in a series of beds here just now. Amongst the ealiest to flower may be mentioned I. pumila cœrulea, standards and falls rich clear blue; I. p. bicolor, standards white, falls purple—a happy contrast; I. p. luteo-maculata, standards primrose, falls brown, edged yellow; I. biflorus atro-violacea, standards and falls rich purple — flowers both in spring and summer; I. olbiensis virescens, falls mottled purple and sulphur, standards bluish-white; the well-known I. germanica major, standards blue, falls purple—a striking flower. Amongst the bearded flags, which are all beautiful, I. flavescens, with its primrose standards and light primrose falls, may be specially mentioned. In the beardless group stands out prominently I. sibirica, standards bright blue, falls blue, reticulated white. Amongst the later-flowering kinds in the squalens section I. Lady Jane is noticeable, standards coppery-rose, falls madder red, reticulated white, with yellow crest—an unusual combination of colouring. In the pallida group, tall and strikingly handsome is I. mandraliscæ, standards and falls rich lavender and purple. Another tall-growing var. (bearing large flowers), in this section is I. Walner, standards lavender, falls purple-lilac.

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY.—The show of Orchids in flower at these nurseries is at the present season a particularly fine one, and well repay the visitors to this outlying suburb of London. We may mention a few of the fine things to be seen there:—Aërides Houlletii, Angræcum Sanderianum, Bifrenaria vitellina, Calanthe masuca, C. Sanderiana; Cattleya Lawrenciana, C. lobata, C. Loddigesii, and C. Mossiæ, many varieties; C. Mendelii, C. M. grandiflora, C. Wagnerii, C. Warnerii; Cymbidium Lowianum, and Cypripediums in great variety, including the finest and most novel hybrids, and species. Dendrobiums are numerous. Geodorum candidum is in flower; also Lælias cinnabarina, elegans, grandis, purpurata, and p. alba; many Masdevallias, especially of the Harryana type. In Odontoglossums, there are O. Alexandræ, O. cordatum, O. cirrhosum, O. citrosmum, O. Harryana, O. nævium majus, and O. Roezlii album. Miltonia vexillaria, in variety; Oncidiums cucullatum, Kramerii, macranthum, Marshallianum, and sarcodes; Paphinia cristata grandis, Scuticaria Hadwenii, Trichopilias, and Vandas, always most successfully grown at Messrs. WILLIAMS'.

REPORT ON THE FRUIT CROPS: ENGLAND.—Reports from the Home Counties early in May spoke favourably of prospects and anticipations of good crops of all kinds of fruit. Since then changeable weather has been experienced—some days very warm, other days very cold; morning frosts—and all kinds of fruit have suffered severely. Plums (Damsons, Plums, and Green Gages).—The prospect is very bad; not one-tenth of a crop. In many places there are absolutely none. Pears.—Although all kinds, except Hessel, blossomed well, very few have properly set; and there are not many in England of either early or late kinds. Black and Red Currants promised well—even as late as a week ago, it was thought that crops would be good; but since then, in some districts, they have been attacked by honeydew, and the crop now cannot be more than one-half, even if that. Cherries promised well, but early kinds were destroyed the second week in May. Since then the later sorts have suffered; taking reports all round, they cannot be reckoned at one-third of a crop. Strawberries and Raspberries promise well, but it is feared that unless warm weather soon set in, the fruit will be small, and the bulk reduced one-half. Gooseberries at one time were believed to be an exceptionally fine crop, but since then many districts have been attacked by vermin, and the morning frosts in exposed situations have done great damage, so much so that they can only be reckoned at a good half-crop. Apples blossomed well in some districts, in others not so well. Where growers have washed their trees, they will no doubt save the bulk of the crop; but in many districts where they have not washed them, the trees are attacked by vermin, and the crop (if any) must be a very poor one. On the whole, we think the crop can be reckoned at barely one-half.

FRANCE.—Crops generally, in the early part of May, looked very favourable indeed. Since then they have had a continuation of very cold, wet weather, and early Cherries have suffered severely. On the other hand, Apples in the south are said to be good crops; Plums and Green Gages half a crop. In the north,

Black Currants are only half a crop. Cherries are fairly good; but of stone fruit (Plums and Green Gages), it is stated that the oldest inhabitant never knew the crop to be so bad as it is this year. Pears are a fair crop. Apples look fairly good.

Belgium.—Reports from Ghent, Ostend, Maestrich, Sliedinge, and Namur, speak of—Cherries from a quarter to one-third of a crop; Green Gages and Plums only a quarter crop; early Pears half a crop; late Pears a fair crop; Apples are said to look well, with every prospect of a fair crop; although reports from one or two districts during the past few days speak of Pears and Apples being attacked by vermin.

Holland.—Crops of fruit have suffered much from late frosts during May, particularly Cherries, Gooseberries, and Pears. In the district of Guelderland particularly, the fruit has received much damage from "hail-storms." Gooseberries and Currants are said to be a fair half crop. Cherries are not more than one-third of a crop. Pears one-third of a crop, and Apples fairly good. Plums are a small crop.

Germany.—Owing to the mild spring, crops are forward, and fruit from the Rhine districts promised to be most plentiful; but the weather in May has affected these also, and they have been attacked by vermin; so much so, that Apples are now said to be a bad crop; and Cherries only half a crop. Plums a bad crop.

Taking these reports as a whole, it will be seen that —Cherries are bad all round; Plums are very short; and for Pears, England will have to depend upon foreign countries for supplies. It would, therefore, appear that on account of their scarcity, all kinds of soft fruit in good condition will meet with a profitable market. *W. N. White & Co., Limited.*

Mr. John Cheal, senior member of the firm of J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex, attained his 90th birthday on Saturday last, June 7. A handsome brass lamp and an illuminated address of congratulation were presented by the employés who were given an outing to Brighton on Monday.

Messrs. Sutton and Sons, Reading.—The employés of the above firm, to the number of 500, were given an outing on Tuesday, the 10th inst., Bournemouth being the place visited. A special train conveyed the party to its destination.

MARSDENIA ERECTA.

This is an interesting member of the order Asclepiadeæ, met with occasionally in botanical gardens, and worthy of more general cultivation. The plant (see fig. 125) is a semi-scandent bush, with foliage similar to that of Syringa vulgaris, but of a blue-green colour. The flowers are white, sweet-scented, and numerous, in umbel-formed cymes, and appear in July. It is half-hardy in this country. It was collected on Mount Olympus by M. Peters, collector in the service of the National Arboretum, Zoeschen Merseburg, who sent seeds of the plant to the director, Dr. G. Dieck, who has kindly furnished us with an illustration of it.

Home Correspondence.

Chou de Burghley.—I must make some slight apology to Mr. Gilbert for not making my meaning clearer (p. 647) with regard to the two vegetables, Savoy Cabbage and Chou de Burghley. My words read thus:—"For a succession, a sowing of the above should be made, and in many instances the produce will be found more serviceable than the larger heads from the earlier raised plants, which, if not cut when ready, split and rot." I think no man knows better than Mr. Gilbert that too early and full-grown Savoys and Cabbages, as soon as the autumn rains and fogs set in, are subject, more or less, to the evil of splitting, and soon become almost useless, and that medium heads or hearts are the best, and the most useful for meeting a large demand throughout the winter and spring months. And I would here remind Mr. Gilbert that I never write without having first, by repeated experiment, proved the truth of what I state; and although I do not remember to have seen the head of a true Chou split, I have had plants which were early planted, which, by the middle of the month of October, had become fine solid stuff, and in November the outer leaves began to burst asunder, allowing moisture to enter; and when this happens, a few degrees of frost will cause much of the outside to rot. I have proved the value of Chou de Burghley, when planted out later, as a vegetable in use in February and March, and it is for such late use that I specially recommended a late sowing of it. *H. Markham.*

Hardy Shrubs and Flowering Trees.—I was pleased to see flowering shrubs and trees were in recent issues of the *Gardeners' Chronicle* brought before the notice of your readers. There are so many beautiful evergreen and deciduous plants which, if they were planted more freely than is usual, would give in nearly every month something of interest in the garden. I enclose you a portion of a spray of Viburnum plicatum, which very few people hereabout seem to know. This plant, according to Nicholson's *Dictionary of Gardening*, was introduced so long ago as 1846, but it is yet rare in gardens. Our plant grows in a corner at my front door, facing south, and it is nearly 5 feet high and 2 feet in diameter. A fortnight since I counted 143 flower-heads upon it similar to those sent for your inspection. *R. Maries.* [Viburnum plicatum is a great improvement on the common Snowball, V. opulus. The white is what is known as French white. Ed.].

Lathyrus sibthorpii.—In connection with Mr. Baker's description of this plant on p. 704, may I call attention to Sweet's *English Flower Garden*, series ii., t. 333, which is a portrait of a variety of L. rotundifolius bearing a strong resemblance to the plant cultivated by Mr. Archer Hind. I know Mr. Archer Hind's plant well, as he has given it to me twice, and it has died after a year or two, seeming less hardy than the type. He sent me a fine flowering piece last week, which I compared with the figure in Sweet, and it seemed to agree. Sweet's figure was published in 1838, being taken from a plant in the Birmingham Botanic Garden. The description is by Don, but the name (var. elliptica) and characters are copied from De Candolle, *Prodr.*, vol. ii., p. 370, who gives them from a specimen found by M. Bieberstein in Georgia. As regards the European distribution of L. rotundifolius, I observe that the botanist Janka, says that it is found near Klausenburg in Transylvania; this is the only habitat given westward of the Carpathian range. It seems not improbable that the form L. Sibthorpii has been in cultivation in England longer than the type L. rotundifolius. No mention is made of either in Miller's *Dictionary*, published in 1807. Loudon's *Encyclopædia* gives 1822 as the date of the introduction of L. rotundifolius. In Maund's *Botanical Treasury*, vol. vi. (1835), I find L. rotundifolius figured with elliptical leaves. It is described as "very little known, but has long been cultivated in the Oxford Botanic Garden, to which it is supposed to have been introduced by Dr. Sibthorpe." Now Sibthorpe died in 1796, so that its introduction must have been before that date. *C. Wolley Dod, Edge Hall, Malpas.*

Waterloo Peach, etc.—When a very early Peach is required, this is, in my opinion, the best we have. Just recently, in looking through the well-kept gardens of Mereworth Castle, I was very much pleased to see how well Mr. Markham does it. This variety is generally thought to be rather small, and of very poor flavour. No doubt it is rather deficient in the latter respect, but as for size—well, most of the fruit turned the scales at 8 oz., quite large enough for general purposes, whilst the colour is most beautiful. Growing in the same house is a Grosse Mignonne, which has only just commenced to stone. This house was closed on February 15, and ripe Peaches of Waterloo were gathered on May 17, and with but very little forcing. The later houses, both of Grapes and Peaches, are looking remarkably well; and as for the Strawberries, when I saw them they were really grand, both in colour and size, principally Sir C. Napier. *G. W., Barham Court Gardens, Maidstone.*

Field Escapes.—In our little garden here (Reigate), we cherish what we call our three field escapes, although the first to be mentioned is a very doubtful native. The first time I saw the greater Celandine in our garden, waving its pretty, artistically cleft leaves, starred with golden flowers (not dreaming of a weed being cultivated), in the distance, I mistook it for the Stylophorum. The plants are growing in the shade of trees, which position seems, judging from their vigour and health, to be exactly suited to them, and not only in the distance, but at close quarters, presented a graceful and beautiful picture. The first feature of the plant is the foliage, indeed, in this respect the Chelidonium will bear comparison with most so-called garden flowers. Growing near is some London Pride, and the two coalesce well together. No one will ever regret planting any of the shaded spots and angles of the shrubbery or garden, so often left to take care of themselves, with this plant. It is even worthy of a better place. Our other two wild flowers are the Enchanter's Nightshade and the Henbane. The former must be kept in due bounds, as its spreading powers are very troublesome, but one or two are quite pretty enough to be allowed to remain. The Henbane (Hyoscyamus), is a very interesting and curious plant, and gives one many problems to think out the reason for, in its thickly plaited hairs, in the viscid exudations, and in the purple veins, which reticulate the lurid yellow petals. *C. A. M. Carmichael.*

Coloured Potatos.—Last spring I received an application for some of the Jersey Blue Potato. It was as if I had been asked to supply Tom Thumb scarlet Pelargonium. Remains of each may still exist somewhere in the country, but only as curiosities. I doubt whether the Potato is to be found in commerce; if it is, it must be where Potato culture has become fossilised. What a revolution has there been in Potatos since the day when Jersey Blue was a popular variety. Those were not exactly halcyon days for Potato growers, because the kinds then in cultivation were none too productive, and some of very indifferent quality; still, there was an advantage to growers in the fact that, because of the comparative paucity of sorts, it was not difficult to make a selection from the lists. Of late we have heard complaints of the difficulty experienced in making selections from so many. Mr. Fidler, of Reading, who grows for the convenience of the trade, probably has more varieties of Potatos than anyone else, offers a selection of some 150 sorts, but our fathers in the days of Jersey Blues got along with a dozen. The time came, however, in 1845, when the dozen sorts were nearly all destroyed. The growers of that day fought against the new, terrible, and insidious disease, as best they could, but it was a very unequal fight, and if many fine new sorts of some considerable disease-resisting power had not come to the rescue, the state of our Potato crops to-day might have been bad indeed. Thanks to the new robust sorts, we have such a wealth of Potatos for eating and for planting this spring, that any quantity may be purchased at from 40*s.* to 60*s.* per ton, rates which it would seem cannot possibly compensate the grower; with Jersey Blue, of coloured Potatos, the best known of fifty years ago were Fortyfold and Lancashire Kidney. The former of these had a fairly long lease of life, and was of its kind first-rate. It was, however, a moderate grower and cropper, and was well nigh extinguished in the fight with the terrible Peronospora. Coloured Potatos have never held other than a secondary place in the market, and have, as compared with white ones, been but moderately grown; we have never had, probably never shall again have, two such popular coloured sorts as Reading Russet, red round, and Vicar of Laleham, purple round, both first-class and abundant croppers; but neither have got into market quotations. Had they been white sorts they would have found a place there long since. We have never found a white counterpart of the Vicar. Both these varieties were grown in almost every part of the kingdom, and are now not much in request from the trade grower. For a long time Early Rose, the original American variety, was popular in market, the pale red hue of its skin being overlooked, because the variety was so early and prolific. But presently there came, also from America, Beauty of Hebron, which has a very pale pink skin, and that popular variety has clipped the wings of the Rose. The Beauty is now being displaced by its white-skinned form, so that it looked as if even pale red-skinned Potatos would soon be quite excluded from market sale. The market objection is of a very matter-of-fact kind. Still it appears to be a very absurd one; and there seems to be no probability that it will change. Apart from Hebrons, the chief sorts in market now are Regents, still largely grown in the north, but presumably seedlings from the old strains, Magnum Bonums, Champions, and Imperators, all white skinned and very robust growers. The latter two are exceptionally coarse growers and eaters, and grown so largely because bulk must be made to compensate for lowness of price. Since the International and other

Potato Shows have fallen through, there is very little demand for coloured Potatos of any sorts generally. That the prejudice against coloured skins is not confined to the market trade is evident, as otherwise many very fine sorts, having coloured skins, would still be grown in gardens; we have probably seen the best days of Potato exhibitions, and the demand for numerous varieties will possibly never be renewed. To raise even the finest of coloured forms is but to reap disappointment, no one caring to purchase them. I doubt whether we can hope to excel in quality or form as well as of cropping capacities, some of the coloured varieties still to be had if enquired for; therefore, apart from the general lack of interest in coloured tubers, there is little present need for creating new varieties. Even in the case of the finest of the whites, whether round or kidney, with tons by hundreds selling at 50s., what hope is there that novelties will attract attention. If the disease were to make almost a clean sweep of existing sorts, then some demand for new ones would arise; but such a disaster is widely improbable, whilst we have at once such robust heavy cropping varieties, and the disease appears in so comparatively mild a form annually, that nothing seems to concern Potato growers so little as harm to their crops from disease, whilst raisers are finding their occupation gone. *A. D.*

PRESIDENT STRAWBERRY.—May I write once more in praise of this old variety of Strawberry? Here we have grown it for successional crops during the last sixteen years, without being once disappointed with it; and where the soil suits it, as is the case at Hendre, but which is not the case at Mereworth, as Mr. Markham testifies, it will be difficult to supplant as a forcer. We usually reduce the fruits to nine or ten on a plant; half of these more or less develop to the size of those accompanying this note, while the remainder are somewhat smaller; and seeing that time and labour for special treatment cannot be afforded the plants, these results, although not remarkable, are nevertheless satisfactory, as the result of ordinary treatment. *Thomas Coomber.*

[Very nice, cockscomb-shaped fruits of this fine-flavoured, bright-coloured variety. The plant is very robust, and a profuse bearer, and in soils suitable to it there are few better varieties. ED.]

THE COMMISSIONERS OF 1852 EXHIBITION AND THE ROYAL HORTICULTURAL SOCIETY.—In a paper circulated at the great Temple Show are these words:—"With the Prince President seems to have passed away, gradually also, as far as our Society is concerned, the Commissioners' friendliness." This is unjust to the memory of my old friend, General Scott, who was one of the truest friends the Society has ever had, and as he was at one time both Secretary to Her Majesty's Commissioners, and also to the Society—an influential one. It is too long a question to be gone into now. In 1874, I published a pamphlet on *The Royal Horticultural Society as it is, and as it might be.* If I ever get time to continue the story, it will be seen that something can be said on Her Majesty's Commissioners' side of the question. *George F. Wilson.*

THE LIFE-HISTORY OF ÆCIDIUM GLAUCIS.—In the *Gardeners' Chronicle* for May 31, I drew attention to the fact that this pretty little Æcidium, which occurs on Glaux maritima, is heteræcious, and that its other conditions are to be found in an Uromyces, which occurs on Scirpus maritimus, and to which I then applied the name, U. maritima. This Uromyces is a very inconspicuous fungus, the spore beds being very minute, and are often placed upon the discoloured spots so common on the old leaves of Scirpus, that it is very easily overlooked. It is, however, more observable when the host plant is damp. The spores, too, are remarkable in form, being more like Puccinia spores in shape, but without any septum. Material gathered at Paull, near Hull, in August, 1889, germinated in April, and as I have before shown, produced the Æcidium on Glaux maritima during the month of May. From the Æcidium thus developed, spores were taken and applied to a healthy plant of Scirpus, and in thirteen days mature Uredospores were gathered. Subjoined is the description of the three spore-forms of this fungus:—

Uromyces maritima, n. sp.—Acidiospores pseudoperidia irregularly scattered on the leaves, sometimes circinating on the stems, causing elongated swollen distortions, shortly cylindrical, with torn white edges; spores sub-globose, epispore echinulate, colourless; contents pale yellow, 20—25 li.

Uredospores.—Sori small, dark brownish-black, linear or rounded, sometimes confluent, in the later stages often occurring on brownish discoloured spots, at first covered, then opened by the longitudinal splitting of the epidermis; spores sub-globose, ovate or pyriform, brown; epispore finely echinulate, 20—25×28—32 li. Stray spores attain a diameter of 40 lines.

Teleutospores.—Sori minute, oval, elongate, or linear, black, covered by the epidermis when dry, but exposed when moist; spores brown, smooth, fusiform or elliptico-fusiform; apex slightly thickened, acuminate, rarely rounded, 40—50×15—20 li.; pedicels pale brown, persistent.

The æcidiospores occur on Glaux maritima (=Acidia glaucis, D. and M.), the uredo and teleutospores on Scirpus maritimus. *Charles B. Plowright, Cleethorpes.*

PÆONIA BROWNII.—This rare species, introduced by the Royal Horticultural Society's collector David Douglas, was found by him near the snow line on Mount Hood, N. W. America. All of the plants which the Society gave away speedily died; but the plants kept in the gardens at Chiswick throve in a mixture of peat, a small portion of loam, and silver sand, more than one half of the mixture being sand. It was kept in a northern aspect, so that the sun shone on the plant for a few hours only in summer time. The plant was also covered at that season with a hand-glass to keep the soil and roots in a rather dry state. It is a very distinct and singular dwarf-growing plant, but it cannot withstand bright sunshine in summer, and all the plants exposed to it died. This plant flowered and was figured in the *Botanical Register*, t. 30, for the year 1839. The above hints may be useful to those who are trying to grow this plant. Mr. Peter Barr has it, or did have it in his collection, and if he has successfully cultivated it he would gratify some of the readers of the *Gardeners' Chronicle* by explaining to them how he has done it. *J. Douglas.*

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, *June* 10.—The Drill Hall on the above occasion was gay with hardy flowers, as Pæonies, Delphiniums, Shirley Poppies, Irises, Orchids (a few), and Pelargoniums; and but for the rain, which fell heavily in the afternoon, it would have been much visited by the public.

At 3 o'clock, Mr. G. Paul commenced the reading of his paper on "The History and Culture of the Pæony;" and was followed by the more scientific account of the various species by Mr. J. R. Lynch, of Cambridge Botanical Gardens. Both gentlemen were listened to by an attentive and appreciative audience.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. H. Herbst, T. Baines, R. Dean, J. Walker, T. W. Girdlestone, H. B. May, H. Cannell, B. Wynne, H. Turner, C. Noble, J. Fraser, G. Paul, H. H. D'Ombrain, W. Holmes, G. Nicholson, and F. Ross.

A Silver Challenge Cup was offered for a collection of herbaceous Pæonies from an amateur, the Rev. W. Wilks, Shirley Vicarage, Croydon, receiving the prize for a nicely-grown lot, without any competition; the rich red double-flowered officinalis was very showy, and the following varieties also:—corallina, Victoria Modeste, alba maxima albiflora, Ceres, and Anemonæflora.

Messrs. Kelway & Son sent from their nurseries at Langport, Somerset, a collection of cut flowers, which occupied almost the whole of one side of the Drill Hall. Varieties of herbaceous Pæonies formed the chief feature, and made a brilliant show of colour, some of the most noteworthy being Sainfoin, bright rose double, the flower large and solid; James Kelway, soft pink double; Raphael, rich cherry double; Princess Mary, creamy-white double; Queen Victoria, cream centre, with yellow guards; Snow Queen, pure white; Duchess of Teck, very full yellow centre, with rose guards; Duke of Clarence, a fine double flower of good depth, and elegantly curled petals, soft pink flush on cream; Lady Leonora Bramwell, rose-pink double—a large strong flower. Of the single varieties, which were not so numerous as the double, the best were:—Stanley, deep maroon-crimson; Dorothy Tennant, soft pink, shaded off to white; Duchess of Fife, large and bright cherry-rose; and Julia Kelway, rose flush on white—a finely formed flower. There were several varieties of Pyrethrums, both single and double. Mary Kelway was a very good white single of large size, and Aphrodite a good double white; in King Oscar is a fine double flower of carmine-lake, while Alfred Kelway is similar, but darker still; Florentine is a rosy-lilac double of large size. Amaryllis were also plentiful. Ernest Kelway, bright scarlet; and Maria Kelway, white, with carmine ribs, were good. The display was finished off by small lots of Irises and Delphiniums, among the latter being a large-flowered variety named Alfred Kelway, the spike solid and long.

An interesting collection of Sarracenias was contributed by Messrs. B. S. Williams & Son, Upper Holloway, N.; they were all well-grown examples, and specimens of S. purpurea received a good share of notice, other good specimens being seen in Mitchelliana, Patersoni, Wilsoni, and Chelsoni. In this group were also a plant shown as Arisæma filiformis, which had a spathe of dull green, marbled with brown—a very elegant-looking object; Berolonias, including one named Souvenir de Gand, being very attractive, the leaf-colours being rich lilac-crimson on a dull green ground; and an ornamental-leaved Begonia Louise Closson, the leaves dull dark crimson, with blotches of a lighter hue.

Hybrid Roses, the results of crossing our garden Roses with the Sweet Briar, were shown by Lord Penzance, and some of the results obtained were very pleasing, particularly the progeny from a cross with the H.P. La Souveraine, which yields a large single flower, 3 inches across, of bright rose, and a white eye. A cross with Harrisoni produced a flower of yellow, with a pale brown flush; very distinct, and having the Briar scent. The Musk Rose crossed with the Moss Rose Celina, gives a plant producing clusters of double flowers of dull crimson, and having a very peculiar odour.

Messrs. W. Paul & Son, Old Nurseries, Cheshunt, staged a nice lot of cut blooms of herbaceous Pæonies, showing several excellent varieties. Næmie grows to a height of 2 feet only, and the flower is large, rosy-flesh, and full! the dwarf habit should render it a very useful variety. A collection of cut herbaceous plants was also sent—Thalictrums, Potentillas, Shirley Poppies, Iris juncea major, Erigeron uniflorus, Achillea mongolica, pure white—very pretty; and Xerophyllum asphodeloides, a pretty little liliaceous plant, carrying its small cream-coloured flowers in a dense spike.

Nymphæa zanzibarensis, a flower of very large size, and a rich deep mauve-blue colour, together with Pachira insignis, with large flowers of yellowish-brown; and Solanum Wendlandi, with numerous flowers of mauve—a very decorative plant—were shown from the Royal Gardens, Kew.

Crinum brachynema, pure white, was sent by Mr. J. Smith, Mentmore Gardens, Leighton Buzzard; a peculiar feature is that the stamens close up the tubes of the flowers, which are borne in a good-sized head of about a dozen flowers, and the whole plant is about 2½ feet high.

A large-flowered Lobelia of the purest white—a very good variety, was shown by Mr. J. Witney, Tarvey, Beds.

O. T. Hodges, Esq., Chislehurst, showed a well-flowered specimen of Saxifraga longifolia.

Miss Harris, The Grange, Lamberhurst, sent a collection of varieties of Columbine, in a number of pleasing combinations of colours, and very elegantly set up for exhibition.

Messrs. J. Veitch & Sons, Chelsea, S.W., sent a collection of Hydrangeas, finely grown, and especially noticeable were hortensis mandchurica, rosea, and stellata fl.-pl. From the open air came flowering pieces of Rogersia podophylla with panicles of yellowish flowers, and Bomaria multiflora; a number of plants of Primula sikkimensis were also sent.

A small collection of Aquilegias and Iris came from the nurseries of Messrs. J. Veitch & Sons, Chelsea, also a boxful of cut blooms of the showy Hemerocallis flava, another of a dark blue Delphinium, some single spikes of D. Minerva, a dense long spike of cobalt blue, double flowers; D. Chancellor, dark blue; several Pyrethrum roseum in variety, Phlox ovata, &c.

Roses were shown by Mr. G. Prince, of Oxford, who had a fine lot of Princess of Wales, while, among other noteworthy blooms, were Maréchal Niel, Comtesse de Nadaillac, Souvenir d'un Ami, Souvenir de S. A. Prince, Adam, and Souvenir

d'Elise Vardon. Mr. Eckford, Wem, sent blooms of fancy Pansies, and Messrs. Clibran & Sons, Altrincham, sent three seedling Ferns, a Pteris serrulata var. with reduced pinnæ; P. cretica, crested; and a Gymnogramma, with the pinnæ irregularly reduced to the mid-rib.

A most interesting collection, thirty-six varieties, of Ivies was shown by Messrs. W. Cutbush & Son, of Highgate. The arboreal and variegated varieties of Hedera rhombea, and the various variegated forms of other varieties were conspicuous. Messrs. P. Barr & Sons, King Street, Covent Garden, had a very full collection of Irises, including the species and varieties of I. squalens, I. pallida, I. variegata, I. neglecta, and I. amœna. In I. pallida we may note I. Walner, of deep blue and purple, a lovely thing; I. p. Astarte, blue and purple; I. p. Dalmatian, pale blue; I. p. Garibaldi, rosy-purple; in I. variegata Mrs. Barron, rich yellow standards and striped purple falls; I. v. Prince of Orange, chiefly of two shades of orange: I. v. Ada, similar to Mrs. Barron but less good; I. amœna Victorine, white standards flaked with purple, and falls dark velvety blue-purple; I. a. Mrs. H. Darwin is white with purple stripes on the falls.

Mr. S. Barlow, Stakehill, Manchester, exhibited breeder show Tulips, and breaks in course of development, and perfect flowers, bizarres and byblœmens.

White Perfection Viola, pure in colour, and a profuse bloomer, good for bedding, came from Mr. R. Dean, Ealing; also Viola Snowflake, in the same way, and equally valuable as a white bedder: Cleome integrifolia, a hardy annual with purple flowers in terminal corymbs; Gaillardia aristata, yellow, with brown disc.

Orchid Committee.

Present: Sir T. Lawrence, Bart., M.P., in the chair; and Messrs. De B. Crawshay, H. M. Pollett, H. Ballantine, J. Dominy, C. Pilcher, E. Hill, F. Sander, L. Castle, A. H. Smee, H. J. Veitch, and J. O'Brien.

Messrs. B. S. Williams & Son, Upper Holloway, N., sent Cattleya Mossiæ decora, rosy-mauve, with a broad lip, the margin pale lilac, the tips of the petals having a line of crimson; also Odontoglossum crispum plumatum, the petals and sepals having, besides the spots, a feathery line of pale rose parallel with the margin.



Fig. 125.—Marsdenia reflexa. (See p. 745.)

Messrs. J. Laing & Sons, exhibited a few very choice double tuberous Begonias, showing advances in the direction of a stronger flower-stalk, and consequently more horizontal poise of the blooms. These were Viscount Wolseley, Sunset, Madame Pfitzer, and Black Douglas, flower in all cases large and double, and of distinct colours.

A number of plants of a tuberous Begonia with narrow acutely pointed leaves, mottled with green, pink, and white, were shown by Mr. B. R. Davis, Yeovil Nursery, Yeovil. In the young stages the leaves are very striking and pretty.

Some varieties of Pæonia albiflora, white, rose, and purple, came from Messrs. T. Ware & Son, Tottenham.

From the Home of Flowers, Swanley, Messrs. H. Cannell & Sons, were some large blooms of Aristolochia ornithocephala; grand trusses of show, fancy, and decorative Pelargoniums, the edged flowers Ledebour, Black Diamond, President Harrison, and Lily Cannell, being distinct and good florists varieties. Some double-flowered Begonias were also shown; Exquisite, Miss Fawcett, Golden Queen, Lady Pulestone, W. H. Lincoln, and A. Blanc being very fine varieties, with distinct and pleasing colours. Pelargonium zonal M. V. Noulens is a flower of bright shrimp-pink, with a small amount of white on the petals. It is good in its class.

One of the most attractive specimens was a hybrid Cypripedium, stated to be (niveum × ciliolare), shown by Mr. Ayling, gr. to J. Hollington, Esq., Forty Hill, Enfield. The flower was about 5 inches across, the ground colour pure white, wide lines and dots of rose-crimson on the downy oblong petals, and reflexed dorsal sepal, the lip being quite white; the staminode is that of ciliolare, but paler. One peculiar feature is that the lower sepal in the hybrid is almost as large as the dorsal one. The flower is a very elegant novelty.

C. L. N. Ingram, Esq., Elstead House, Godalming, Surrey (gr., Mr. Bond), sent plants of Cattleya Elsteadiana (Lælia purpurata × Cattleya Mossiæ); also a C. Mendelii, with a richly-coloured lip and tipped petals.

A. H. Smee, Esq., The Grange Gardens, Wallington (gr., Mr. Cummins), sent a fine form of Cattleya Mendelii, Alfred Smee, the petals very broad, lilac-rose; the lip flat and expanding, with a very undulating edge, the crimson being confined to the point, on account of the white areas being much larger, and coming more forward than usual. In C. Mossiæ Mrs. Smee, the yellow of the throat was produced far on to the lip, which measured about 2¼ inches in length; a fine form of Phalænopsis speciosa was also sent.

Phaius Humbloti and var. alba, the latter having petals and sepals of pure white—very elegant, were sent by Mr. Ballantine, gr. to Baron Schroder, The Dell, Egham.

From C. S. Cook, Esq., Kingston Hill, Surrey (gr., M. D. Cullimore), came a fine Cattleya Warneri, with a very deeply-coloured lip, and also a good piece of Cattleya imbricata maculata.

From Messrs. Sander & Co., St. Albans, was a pretty lot of well-grown plants, including Batemannia Wallisi, with a very striking flower. The central area is white, then the outer portions of all the parts, including the lip, are rich brown, with a netting of darker brown; at the base of the petal there is a dark purple spot on the white ground; other plants were Dendrobium MacCarthei, D. thyrsiflorum, Miltonia vexillaria, &c.

A specimen of Cattleya intermedia var. Parthenia was sent by Sir Trevor Lawrence, Burford Lodge, Dorking, the flowers are in all parts of snowy whiteness, and the plant was very attractive.

An Odontoglossum Pescatorei, a very showy variety, named Tilgate var., with richly coloured spots on the petals and sepals, came from J. H. Nix, Esq., Crawley (Mr. R. Young, gr.). Mr. W. H. Young, gr. to F. Wigan, Clare Lawn, East Sheen, contributed a beautiful and large flowered Phalænopsis grandiflora.

Mr. Studd, Bath (gr., Mr. Cypher), sent Sobralia macrantha rosea, with flowers of soft-shaded rose. The rare white-flowered Odontoglossum Galeottianum was sent by T. Statter, Esq., Whitfield, Manchester. Mr. Rann, gr. to J. Larkin, Esq., Highbury New Park, N., sent a finely flowered Odontoglossum cristatellum, with seven spikes. Mr. Wythes, Syon House, Brentford, had Oncidium sphacelatum. Sir W. H. S. Marriott, Bart., Down House, Blandford, sent Lælio-Cattleya Marriotti (C. Mossiæ × L. purpurata), in which the lip of the Lælia was prominent; and Messrs. J. Veitch & Sons, Chelsea, had the new Dendrobium lineale, a lax spike of flowers, 18 inches long, the flowers white with a lip of violet-mauve.

Fruit Committee.

Present: Sir C. W. Strickland, Bart., in the chair; and Messrs. J. Lee, T. F. Rivers, P. Crowley, R. D. Blackmore, G. W. Cummins, G. Bunyard, R. Balderson, F. Q. Lane, and J. Cheal.

From the Society's Gardens came plants of early Strawberries, showing that Crescent Seedling was the earliest of all. Mr. Rivers, Sawbridgeworth, sent samples of Cherries Early Rivers and Belle d'Orleans. Mr. J. Smith, Mentmore, Leighton Buzzard, sent ripe fruits of Strawberry A. F. Barron. Seedling Melons were shown, and from Mr. J. F. Pascoe, Adelaide, South Australia, came five varieties of Apples shipped per Smith, Elder & Co. They were in very fine condition.

The following are the awards:—

By the Floral Committee.

First-class Certificates.

To Lord Penzance, for Sweet Briar.

To Messrs. B. S. Williams & Son, for Bertolonia Souvenir de Gand.

To Mr. J. Smith, for Crinum brachynema.

Awards of Merit.

To Mr. J. Witney, for Lobelia Reine Blanche.

To Messrs. Paul & Son, for Xerophyllum Asphodeloides.

To Messrs. Paul & Son, for Achillea mongolica.

To Messrs. H. Cannell, for Begonia Golden Queen.

To Messrs. H. Cannell, for Gloxinia Agnes Cook.

To Messrs. J. Laing, for Begonia Black Douglas.

To Messrs. J. Laing, for Madame Pfitzer.

To Messrs. Kelway & Son, for Pæony Stanley.

To Messrs. Kelway & Son, for Pæony Sainfoin.

To Messrs. Kelway & Son, for Pæony Princess Mary.

To Messrs. Kelway & Son, for Pæony Duchess of Teck.

To Messrs. Kelway & Son, for Delphinium Alfred Kelway.

Silver Gilt Flora Medal.

To Messrs. Kelway & Son, for Pæonies.

Silver Banksian Medal.

To Messrs. Paul & Son, for cut flowers.

Bronze Banksian Medals.

To Messrs. B. S. Williams, for Sarracenias.

To Messrs. W. Cutbush, for Ivies.

To Mr. G. Prince, for Roses.
To Messrs. Cannell, for Pelargoniums.
To Mr. S. Barlow, for Tulips.

BY THE ORCHID COMMITTEE.

First-class Certificates.

To Phaius Humblotii alba, from Baron Schroder.
To Batemannia Wallisii, from Messrs. Sander & Co.
To Cypripedium seedling C. niveum, from Mr. C. J. Hollington.
To Sobralia macrantha var. rosea, from Mrs. Studd.
To Cattleya intermedia Parthenia, from Sir T. Lawrence.

Awards of Merit.

To Odontoglossum Galleotianum, from T. Statter, Esq.
To Cattleya Warneri, from M. S. Cook, Esq.
To Odontoglossum Pescatorei Tilgate var., from J. W. Nix, Esq.
To Cattleya Mendelii Alfred Smee, from A. H. Smee, Esq.

ROYAL BOTANIC.

JUNE 11.—The Royal Botanic Society, having been favoured with fine weather for the three flower shows previously held, was fated to experience very stormy weather on the occasion of their second summer show on the above date. Torrents of rain fell at the time the exhibition was opened to visitors, and the gravelled walks were almost too soddened to walk upon. It was in many respects a pretty and bright exhibition, but it was at the same time weak in some features; and if the specimen stove and greenhouse plants staged in the various classes had to be taken as representing the best grown in the neighbourhood of London, then the culture of this class of plants has fallen to a very low ebb indeed, for, with the exception of a few decent plants from Handcross Park, these were very poor.

In the open class for twelve specimens, Mr. J. F. Mould, nurseryman, Pewsey, was 1st; in the amateur's class for six, Mr. A. Offer, gr. to J. Warren, Esq., Handcross Park, Crawley, was 1st; and in that for six, open only to nurserymen, Mr. Mould was again 1st. One lot of six plants, in class 2, were unworthy of being staged, and it is a great pity that they were awarded a 2nd prize.

Orchids.—There was but one collection of twelve in the amateur's class—a superb lot, from Mr. Whillans, gr. to His Grace the Duke of Marlborough, Blenheim Park, Woodstock, all even, fresh, grandly bloomed, and admirably matched. They consisted of Cattleya gigas Sanderiana, C. Mossiæ, C. Mendelii, C. Warneri, Disa grandiflora, Lælia purpurata, Cypripedium caudatum, C. barbatum, Dendrobium Dearii, Anguloa Clowesii, Epidendrum prismatocarpum, and E. vitellinum.

Mr. J. James, nurseryman, Lower Norwood, was the only exhibitor in the class for twelve plants, having three varieties of Cypripedium barbatum, Cattleya Warneri, C. Mendelii, &c.

In the amateurs' class for a collection, Mr. J. Douglas, gr. to Mrs. Whitbourne, Great Gearies, Ilford, was 1st, with good pieces of Cypripediums, Cattleyas, Odontoglossums, including a fine piece of O. Roezli album, and Miltonia vexillarium; but, despite the imperative rule to the contrary, the Orchids and most of Mr. Douglas's exhibits, were unnamed. Mr. A. Howard, gr. to H. Little, Esq., Baronshalt, Twickenham, was 2nd.

Pelargoniums.—Some good specimens of large-flowered Pelargoniums were shown by Mr. C. Turner, Royal Nursery, Slough—Goldmine, Illuminator, Outlaw, and Sister of Mercy being of the best quality.

In the amateurs' class, Mr. D. Phillips, Langley Broom, Slough, was 1st, and these exhibitors occupied similar positions in the two classes for six fancy Pelargoniums. Some very well-grown and flowered zonal Pelargoniums were shown by Mr. D. Phillips, Mr. Howard coming a good 2nd.

Tuberous Begonias.—Mr. Howard was awarded the 1st prize for a very good collection of twelve plants, well grown and bloomed.

Pitcher Plants.—The only collection of Nepenthes and Sarracenias, and that a good representative one, came from Messrs. B. Peed & Sons, Roupell Park, Brixton.

Exotic Ferns were a good feature. Mr. Offer had the best six, consisting of fine specimens of Cyathea medullaris, C. Smithii, Cibotium Scheidei, Davallia Mooreana, Dicksonia squarrosa, and Alsophila australis; Mr. J. Ford, gr. to Sir C. Pigott, Wexham Park, Slough, was 2nd, having fine plants of golden and silver Gymnogrammas, and a huge plant of Adiantum decorum. The only exhibitor of a collection of European Ferns was Mr. Butler, gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park.

Foliaged Plants.—A very fine collection of six came from Mr. Offer, and consisted of very fine examples of Cycas revoluta, C. circinalis, Encephalartos villosus, Croton Warrenii, C. angustifolius, and Dasylirion acrotrichum; Mr. Ford was 2nd. Mr. H. James had the best six in the nurseryman's class, Mr. J. F. Mould was 2nd.

A fine lot of six Palms came from Mr. Offer, consisting of Kentia canterburyana, K. australis, Latania borbonica, Thrinax elegans, Pritchardia pacifera, and Phenicophorium sechellarum; Mr. H. James was 2nd, also with large specimens. Mr. Offer had the best six variegated-leaved plants, an even lot of bright looking subjects, his best specimens being Croton picturatus, C. Morti, Dieffenbachia magnifica, and Alocasia Veitchii; Mr. H. James was 2nd, having Dieffenbachia Jenmani, and a well coloured Dracæna Lindeni.

Cut Flowers.—In these classes some excellent Roses were shown. The best twelve, three trusses of each, came from Mr. Robins, gr. to E. D. Lee, Esq., Hartwell Park, Aylesbury, who had very fine examples of Catherine Mermet, Maréchal Niel, Devoniensis, Gloria de Dijon, Adam, &c. Colonel T. H. Pitt, Turkey Court, Maidstone, was a good 2nd. The best twelve trusses of any yellow Rose, were superb Maréchal Niel, from Mr. Robins; Mr. Geo. Mount, Rose Nursery, Canterbury, was 2nd, with Marie van Houtte. Mr. G. Prince, nurseryman, Oxford, had the best twelve trusses of any one variety, having glorious trusses of Princess of Wales, Mr. Mount being 2nd, with fine examples of The Bride. Mr. Mount was the only exhibitor of six scented Roses, three blooms of each.

Mr. James had the best twenty-four trusses of stove and greenhouse flowers, Orchids being a leading feature; and Mr. Douglas had the only twelve trusses of Orchids, both lots being shown in ordinary flower-pots with Fern, which is a method scarcely worthy of the traditions of the Regent's Park.

Messrs. Barr & Son had the best collection of Iris, staging a considerable number; and Messrs. Paul & Son were 2nd.

Show Pelargoniums were a good feature, Mr. C. Turner being placed 1st with twenty-four superb trusses; and Mr. D. Phillips was a good 2nd. Mr. Phillips was 1st with a similar number of trusses of zonal Pelargoniums; and Mr. Howard, 2nd.

Some very good fruit was staged. The best collection came from Mr. Edmonds, gr. to His Grace the Duke of St. Albans, Bestwood Lodge, Notts, who had very fine Madresfield Court, Black Hamburgh, and Buckland Sweetwater Grapes; Hales' Early Peach, Lord Napier Nectarine, Washington Plums, Queen Pine, Black Circassian Cherries, Sir J. Paxton Strawberry, Melons, &c.; 2nd, Mr. Robins, Hartwell House, with Buckland Sweetwater, Foster's Seedling, and Black Hamburgh Grapes, four dishes of Peaches, &c.

Some good Pine-apples were shown by Mr. T. Coomber, gr. to J. A. Rolls, Esq., Hendre, and Mr. H. Morris, gr. to A. P. Vivian, Esq., Glen Afon, Tarbock. Melons, in pairs, were well represented.

The best 12 lb. of Black Grapes, any variety, were superb Black Hamburgh, from Mr. T. Osman, gr. to L. J. Baker, Ottershaw Park, Chertsey; Mr. G. Clinging, gr. to W. Greenwell, Esq., Caterham, was 2nd, with capital fruits of the same variety.

The best 12 lb. of any white variety, came from Mr. R. Feist, gr. to R. J. Ashton, Esq., Staines, who had Muscat of Alexandria, very good; Mr. A. Smith, gr. to G. Sewell, Esq., Loughton, being 2nd, with Foster's Seedling.

Mr. Osman was 1st with three bunches of finely finished Black Hamburgh Grapes; and Mr. Edmonds was a good 2nd.

Mr. G. Thomas, gr. to W. E. Wells, Esq., Haltonhurst, Hounslow, was 1st with three bunches of any other black Grapes, staging very fine Madresfield Court; Mr. G. Clinging was 2nd, with the same.

Mr. Feist was the only exhibitor of three bunches of Muscat of Alexandria—remarkably good.

Three bunches of any other white were represented by good Foster Seedling, from Mr. Clinging, and from Mr. G. Astlett, gr. to C. Butler, Esq., Hatfield.

Mr. Douglas had the best two dishes of Peaches, unnamed; Mr. T. Hare, Weltingore Gardens, Grantham, was 2nd, with good fruit of Dr. Hogg and Early Louise.

Mr. Douglas also had the best two dishes of Nectarines, unnamed; Mr. J. Nash, gr. to D. Fuller, Streatham, was 2nd.

Mr. W. H. Divers, Ketton Hall Gardens, Stamford, had the best two dishes of Strawberries, staging Laxton's Noble and Auguste Nicaise; Mr. G. Thomson was 2nd with Sir C. Napier and President.

The best two dishes of Cherries were Black Circassian and Elton, from Mr. T. Hare.

In the class for miscellaneous fruit, Mr. J. Hudson, the gardener, Gunnersbury House, Acton, was awarded a 1st prize for a tray of fine fruit of Lord Napier Nectarine.

Botanical Certificates were awarded to Xerophyllum asphodeloides, two plants, of which from the open border, each bearing three spikes of bloom, from Mr. Howes, gr. to Lord Walsingham, Merton Hall, Norfolk; to Aërides Sanderiana, Epidendrum Randii, Cypripedium Volonteanum, Oncidium Roraimensis, and O. crispum Rothschildianum, Batemannæ Wallisii; Cattleya Mossiæ, Measureseanum, Odontoglossum Bleui splendens, Phaius Humblottii and P. Humblotii alba, Phœnix Rœbelenii, and Cattleya Brymeriana, from Mr. F. Sander, St. Albans; to Cattleya Mossiæ decora, Bertolonia Souvenir de Gand, and Arisema filiformis, from Mr. B. S. Williams, Victoria Nurseries, Holloway; to Odontoglossum Galeottianum, from J. Slatter, Esq., Whitefield, Manchester; to Cypripedium Aylingii, from Mr. E. Ayling, gr. to J. Hollington, Esq., Forty Hill, Enfield; to Saxifraga McNabiana, from Messrs. J. Laing & Sons, Stanstead Park Nurseries, Forest Hill, S.E.; to Cattleya Mendelii Hackbridgensis and C. Mendelii Alfred Smee, from A. H. Smee, Esq., Wallington, Surrey; to Cattleya Mossiæ Reineckiana pallida, from Messrs. H. Low & Co., Upper Clapton; and to Cypripedium californicum, a small-flowered species, nearly or quite hardy.

Floral Certificates were awarded to the following varieties of Papaver:—Orientale, Royal Scarlet, Prince of Orange, and Brilliant, from Mr. T. S. Ware; to Begonia Davisii variegata, from Mr. R. B. Davis, nurseryman, Yeovil; to Canna Madame Crozy, from Messrs. Paul & Son, Old Nurseries, Cheshunt. To Begonias, Marchioness of Headfort, Miss French, Viscount Wolseley, and Sunset, from Messrs. J. Laing & Sons; to Iris aphylla, Bridesmaid, I. variegata, Darius, and Campanula percisifolia alba grandiflora, from Messrs. Barr & Son, King Street, Covent Garden; and to Pæonies Stanley, Emily Kelway, and Duchess of Fife, single; and Duke of Clarence, Sainfoin, Princess May, and Duchess of Teck, double; and to Delphiniums Alfred Kelway, Evelyn Kelway, and Horace Kelway, from Messrs. Kelway & Son, nurserymen, Langport.

The following awards were made to miscellaneous exhibits, these forming some of the most striking and effective features in the Exhibition:—Silver-gilt Medal, to Messrs. F. Sander and B. S. Williams, for remarkably fine and valuable collections of Orchids; the Small Silver-gilt Medal, to Messrs. J. Laing & Sons, for a very fine group of plants, Orchids and Begonias being prominent; to Messrs. Kelway & Sons, for a wonderful collection of cut blooms of Pæonies, Pyrethrums, Delphiniums, Irises, &c.; and to Messrs. W. Paul & Son, Waltham Cross, for a collection of Roses, &c.; the Large Silver Medal to Messrs. H. Low & Co., for a collection of Orchids; and to Messrs. Thomas Rivers & Son, Sawbridgworth, for a collection of fruit trees; the Small Silver Medal, to Mr. G. T. White, Winchmore, for a group of Orchids; and to Messrs. H. Cannell & Co., for a collection of Begonias. The Large Bronze Medal to Messrs. Barr & Son, for a collection of cut blooms of hardy flowers; to Mr. T. S. Ware, for the same; and to Messrs. W. Cutbush & Son, nurserymen, Highgate, for a collection of Ivies. The Bronze Medal to Mr. J. F. Mould, for a collection of Ericas; and to Mr. G. Prince, for cut Roses.

A basket of fine, dark, Tree Carnations came from Mr. T. Pike, Park Road, Acton, bearing the name of Uriah Pike; and cut blooms of his two new decorative Pelargoniums, Princess Beatrice and Prince Henry, from Mr. F. Perkins, Regent Street, Leamington.

READING HORTICULTURAL.

JUNE 4.—A very bright summer show, held as usual in the Abbey ruins on the above date, was completely marred by a steady fall of rain during the afternoon. In this respect, the Society is very unfortunate, and when a wet day occurs, a certain financial loss results.

Stove and Greenhouse Plants.—The handsome prizes offered for twelve specimens in flower, brought

three collections, and Mr. Finch, gr. to J. Marriott, Esq., Coventry, coming in with fresh, well-grown, and well-flowered specimens, was able to beat Mr. J. Cypher, of Cheltenham. Mr. Finch's leading plants consisted of a fine piece of Cattleya gigas, Clerodendron Balfourianum, Dipladenia Regina, Erica affinis, E. ventricosa minor, Ixora Fraseri, and the fine Azalea indica Model. Mr. Cypher had good plants of Erica vintricosa minor alba, E. tricolor Wilsoni, Darwinia fuchsoides, D. tulipifera, &c. Mr. Mould, nurseryman, Pewsey, took the 1st prize with six plants, having medium sized, even specimens in good condition.

In the class for four plants, Mr. Baskett, gr. to W. J. Palmer, Esq., Reading, was 1st; and Mr. Woolford, gr. to A. Palmer, Esq., 2nd. The best specimen plant was a finely grown and bloomed example of Clerodendron Balfourianum, from Mr. Baskett; Mr. Willis, gr. to H. J. Simmonds, Esq., Reading, was 2nd, with the same, also a very fine plant.

Ericas.—In the class for six, Mr. Mould was 1st; and Mr. Cypher 2nd. Mr. Mould had good examples of E. Cavendishiana, E. ventricosa, E. depressa, and E. Fairrieana. Mr. Cypher's best plants were E. affinis, E. Lindleyana, and E. tricolor Wilsoni.

Orchids.—These plants form more and more a feature at the Reading show each year. The best three were Mr. Cypher's, and consisted of fine examples of Cymbidium Lowianum, Cattleya Mendelii, and Cypripedium barbatum; 2nd, Mr. Baskett, with a fine piece of Oncidium sphacelatum majus, Dendrobium thyrsiflorum, and Cypripedium barbatum.

Some good specimens came also from Mr. Finch and Mr. Lawrence, gr. to Mrs. Owen Knox, Caversham. The best specimen Orchid was a very fine piece of Vanda teres, from Mr. H. J. Simonds; Mr. Lawrence coming 2nd, with a good example of Sobralia macrantha.

Groups of Plants were much inferior to those of preceding years. In the class for a large group, Mr. Woolford was 1st, with the only one that could lay claim to tasteful arrangement; Mr. House, gr. to J. O. Taylor, Esq., Reading, was 2nd. In the case of the smaller group, Mr. Frost, gr. to W. Palmer, Esq., Reading, was 1st, and Mr. Sumner, gr. to J. W. Hounslow, Esq., Reading, 2nd.

Pelargoniums.—The 1st prize for nine show varieties was awarded to Mr. Ashby, gr. to W. Fanning, Esq., Whitchurch—a good lot of well-grown and flowered plants. In the class for four specimens, Mr. Baskett was 1st, and Mr. Woolford 2nd.

Calceolarias and Gloxinias were finely shown, and made charming patches of colour. Some of the best Gloxinias grown for exhibition are found at the Reading Shows. Mr. Baskett had the best six plants, large, finely-grown, and of splendid quality; Mr. Lockie, gr. to the Hon. G. Fitzgerald, Oakley Court, Windsor, was 2nd. Mr. Dockerill, gr. to G. W. Palmer, Esq., Reading, had the best six Calceolarias, admirably grown and bloomed, and of rare quality; Mr. Baskett being 2nd, with plants only just inferior to those.

Roses in pots were shown in groups of six and four, and were very creditable. Mr. Dockerill was 1st with the former, and Mr. Lockie with the smaller number.

Foliaged Plants were well shown. Mr. Finch had the best six, Kentias being his leading feature; Mr. James, nurseryman, Norwood, was 2nd. Mr. Dockerill had the best six stove and greenhouse Ferns. In the class for four specimens, Mr. Baskett was 1st.

Some very good Palms were shown in threes. Mr. Finch was 1st, with good specimens of Kentia Forsteriana and Cocos Weddelliana; Mr. J. James was 2nd, having a fine Raphis, but two others out of condition.

Collections of fifteen exotic Ferns and Mosses, of six Lycopods, and also plants for table decoration, were good features.

Cut Flowers.—These were represented by Roses, an admirable twelve being shown by Mr. Turton, gr. to J. Hargreaves, Esq., Maiden Erleigh, Reading; Mr. Dockerill was 2nd. Show and fancy Pansies were fairly well shown. Mr. Finch had the best twelve bunches of stove and greenhouse flowers; and Mr. Castle, gr. to Mrs. Le Malet, Twyford, the best twelve bunches of hardy flowers. Buttonholes were also well shown, and some excellent vases of garden and wild flowers.

Fruit.—Some very good fruit was shown. Mr. Ashby had the best two bunches of Black Hamburgh Grapes; and two excellent bunches were also shown by Mr. Turton, who was placed 2nd. Mr. Turton had the best two bunches of white Grapes in Foster's Seedling. Strawberries were represented by a very fine dish of James Veitch; and another of Sir J. Paxton. Peaches by excellent Gross Mignonne, from Mr. Robins, Hartwell House, Aylesbury.

Vegetables were a good feature. Excellent round and kidney Potatos, Lettuces, Asparagus, Rhubarb, Cucumbers, and Mushrooms, being staged.

Messrs. Sutton & Sons Special Prizes.—These were for six Begonias, Mr. Lockie being 1st with some admirably-grown and bloomed plants; and Mr. Goodman, gr. to C. Hammersley, Esq., Bourne End, 2nd; also for six Calceolarias, some excellent specimens being staged by Messrs. Dockerill and Lockie, who were 1st and 2nd; also for six Gloxinias, some superb plants were staged by Mr. Baskett and Mr. Balchin, gr. to B. Simonds, Esq., Reading.

Messrs. Carter & Co., High Holborn, offered special prizes for their Model Cucumber, Mr. Lockie staging some fruit that was perfect in every respect; and Mr. Goodman was 2nd, with some that were scarcely inferior. Mr. Dockerill had the best fruit of Blenheim Orange Melon.

Among exhibits not for competition was a length of tables filled by Mr. G. Phippen, Oxford Road Nursery, who had plants, cut flowers, and floral decorations in great variety; Mr. Lees, gr. to Mrs. Marsland, the Wilderness, had Rhododendrons; and Mr. Churchman, Wokingham, a number of Melons.

COLONIAL NOTES.

BRITISH GUIANA.

PRIMITIVE games form the subject of a very interesting essay by Mr. Everard Im Thurn, who, as magistrate, has resided for many years among the Redskins, and who has on various occasions contributed remarkable photographs to our columns. In the present paper he describes various games and ceremonials in which the natives indulge, and which are remarkable for the imitation they offer of the habits of various wild animals, as well as for the Spartan endurance of pain which some of them entail. Teetotalism does not seem to be a native virtue. Some of the natives feed almost entirely on the Ita Palm, Mauritia flexuosa, utilising for this purpose the pith and the pulp of the fruit, while the fermented juice of the plant supplies them with drink.

STRAITS SETTLEMENTS.

The annual report by Mr. Ridley, the Director of the Botanic Garden and Forest Department, shows that the necessity of planting for timber on a large scale is being felt. The increased cost of smaller timber for poles, posts, &c., is already influencing the cost of cultivation of Gambier and Pepper. Of firewood the Mangrove swamps furnish a sufficient supply. The difficulty in cultivating Orchids arises from the permanent dampness of the climate, which prevents the plants from enjoying a season of rest, and develops a tendency to produce leaves and buds rather than flowers.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending June 7, is furnished from the Meteorological Office:—

"The *weather* has been generally changeable and unsettled, with somewhat frequent rain over all the more western and northern parts of the kingdom, while overcast skies and rain alternating with brief intervals of sunshine, have prevailed in the south-eastern districts.

"The *temperature* has not differed materially from the mean; in 'Scotland, E.' and 'England, N.E.' an excess of 1° or 2° is shown, while in most other districts there has been a similarly small deficit. During the early morning of the 1st the minima were very low for the time of year; at Cirencester the sheltered thermometer fell to 30°, and at Llandovery to 31°, while in most other localities (except on the coast), readings between 33° and 37° were recorded. The highest of the maxima were recorded on rather irregular dates, and, varied from 72° in 'England, E.' and 'Ireland, S.' to 65° in the 'Channel Islands'; 64° in 'Scotland, W.,' and 62° in 'Scotland, N.'

"The *rainfall* has been more than the mean in Ireland, Scotland, and the 'Channel Islands,' and just equal to it in 'England, S.' and 'England, N.W.'; in all the other English districts it has been less than the normal amount.

"*Bright sunshine* has been less prevalent (except in the 'Channel Islands') than for some weeks past. The percentage of the possible amount has varied from 19 to 33 in Scotland, from 22 to 24 in Ireland, and from 23 to 29 over England; in the 'Channel Islands' the percentage was 42."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	Temperature. Above (+) or below (—) the Mean for the week ending June 7.	Temperature. Accumulated. Above 42°, for the Week.	Temperature. Accumulated. Below 42°, for the Week.	Temperature. Accumulated. Above 42°, difference from Mean since Jan. 1, 1890.	Temperature. Accumulated. Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (—) than Mean for Week.	Rainfall. No. of Rainy Days since Jan. 1, 1890.	Rainfall. Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible Duration for the week.	Bright Sun. Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.		In.		
1	0 av.	57	0	+ 113	— 72	5 +	108	21.2	19	27
2	1 +	77	0	+ 72	— 58	1 +	91	12.1	30	30
3	2 +	92	0	+ 48	— 93	2 —	77	8.4	26	28
4	0 av.	95	0	+ 14	— 39	1 —	81	8.8	24	36
5	1 —	90	0	+ 11	— 26	4 —	74	8.7	29	32
6	1 —	91	0	+ 26	— 68	0 av.	77	10.5	27	34
7	1 —	70	0	+ 78	— 73	5 +	95	20.7	33	32
8	1 —	83	0	+ 70	— 81	0 av.	88	12.6	28	30
9	2 —	84	0	+ 23	+ 12	2 —	91	15.2	23	35
10	2 —	72	0	+ 31	— 55	7 +	101	13.3	22	32
11	0 av.	92	0	+ 31	— 14	6 +	103	19.4	24	34
12	1 —	92	0	+ 109	— 22	2 +	97	14.1	42	42

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

VARIORUM.

AN IMMENSE NURSERY.—Thomas Meehan, one of our most active and intelligent representatives in Common Council, has been, and continues, a man of success in whatever his varied resources are applied to. He wields a prolific pen, is fluent and pleasing of speech, and whether he skims from the surface of social and political affairs, or dives into the depths of scientific research, he is always interesting and instructive. It is the combination of rare qualities, no mere accident, which has made our townsman to follow safely in every one of his undertakings, and at the same time a *safe* man to follow. The practical and visible evidence of his enterprise is probably more familiar to many in what are known throughout the country as Meehans' Nurseries. Originally the nurseries were located on Main Street, and extended through to Chew Street, occupying the long strip of ground since divided by Meehan Avenue. Later the large business was removed to the present situation on Chew Street, back of Church, and now the nurseries extend from Chew Street to Stenton Avenue (the old township line), a depth of nearly three-quarters of a mile, and in one of the most attractive portions of northern Philadelphia. That these are the largest nurseries within the limits of the city is certain, if not the largest in the country. But apart from the remarkable success

thus achieved, the nurseries have opened a field of employment for a large number of persons—a living for many families, in fact—and in this we are sure the Messrs. Meehan & Son find not the least of their gratification. Success seems to have been perched on their banner from the start, and if that part of the city is not very soon hemmed in by brick and stone walls, it is hard to say where another decade will find the nurseries spreading to. *Germantown Guide, Philadelphia, U.S.A.*

Obituary.

JOHN RAWLINGS.—We regret to announce the death, on the 4th inst., at the age of thirty-five years, of Mr. John Rawlings, of the firm of Rawlings Brothers, Old Church, Romford, an eminent Dahlia grower. In the year 1888 a great flood occurred at Romford, and Mr. John Rawlings, who had serious work to do in consequence, obtained a severe wetting, which brought on pleurisy, that has now terminated fatally.

He was the elder of the two brothers trading as Messrs. Rawlings Bros., florists, of Romford, and the third son of Mr. George Rawlings, of Bethnal Green, for many years a well-known raiser and exhibitor of Dahlias. In 1879 Mr. George Rawlings retired, and the business passed into the hands of his second and third sons—John, the deceased, and Arthur. The brothers have been very successful in raising some very fine Dahlias, and the first batch sent out in 1879 comprised Mr. George Harris, Shirley Hibberd, Mrs. N. Halls (fancy), Frank Rawlings, and William Rawlings, followed by J. T. West, Mrs. Douglas, Mrs. Glasscock, Mrs. George Rawlings, Mrs. John Walker, Queen of the Belgians, R. T. Rawlings, T. J. Saltmarsh, Frank Pearce (fancy), and others. These are all fine varieties, and find a place among the best exhibition Dahlias of the day. *R. D.*

MARKETS.

COVENT GARDEN, June 12.

BUSINESS is now very good, and all classes of goods are easily cleared without alteration in prices. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Aralia Sieboldi, doz.	6 0	18 0
Arum Lilies, per doz.	8 0	12 0
Aspidistria, doz.	18 0	42 0
— specl. plants, each	7 6	10 6
Begonias, per doz.	6 0	18 0
Cactus, per doz.	12 0	24 0
Calceolaria, p. doz.	6 0	9 0
Cyperus, per dozen	4 0	12 0
Dracæna terminalis, per dozen	30 0	60 0
— viridis, per doz.	12 0	24 0
Erica Cavendishii, per dozen	18 0	48 0
— ventricosa, doz.	15 0	24 0
Euonymus, in var., per dozen	6 0	18 0
Evergreens, in var., per dozen	6 0	24 0
Ericas, various, doz.	8 0	24 0
Ferns, in var., doz.	4 0	18 0
Ficus elastica, each	1 6	7 0
Foliage plants, various, each	2 0	10 0
Fuchsia, per doz.	4 0	9 0
Heliotrope, per doz.	5 0	8 0
Hydrangeas, doz.	12 0	18 0
Ivy Geranium, p. doz.	3 0	6 0
Liliums, various, per dozen	18 0	36 0
Lobelia, per doz.	4 0	6 0
Marguerites, doz.	6 0	12 0
Mignonette, per doz.	4 0	8 0
Musk, per dozen	2 0	4 0
Nasturtiums, p. doz.	4 0	6 0
Palms in var., each	2 6	21 0
Pelargoniums, scarlet, per dozen	3 0	6 0
— per doz.	9 0	18 0
Petunias, per doz.	6 0	9 0
Roses, various, doz.	12 0	24 0
— (Fairy), per doz.	6 0	9 0
Saxifrages, per doz.	18 0	24 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Abutilons, 12 bun.	2 0	4 0
Azaleas, doz. sprays	0 6	1 0
Bouvardias, per bun.	0 6	1 0
Callæthiopica, 12 bl.	3 0	5 0
Carnations, 12 blms.	1 0	2 0
Cornflower, 12 bun.	2 0	4 0
Eucharis, per dozen	4 0	6 0
Gardenias, 12 blooms	1 6	3 0
Iris, various, 12 bun.	6 0	18 0
Ixia, doz. bunches	3 0	6 0
Heliotropes, 12 spr.	0 6	1 0
Lilac, white, Fr., bun.	4 0	6 0
Lilium, var., 12 bl.	0 6	4 0
Maiden Hair Fern, do	4 0	9 0
Marguerites, 12 bun.	3 0	6 0
Mignonette, 12 bun.	2 0	4 0
— French, per bun.	1 6	2 0
Myosotis or Forget-me-nots, 12 bun.	2 0	4 0
Narcissus, various, doz. bun.	1 6	6 0
Pelargoniums, scarlet, 12 spr.	0 4	0 6
— dozen sprays	0 6	1 0
Primulas, double, 12 sprays	1 0	1 6
Pæonies, 12 bunches	6 0	18 0
Pansy, or Heartsease, 12 bunches	1 0	2 0
Poppies, various, doz. bunches	1 6	6 0
Pyrethrum, 12 bun.	3 0	6 0
Roses, Tea, per doz.	0 6	1 6
— coloured, doz.	2 0	4 0
— French, doz.	1 0	2 0
— red, per dozen	2 0	4 0
— Safrano, dozen	1 0	2 0
— outdoor, 12 bun.	6 0	12 0
Ranunculus, 12 bun.	2 0	4 0
Spirea, doz. sprays	0 6	1 0
Stephanotis, 12 spr.	1 6	3 0
Tuberoses, 12 blms.	0 6	1 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.
Apples, ½-sieve	1 6	7 0
— Tasmanian, case	15 0	20 0
Grapes, lb.	1 6	3 0
Lemons, per case	12 0	20 0
Melons, each	1 6	3 6
Peaches, dozen	4 0	20 0
Pine-app'es, St. Michael, each	2 0	6 0
Strawberries, lb.	1 0	4 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.
Asparagus, English, per 100	12 0	...
Beans, French, lb.	2 0	...
Beet, red, per dozen	1 0	2 0
Carrots, per bunch	0 6	...
Cauliflowers, each	0 3	...
Celery, per bundle	1 6	2 0
Cucumbers, each	1 0	1 6
Endive, per dozen	2 0	...
Herbs, per bunch	0 4	...
Leeks, per bunch	0 3	...
Lettuces, per dozen	1 6	...
Mushrooms, punnet	1 6	...
Mustard and Cress, punnet	0 4	...
Onions, per bunch	0 6	...
Parsley, per bunch	0 6	...
Rhubarb, per bundle	0 6	...
Seakale, punnet	2 0	...
Shallots, per lb.	0 6	...
Spinach, per bushel	6 0	...
Sprue, per bundle	1 6	...
Brussel Sprouts, pr lb.	0 3	...
Tomatos, per lb.	1 0	...
Turnips, per bunch, new	0 4	...

POTATOS.—Since our last report, prices generally have had a serious collapse, and many samples of Foreign arrivals were nearly unsaleable. Jerseys and Cornish, 7*s.* to 8*s.*; Maltas, 5*s.* to 7*s.*; Lisbons, 3*s.* to 3*s.* 6*d.* East Kents commenced low, at 14*s.* per cwt. Stock of old Potatos very low, prices for which have seen no change. *J. B. Thomas.*

SEEDS.

LONDON: *June* 11.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market thinly attended, and without any feature either of interest or importance. Clover seeds generally are just now quite neglected. The Board of Trade returns estimate the Clover and Grass seed imports into the United Kingdom as 7554 cwt., value £14,397, for May, 1890; whereas for May, 1889, there were only 2931 cwt., value £6852. Mustard steady. Rape seed easier. Fine Blue Peas scarce and firm. Bird seeds unchanged.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, during the week ending June 7:—Wheat, 32*s.* 10*d.*; Barley, 25*s.* 1*d.*; Oats, 19*s.* 8*d.* For the corresponding period last year:—Wheat, 28*s.* 9*d.*; Barley, 20*s.* 9*d.*; Oats, 18*s.* 11*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *June* 11.—Plentiful supplies of green vegetables, new and old Potatos; demand good. Scarce supply of fruit; demand for same brisk. Prices as under: Foreign Tomatos, 2*s.* to 3*s.* per box; Gooseberries, 4*s.* 6*d.* to 5*s.* per half-sieve; Rhubarb, 1*s.* 6*d.* to 2*s.* 9*d.* per dozen bundles; Asparagus, 1*s.* to 1*s.* 9*d.* per bundle of 100 heads; Seakale, 1*s.* to 1*s.* 6*d.* per punnet; Cabbages, 2*s.* to 3*s.* 6*d.* per tally; Radishes, 2*s.* to 4*s.* 6*d.* do.; Cauliflowers, 2*s.* to 3*s.* per dozen; Spinach, 3*d.* to 6*d.* per bushel; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches; Carrots, 1*s.* 6*d.* to 2*s.* 9*d.* do.; spring Onions, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Parsley, 1*s.* 6*d.* to 2*s.* do.; Mint, 1*s.* 6*d.* to 2*s.* per dozen bundles; Beetroot, 6*d.* to 8*d.* per dozen; Horseradish, 1*s.* 1*d.* to 1*s.* 4*d.* per bundle; Egyptian Onions, 6*s.* to 6*s.* 6*d.* per cwt.; Endive, 1*s.* to 1*s.* 6*d.* per dozen; Cos Lettuces, 6*d.* to 1*s.* 6*d.* per score; Mustard and Cress, 1*s.* to 1*s.* 6*d.* per dozen baskets.

STRATFORD: *June* 10.—There has been an excellent supply of all kinds of produce at this market during the past week, and a brisk trade was done at the undermentioned prices:—Cabbages, 2*s.* 6*d.* to 4*s.* per tally; Greens, 1*s.* 6*d.* to 2*s.* per dozen bunches; Carrots (household), 50*s.* to 60*s.* per ton; Mangels, 12*s.* to 18*s.* per ton; Onions, Egyptian, 6*s.* 6*d.* to 8*s.* per cwt.; Apples, Australians, 15*s.* to 16*s.* per case; Watercress, 6*d.* to 7*d.* per dozen bunches; Lettuce, 1*s.* 3*d.* to 1*s.* 6*d.* per score; Mint, 2*s.* 6*d.* to 3*s.* per dozen bunches; new Carrots, 2*s.* to 6*s.* do.; Onions, 2*s.* 6*d.* to 3*s.* do.; Cucumbers, 3*s.* to 5*s.* per dozen; Gooseberries, 5*s.* to 5*s.* 6*d.* per half-sieve; Cherries, 4*s.* to 6*s.* per box; Tomatos, 3*s.* 6*d.* to 4*s.* do.; Peas (green), 5*s.* to 6*s.* per bushel; Asparagus, 1*s.* 8*d.* to 1*s.* 9*d.* per bundle.

POTATOS.

BOROUGH AND SPITALFIELDS: *June* 10.—Old: Regents, Scotch, 35*s.* to 45*s.*; Magnums, blackland, 35*s.* to 40*s.*; Lincolns, 45*s.* to 50*s.*; York, 65*s.* to 75*s.*; Kent and Essex, 50*s.* to 55*s.*; Scotch, 70*s.* to 110*s.*; Imperators, 40*s.* to 70*s.*; New: Malta and Canary Islands, £7 to £9; Jersey, £7 10*s.* to £9; Lisbons, £5 per ton.

SPITALFIELDS: *June* 11.—Quotations:—New Jersey rounds, 6*s.* 6*d.* to 6*s.* 9*d.*; do. kidneys, 7*s.* 3*d.* to 8*s.*; do. flukes, 8*s.* to 8*s.* 6*d.*; Cherbourg rounds, 5*s.* 6*d.* to 6*s.*; do. kidneys, 6*s.* 9*d.* to 7*s.* 6*d.*; do. flukes, 7*s.* 6*d.* to 8*s.*; St. Malo rounds, 5*s.* 9*d.* to 6*s.*; do. kidneys, 6*s.* 6*d.* to 7*s.*; Lisbon rounds, 4*s.* to 4*s.* 6*d.* per cwt. Old: Magnums, 35*s.* to 70*s.*; Champions, 38*s.* to 55*s.*; Hebrons, 30*s.* to 40*s.* per ton.

STRATFORD: *June* 10.—Quotations: English light Magnums, 50*s.* to 65*s.*; dark, do., 40*s.* to 50*s.*; Scotch, do., 65*s.* to 85*s.* New: Jersey flukes, 8*s.* to 9*s.* per case; kidneys, 7*s.* 6*d.* to 8*s.* 6*d.* do.; Curbons rounds, 3*s.* 9*d.* to 4*s.* 6*d.* do.; Cherbourg rounds, 5*s.* to 5*s.* 6*d.* do.; do. flukes, 8*s.* to 8*s.* 6*d.* do.; St. Malo, 5*s.* to 5*s.* 6*d.* do.; kidneys, 6*s.* 6*d.* to 7*s.* 6*d.* per score.

NOTICES TO CORRESPONDENTS.

BROCCOLI: *Methven & Sons.* A Broccoli of excellent shape; white, well protected, very robust, and of good flavour when cooked. It would probably prove to be a late or midseason variety in the South, and would fill up the gap sometimes felt between Broccoli and Cauliflowers.

CYTISUS SCOPARIUS ANDREANUS: *J. S.* This is merely a variety of the Spanish Broom, with brown and yellow flowers, and in all other particulars identical with the type.

FUNGI: *Forestry.* Fungi sent for naming must be perfect. Yours have imperfect stems; one is stemless. The spongy fungus found on the ground is Boletus granulatus; the smaller example, from the tree, is Polyporus adustus; the larger one from the tree, Agaricus adiposus, with its gluten washed off or dried up. *W. G. S.*

GRAPES: *J. R.* Badly fertilised flowers, and the Vines are growing with too much grossness to be very fruitful; the wood, nevertheless, is getting well ripened. You must artificially impregnate the bunches another season.

NAMES OF PLANTS: *J. Nelson.* Clematis lanuginosa; Anthericum liliastrum.—*J. H.* Austrian Briar, copper-coloured variety.—*E. L.* 1, Jasminum revolutum; 2, Hemerocallis flava.—*S. S.* Crinum Mooreanum.—*W. F. & S.* Dendrobium moschatum, but abnormal, two flowers being joined.—*C. E. F.* Stachys betonica var.—*G. C. W.* Serapias pseudo-cordigera.—*J. T. S.* Asteriscus maritimus.—*G. B.* Muscari comosum monstrosum.—*Hambley.* Cichorium Intybus (Chicory).

PANSIES: *J. C. & Co.* Pretty for beds and pots, if it be fixed in character.

PINE SHOOTS BORED BY BEETLE: *A. C.* Hylurgus piniperda. Fir thinnings and branches afford hiding and breeding places for the beetles, and should be cleared off and burned. In the case of small trees, the infested shoots should also be cut off and burned. Standing trees much affected should be felled. All Pine trees felled should be barked, and the bark taken away, as it is decayed bark that is their favourite breeding place.

SHANKING IN GRAPES: *J. W. S.* It is not known with certainty what it is that causes shanking in Grapes. But we do know that, in cold, heavy, close soil, especially when the border is deep, and the roots penetrate low down, or when it has been made with much manure, or too heavily mulched in summer, shutting out air and heat from the soil, the Grapes shank.

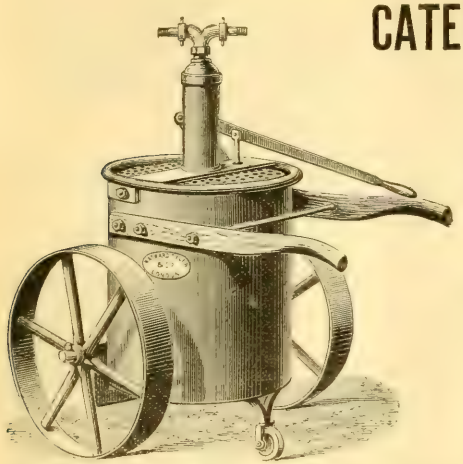
VINES: *J. Street.* The leaves and wood sent show great vigour, and the shanking you complain of may be due to errors in ventilation; but, as you do not send berries, we do not know if it be true shanking.

WATER IN GARDEN TANK: *E. C.* Neither the staleness of the water, or the Oak leaves laying at the bottom of the tank, cause the rustiness of the leaves or the falling of the flower-buds. The cause of these maladies may be traced to errors in ventilation, or to the use of too strong manures, artificial or other. You do not say if it is well-water or rain-water.

WHALE OIL SOAP: *A. C.* Any horticultural sundriesman would supply you with it.

COMMUNICATIONS RECEIVED.—B. G.—J. Shaw (shortly).—J. Street.—E. N.—J. L. (next week).—J. H. Storey.—H. W. W.—Dr. Dilling.—E. C.—J. F. W.—Southampton (send better specimens).—G. A.—B. T.—W. F. T.—W. Culverwell.—G. P.—W. T. H.—J. M.—C. G.—E. R.—J. B.—W. A. F.

CATERPILLARS ON FRUIT TREES.



THE BOARD OF AGRICULTURE

SPECIALLY RECOMMEND THE USE OF

HOP-WASHING ENGINES

AS THE BEST MEANS OF CONTENDING WITH THIS PEST.

HAYWARD TYLER & CO.,

Make a specialty of Hop-washing Engines, Syringes, Spray Producers, Improved Manure Engines, &c.,

90 & 92, WHITECROSS STREET,

LONDON, E.C.

Established 1815. *Awarded over* 40 *Prize Medals.*

THE

"JUBILEE" GARDEN ENGINE.



Easy to work. Adjustable in height. Handle at the side for steadying. Spare rose. Highly finished. Strongly made—(code *Jubilee*) **18 6.**

GENUINE ROLL TOBACCO PAPER. - Strong, effective, 1s. per lb., carriage paid, for cash only. W. C. LEE, 61, Westgate, Grantham.

THE CELEBRATED "ACME" WEED KILLER. CHEAPEST & BEST

SAVES MORE THAN TWICE ITS COST IN LABOUR. NO SMELL.

One application will keep the Walks and Drives clear of Weeds for at least Eighteen Months.

Highly commended by the Judges at the Alexandra Palace Rose Show, 1889, after 15 Months' Trial. Awarded a Certificate of Merit by the Scottish Horticultural Association, 1889.

Mr. W. G. HEAD, Crystal Palace, says:—"We were so satisfied with your composition and its price, that we have used it absolutely, and have every confidence in recommending it."

Mr. R. IRWIN LYNCH, Curator, Botanic Gardens, Cambridge, says:—"There can be no question with regard to its efficacy."

Prices:—In 1 and 2-gal. tins, **2s.** per gal. (tins included); in 5-gal. drums, **1s. 6d.** per gal.; 10 and 15-gal. Drums, **1s. 4d.** per gal. Special quotation for larger quantities. Carriage paid on 10 gals. and upwards.

☞ *Used in the proportion of One Gallon to 25 Gallons of Water.*

TO BE HAD OF ALL NURSERYMEN AND SEEDSMEN.

To prevent disappointment, insist upon having the "ACME." Sole Proprietors and Manufacturers.

THE AGRI-HORTICULTURAL CHEMICAL COMPANY,

TUNBRIDGE, KENT;

and Carlton Street, Bolton, Lancashire.

Agents in Ireland—W. DRUMMOND & SONS, 78, Dawson St., Dublin; WALTER CARSON & SONS, 21, Bachelor's Walk, Dublin; ALEX. DICKSON & SONS, 55, Royal Avenue, Belfast; MCKENZIE & SONS, Limited, Agricultural House, Camden Quay, Cork.

London, Wholesale Agents: Messrs. CORRY, SOPER, FOWLER & CO. (Limited), Finsbury Street; Messrs. HOOPER & CO. (Limited), Covent Garden.

May also be had of Messrs. BARR & SON, 12, King Street, Covent Garden; BARCLAY & SONS (Limited), 95, Farringdon Street; JAS. VEITCH & SON, Royal Exotic Nursery, Chelsea; and others.

Important to Gardeners and Others.

TOBACCO ASH.—Guaranteed pure, from the Queen's Custom-Warehouses. A substitute for Tobacco Water and Paper. Destroys all Insects, and Nourishes the Plant. Guaranteed not to injure the foliage.

7 lb. samples, 2s. 6d.; 1 cwt., 20s. Carriage paid. Post-office Orders to J. EDWARDS, 31, Scotland Road, Liverpool.

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Patronised by 16,000 of the Nobility, Gentry, and Clergy, for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames, &c.

1 Cwt., and Oil Mixture, Free to all Stations.

Liquid Non-Poisonous Paints for Inside of Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

LA BELLE SAUVAGE YARD, LUDGATE HILL, E.C.

BACHELOR'S WALK, DUBLIN.—*Discount for Cash.*

THE

"PERFECT" WEED KILLER

TRADE MARK

(Trial sample post-free.)

WITHOUT WHICH NONE IS GENUINE

Maintains its Superiority over all Rivals

for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, &c.

Used at Kew Gardens, Royal Horticultural Gardens, &c., &c.

COMPLETE SATISFACTION GUARANTEED

to all using WEED KILLER bearing our Trade Mark, without which none is genuine. *Refuse Imitations.*

PRICES: Gallon, 9d.; 5 gal., 1/6 per gal.; 10 gal. 1/6 per gal.; 20 gal. 1/4 per gal. SPECIAL QUOTATIONS FOR QUANTITIES. *Carriage paid on 10 gals. and upwards.*



DISTRIBUTOR for "Perfect" Weed Killer.

Holds 40 gallons. Wrought-iron frame-work neatly painted. Galvanized tubes with tap to regulate flow. Gives spray 36 ins. wide. Price £4 net on rail Glasgow.

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Principal Agents: BLACKLEY, YOUNG AND CO., 103, Holm Street, Glasgow.

NOTICE. *We originally had our Works at Tunbridge, Kent, but removed them to* GLASGOW *in January, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.

SOLD by SEEDSMEN and FLORISTS.

CLAY'S FERTILISER OR PLANT FOOD

Sold in Packets, **6d.** and **1s.** each, and in

Sealed Bags Only.

7 lb., 2/6; 14 lb., 4/6; 28 lb., 7/6; 56 lb., 13/6; 1 cwt., 20/

CLAY & LEVESLEY,

TEMPLE MILL LANE, STRATFORD, LONDON, E.

SLUGICIDE (Registered).—Certain death to slugs; harmless to plant, vegetable, and animal life. Delicate seedlings are absolutely secure when sprinkled with Slugicide (Registered), 1s. 6d. per box.—The SLUGICIDE CO., 6, Maryleport Street, Bristol. Agents wanted.

BENTLEY'S WEED DESTROYER.

Mr. W. IGGULDEN, *Marston Gardens, writes:*—"I have used your Weed Destroyer for several seasons. It is doubtful if anything more effectual will ever be concocted."

Mr. E. MOLYNEUX, *Swanmore Park Gardens, writes*:—"I am much pleased with the Weed Killer. In addition to killing the Weed effectually, the gravel on our paths is rendered particularly bright by its use."

For further testimony, prices, and full particulars, apply to the Sole Maker,

JOSEPH BENTLEY,

CHEMICAL WORKS,

BARROW-ON-HUMBER, HULL.

"Always use the best materials; your plants can not do well in common soil."

SPRING POTTING.

1 sack BEST LEAF MOULD, 3s. 6d.; 1 sack PEAT, 3s. 6d.; 1 sack YELLOW FIBROUS LOAM, 3s. 6d.; 1 sack BEALE'S CONCENTRATED FARMYARD MANURE, 6s.; 1 cwt. COARSE SILVER SAND, 3s. 6d. Or, 1 sack Mixture of above to suit any purpose, 5s. Carriage paid, and free delivery by Carter Paterson, or to rail. Send 6d. extra for sack.

CANES and BAMBOOS.

The cheapest, neatest, and most durable for every class of plants. Black or White, thin, round, 1 foot long, 1s. per 100, 7s. 6d. per 1000; 1 ft. 6 in. long, 1s. 6d. per 100, 12s. 6d. per 1000. White 1 ft. 10 in. long, stiff Canes, 2s. per 100, 17s. 6d. per 1000; 2 ft. 6 in., 2s. 6d. per 100, 20s. per 1000; 4 ft., 3s. 6d. per 100, 32s. 6d. per 1000; 5 ft., 5s. per 100, 40s. per 1000.

OPEN AIR MUSHROOMS.

SPAWN for meadows, lawns, and paddocks. By following our directions and using our SPECIAL MEADOW SPAWN, excellent crops may be gathered through the summer and autumn. Price 5s. per bushel. 1s. extra for sack and carriage.

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This insecticide is proving to be the cheapest and most effective destroyer of leaf-eating and fruit-destroying plant pests (*vide Gardeners' Chronicle* and other horticultural papers). Best time to use it is as soon as blossom falls. Sample packets with directions, 2s. 6d. and 5s. post free. Send for our new Lists of all requisites and specialties.

R. BEALE AND CO.,

NEW SOUTHGATE, LONDON, N.

Contractors to the London County Council.

AT LAST A Boon to Plant Growers. An entirely New Invention. No more Tobacco Paper, with its dangerous and disagreeable fumes.

CAMPBELL'S FUMIGATING INSECTICIDE

Kills Fly, Thrip, and Spider, in the easiest, cheapest, and most harmless way to Flowers, Fruit, or Foliage, even if treble the necessary quantity is used. The best of all Insecticides for Orchids. Try it. In Rolls for houses of a capacity of—

100 cubic feet,	500 feet,	1000 feet,	2000 feet,	post-free.
9*d.*	1/-	1/3	2/3	

CLIBRAN, Oldfield Nursery, Altrincham; 10 and 12, Market Street, Manchester.

BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

GREAT REDUCTION IN PRICE
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STANDEN'S
Established Nearly 30 Years. **MANURE**

The reduction has been effected through the introduction of increased and improved plant for manufacturing.

It is now generally acknowledged that this highly concentrated Manure exceeds all others in general fertilising properties and staying powers, thus rendering its money value at least double that of any other Manure.

It promotes a rapid, healthy, and robust growth to plants generally.

It is a clean and dry powder, with very little smell.

It is consequently particularly adaptable for Amateurs equally with Nurserymen.

Sold in Tins of increased sizes, 6d., 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each; and in Kegs (Free) at the following greatly reduced prices:—28 lb., 10s. 6d.; 56 lb., 18s.; 112 lb., 32s. each.

SOLE MANUFACTURERS:
CORRY, SOPER, FOWLER & CO.
(LIMITED), LONDON.

Sold by all Nurserymen, Seedsmen, and Florists.

SLUGS.—Save your Garden Produce by using "Lenos," 5*s.* per gallon, Diffuser included.

LIQUID MANURE ESSENCE, Inodorous, for Greenhouse and Garden, 5*s.* per gallon—will make from 50 to 100 gallons.

ARTIFICIAL MANURE, without Smell, will produce grand blossoms, unsurpassed for Fruit and Vegetables, 112 lb., 20*s.*; 56 lb., 11*s.*; 28 lb., 6*s.*

ANTI-MILDEW, 10*s.* per gallon.

PLANT FUMIGATOR, combining Meat or Fish Smoker, Disinfector, or Domestic Safe, 4 feet 6 in. high, 27*s.* 6*d.*; 6 feet, 35*s.*

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72, LEADENHALL STREET, E.C.

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE,
4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s.*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks, 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton; 26*s.* per ton, in 2-bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—H. G. SMYTH, F.R.H.S., 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

Three Valuable Friends.

CLIBRAN'S SHADING acts as a beautiful shade during sunny weather, but becomes almost transparent during rain—reappearing again as the glass dries. *Unlike other preparations*, it shades only at the particular time wanted. Practical growers are noting this. Non-poisonous.
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LEMON-OIL is fast superseding all other Insecticides, being cheaper, far more certain, and can safely be used by any amateur. If you want beautiful foliage and healthy plants, try this.
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EUCHARIS MITE-KILLER.—This valuable compound enables everyone to grow and flower Eucharis splendidly, and has saved thousands of bulbs which otherwise would have been destroyed. See Testimonials.
Eucharis Friend. Post-free: ½ pints, 1/3; pints, 2/9; quarts, 4/9; ½ gal., 8/-
Or from your Seedsman.
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Also 10 and 12, Market Street, Manchester.

GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens.
RUSSIA MATS—New Archangel, 9 ft. 4 ins. by 4 ft. 6 ins., 2*s.*, doz.; Heavy Petersburg, 7 ft. by 3 ft. 8 ins., 12*s.* doz. SPECIALITE TOBACCO PAPER, 10*d.* per lb., 28 lb. for 21*s.* TOBACCO CLOTH, 1*s.* per lb., 28 lb. for 26*s.* ORCHID PEAT, 8*s.* per sack. PEAT, LOAM, SAND, MANURES, and SUNDRIES. Price LIST free.—W. HERBERT AND CO., Hop Exchange Warehouses, Southwark Street, London, S.E.

NATIVE GUANO: BEST and CHEAPEST MANURE for Garden use, NATIVE GUANO. Price £3 10*s.* per ton, in bags. Lots under 20 cwt., 4*s.* per cwt. 1 cwt. sample bag sent, carriage paid, to any station in England on receipt of P.O. for 5*s.*

Extracts from Thirteenth Annual Collection of Reports:—

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C. J. WAITE, Gr. to Col. the Hon. W. P. Talbot, says:—"I can strongly recommend your Native Guano as a first rate Manure for any fruits or kitchen garden crops, also grass. In the 5 years during which I have freely used it, I have gained over 560 prizes."

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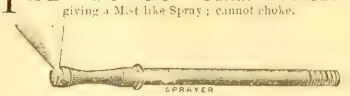
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Cheap, simple and effectual.

THE "STOTT" Patent SPRAYER, giving a Mist like Spray; cannot choke.



Price LISTS on application.

THE "STOTT" FERTILIZER AND INSECTICIDE DISTRIBUTOR COMPANY (LIMITED), BARTON HOUSE, MANCHESTER.

S. C. CLAY'S
INVIGORATOR
TRADE MARK.

FOR PLANTS.
QUICK. LASTING. ECONOMICAL.

This is a Plant Food of great excellence, carefully prepared with the view of supplying a manure which shall contain all the elements necessary for the Perfection of Plant Life, and at the same time be QUICK IN ACTION, LASTING, AND ECONOMICAL.

The ingredients have been so arranged that, whilst accelerating luxurious growth, permanent benefit is secured by a continuance of nourishment to the plant.

It is safe in use, and suitable for every purpose where a manure is required.

Sold by Seedsmen, Florists, and Nurserymen, in **6d.** *and* **1s.** *Packets, and SEALED BAGS:—*

7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2s. 6d.	**4s. 6d.**	**7s. 6d.**	**12s. 6d.**	**20s.**

The above Trade Mark is printed on every Packet and Bag, and also impressed on the Lead Seal attached to the mouth of each Bag.

A SAMPLE PACKET will be sent post free, on receipt of 1*s.* by the MANUFACTURER

S. C. CLAY,
MARSH ISLAND, STRATFORD NEW TOWN, LONDON, E.
NO CONNECTION WITH ANY OTHER FIRM.

MACKEY'S CATERPILLAR EXTERMINATOR and UNIVERSAL INSECTICIDE, as recommended by the Board of Agriculture, for Green and Black Fly, Mealy Bug, Red Spider, Camellia Scale, Blight, &c. No boiling or mixing required. 1 lb. dissolved in 10 gallons will form the Exterminator for Caterpillars as recommended by the Board of Agriculture; 1 lb. to 300 for Green Fly, Blight, &c. Price, in 1 lb. tins, 1*s.* 6*d.*; 5 lb., 3*s.*; 10 lb., 5*s.*; per cwt., 45*s.* Sample grubs on application.
MACKEY, MACKEY AND CO., 1 and 2, Bouverie Street, Fleet Street, London, E.C.

BROWN FIBROUS PEAT for ORCHIDS, 31*s.* 6*d.* per Ton, or 12*s.* per Truck of 4 tons; Bags, 5*s.* each; 10 Bags, 45*s.*
BROWN and BLACK FIBROUS PEAT, 25*s.* per Ton, or £5 per Truck of 4 tons; Bags, 5*s.* each; 10 Bags, 45*s.*
PEAT, for forming Rhododendron, Bog, and American Plant Beds, 21*s.* per Ton, or £4 4*s.* per Truck of 4 tons.
THOMAS WALKER, Tekels, Camberley, Surrey.

"ROSIKA"
Trade Mark Registered.
Effective, Harmless.



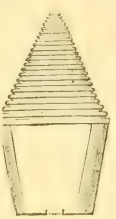
Promptly clears Roses and all plants from green fly, caterpillars, spiders, and other insect pests. It recommends itself to all who have tried it for its efficiency, pleasant odour, the facility with which it is applied, and its cleanliness in application; so that anyone, however particular, can use it, and it is always ready for use. Price 1/- & 1/9. To be had through Chemists & Seedsmen, or direct from the manufacturers,
F. SCHUTZE & CO., 35A, Aldersgate Street, London, E.C.
Apparatus for use of Rosika, 3 sizes, 1*s.* 9*d.*, 3*s.*, and 4*s.* 6*d.*

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6*d.* and 1*s.*, from the Trade, Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

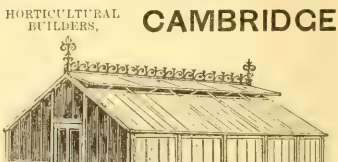
To Nurserymen, Seed Merchants, and Florists.
J. BLACKBURN AND SONS are offering Archangel Mats lower than any other house in the trade; also Petersburg Mats, and Mat Bags, Raffia Fibre, Tobacco Paper, and Shading. Prices free.—4 and 5, Wormwood Street, E.C.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames Street, London, E.C.



CONWAY C. WARNE
Successor to
(JOHN MATTHEWS),
The Potteries,
WESTON-SUPER-MARE.
FOR
FLOWER POTS.
The Largest Manufacturer of HORTICULTURAL POTTERY IN THE WORLD.
21 Prize Medals. Thousands of Testimonials.
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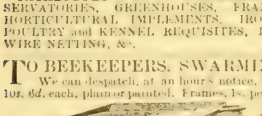
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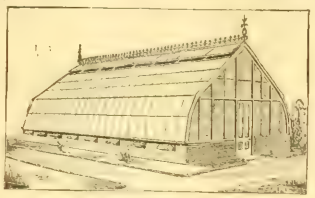
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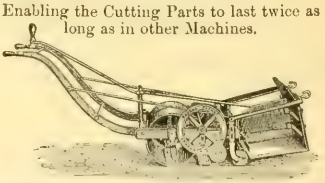
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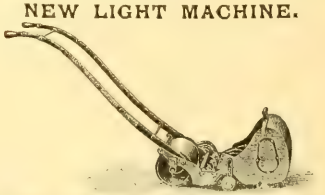
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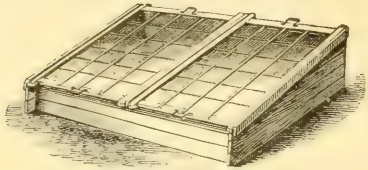
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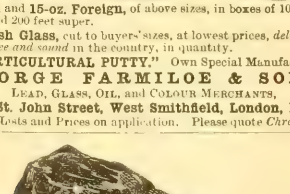


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GARDENER (SECOND), or SINGLE-HANDED. —Age 24; nine years' experience, Inside and Out. Seven years' previous character, and can be well recommended by present employer.—C. HOBBS, 28, King St., South Norwood.

GARDENER (good SECOND).—Age 25; eight years' experience, Inside and Out. Good character.—S. LEPPARD, High Elms, Farnborough, Kent.

GARDENER (SECOND), Inside.—Age 25; twelve months' and three years' previous good character. R. H., The Gardens, Copley Dene, Highgate, N.

GARDENER (SECOND), where four or five are kept.—Age 23, six years' experience. Good testimonials.—G. DAVIES, The Gardens, Blankney Hall, Lincoln.

GARDENER (SECOND), where three or four are kept.—Age 21, seven years' experience; two years good character.—W. COUZENS, Langley House, Chippenham, Wilts.

GARDENER (SECOND); age 23, married, one child.—Nine years' experience, Inside and Out. Abstainer.—J. WALLACE, The Gardens, Burton Hill, Petworth, can highly recommend the above.

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GARDENER (UNDER); age 23.—J. WILLS, The Gardens, Coed Bel, Chislehurst, can with every confidence recommend a young man as above. Strong and willing. No objection to Bothy.

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JOURNEYMAN.—Age 20; seven years' experience in Stove and Greenhouse Plants, Vines, Melons, &c. Bothy preferred.—G. B., 7, Inkerman Terrace, Enfield Wash.

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ROLLING AND COLLECTING MACHINES FOR 1890.

The Winners of every Highest Prize in all cases of competition, and they are the only Mowers in **constant** *use at all the Royal Gardens and at the Royal Horticultural Society's Gardens, South Kensington.*

Patronised by—
HER MOST GRACIOUS MAJESTY THE QUEEN on many occasions,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
THE KING OF THE BELGIANS,
The Late EMPEROR OF THE FRENCH. The EMPEROR OF RUSSIA,
And most of the Nobility, Clergy, and Gentry of the United Kingdom.

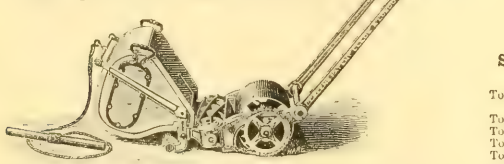
Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "*Journal of Horticulture*," of June 8, says:—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. GREEN & SON, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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With Improved Steel Chains and Handles.



SINGLE-HANDED LAWN MOWER.

	Price.
To cut 6 in., can be worked by a Lady ...	£1 15 0
To cut 8 in., do. do.	2 10 0
To cut 10 in., do. by a strong youth	3 10 0
To cut 12 in., do. by a man ...	4 10 0
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DOUBLE-HANDED LAWN MOWER.

To cut 16 inches, can be worked by one man on even lawn ...	£6 10 0
To cut 18 inches, do. man and boy...	7 10 0
To cut 20 inches, do. do. ...	8 0 0
*To cut 22 inches, can be worked by two men	£8 10 0
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* If made stronger, suitable for Donkey, 30s. extra.

These Mowers are the "Ne Plus Ultra" and "Acme" of perfection of all Lawn Mowers extant.

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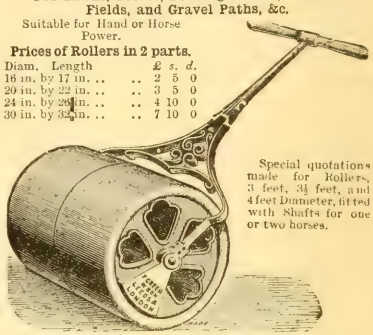
GREEN'S Patent ROLLERS,

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Suitable for Hand or Horse Power.

Prices of Rollers in 2 parts.

Diam. Length	£ s. d.
16 in. by 17 in.	2 5 0
20 in. by 22 in.	3 5 0
24 in. by 26½ in.	4 10 0
30 in. by 32½ in.	7 10 0



Special quotations made for Rollers, 3 feet, 3½ feet, and 4 feet Diameter, fitted with Shafts for one or two horses.

SPECIAL.—A FEW TESTIMONIALS OUT OF THOUSANDS RECEIVED.

☞ **ROYAL GARDENS, WINDSOR, January 28, 1890.**

To Messrs. GREEN & SON, Limited.

Dear Sirs,—In sending you the enclosed order for Lawn Mowers, I think it may be interesting to you to know that I am still using the Horse Machine you supplied in the year 1856; it is in perfect order even now, which is a proof that the workmanship is first-class, and speaks for itself. As to your "Hand Silens Messor," no Lawn Mowers could give greater satisfaction either to myself or to the men who work them—they are unequalled. During the season I have them daily in use in the Royal Gardens here, and never have the slightest trouble with them. Your machines are also the only ones I have in use at the Private Gardens, Hampton Court Palace; the Royal Lodge, Windsor Great Park; Cumberland Lodge, and the Royal Pavilion Grounds, Aldershot. I shall feel a great pleasure in recommending them to all my friends.

I remain, dear sirs, yours very truly, THOMAS JONES.

☞ **Mr. J. R. STIRLING,** of the **ROYAL GARDENS, BUCKINGHAM PALACE,** writing under date Feb. 24, 1890, says:—"As regards the work your 12-inch Horse Machine does (which two years ago took the place of the one you supplied in '63), I may say it is kept in constant use here from February until the end of the mowing season, and continues to give the greatest satisfaction. It is the best Machine I know for good work and durability, and your "Hand Silens Messors" also excel all others. We have no other Lawn Mowers in use here, and I always recommend them to all my friends who inquire about Lawn Mowers."

Bathersden, Ashford, Kent, June 14, 1878.

Gentlemen,—Your "Silens Messor" Mower, 20-inch, works splendidly. It is a most perfect machine, and beats the old 20-inch one that for so many years did my work without repairs. I recommend your machines, and never see any doing such good work and with so little power. You may refer anyone to me, and I will then show them the S. M. at work, and I shall show it to all I can. I am, yours truly,

Messrs. Green & Son. W. H. MOLD.

Kintbury, Hungerford, April 20, 1883.

Sirs,—I shall be glad of a list of your Lawn Mowing Machines priced. I am glad to mention that I bought one of your 14-inch machines 22 years ago. It has had hard and rough usage *every year since*, and only on Monday was it put quite out of use by the snapping in two of the driving wheel under the hammer. It is surprising to think of the work it has done, and done well. Yours faithfully,

Messrs. Green, Leeds. ALFRED T. BAZETT.

Wellingborough, February 4, 1890.

To Messrs. Green & Son, Leeds.

Gentlemen,—I have sent you our Lawn Mower for repairs, which please have done to it. I have used your machines for 25 years, and I find them more durable and do their work better than any other machines I have seen.

I am, gentlemen, yours truly,
DAVID PERCIVAL,
(Gardener to W. Blott, Esq.).

Cottingham, Hull, February 13, 1890.

To Messrs. Green & Son, Limited, Leeds.

I am instructed by Arthur Harrison, Esq., of Northgate House, Cottingham, near Hull, who has had one of your 36-inch Horse Mowers in use over 20 years, and ask whether you think it advisable to send it for repair or have a new one, for it is as you may suppose now getting worse for wear. Kindly say per return, and enclose Price List.

I am, gentlemen, yours truly,
JOHN BAYNTON.

Ivy Bank, Broadway, Worcester, April 13, 1884.

Gentlemen,—Some fifteen or sixteen years ago, I had from you one of your 12-inch Lawn Mowers which, I may say, has from that day to the present time given perfect satisfaction, and goes as easily, and does its work as well now as it did at first. I have recommended yours as the best machine ever since. I am, yours faithfully,

Messrs. Green & Son, Leeds. C. FRENCH HARTLEY.

GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

HIGHLY RECOMMENDED FOR SMALL LAWNS.



PRICES,
With Grassbox.

To cut 6 in.	£1 5 0
To cut 7 in.	1 13 0
To cut 8 in.	2 5 0
To cut 10 in.	3 0 0

GREEN'S Patent LAWN TENNIS COURT MARKER.

No. 2412.

The Best Marker made.

Size with 1 wheel for Ordinary Courts, price **14s.**

Do., with 3 wheels, **17s.**

Size for Clubs and Large Grounds, price **£1.**



Small Bag of Marking Composition, 9*d*.

GREEN'S PATENT GRASS EDGE CLIPPER



Size and Price, 7 inches wide, 7 ins. diam., **£1 16s.** Packing Case, 2*s*.

Specially designed to meet a want which has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

☞ **A very useful and serviceable Machine.**

Delivered Carriage Free at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

The largest stock of Mowers kept by any manufacturer is to be found at our London Establishment, SURREY WORKS, BLACKFRIARS ROAD, where Purchasers can make selection out of several hundred Machines of Hand, Pony, and Horse Power, and have their Orders supplied the same day as they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, Free of Cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

GARDEN SEATS AND CHAIRS, AND HORTICULTURAL IMPLEMENTS OF EVERY DESCRIPTION, WIRE NETTING, &c., &c.

Descriptive Illustrated PRICE LISTS Free on application to

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Advertisers are specially requested to note, that, under no circumstances whatever, can any particular position be guaranteed for advertisements occupying less space than an entire column.

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THE GARDENERS' CHRONICLE, Vol. VI., Third Series, JULY to DEC., 1889.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W.
FLORAL PARADE and FEAST of FLOWERS, THURSDAY, June 26. Those wishing to take part in the Parade of Flower-dressed Carriages, &c., are requested to send their entries to the Secretary as soon as possible, to ensure a good position in the procession.—Schedules of Prizes, Entry Papers, and all information, to be obtained at the Office in the Gardens.

CRYSTAL PALACE.
SATURDAY, July 5.
THE NATIONAL ROSE SOCIETY'S GRAND EXHIBITION OF ROSES.
Intending Exhibitors must give notice in writing of the Classes in which they intend to Exhibit to the Hon. Secretaries, National Rose Society, Crystal Palace, S.E., on or before Tuesday, July 1.

ROYAL AQUARIUM, Westminster.
GREAT ROSE SHOW and FÊTE,
also
EXHIBITION NATIONAL PINK SOCIETY,
and
CONFERENCE BRITISH FRUIT GROWERS' ASSOCIATION,
on JUNE 27 and 28. Schedules and all particulars of
Mr. WILLIAM HOLMES,
Frampton Park Nurseries, Hackney, London, N.E.

GRAND ROSE SHOW, Bath.
THURSDAY, July 3.

FIRST PRIZES—NURSERYMEN—73 varieties	...	£8	8 0
,, ,, ,, 36 ,,	...	4	0 0
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The Second and Third Prizes in proportion. Several other Classes for Roses, Bouquets, Strawberries, and Plants. 31 Classes in all. Entries Close June 27. For Prize Schedules, apply to B. R. F. PEARSON, / W. JEFFERY, } Secretaries.
2, Northumberland Buildings, Bath.

CROYDON ROSE SHOW, JULY 2.
Challenge Cup, value 25 guineas, and N. R. S. Gold Medal, for Amateurs and Gardeners. N. R. S. Gold Medal and good Prizes for Nurserymen. A. C. ROFFEY, Sec.
55, Church Road, Croydon.

CHRYSANTHEMUM SHOW.—The LEEDS PAXTON SOCIETY will hold its SECOND SHOW in the Town Hall, Leeds, on TUESDAY and WEDNESDAY, November 11 and 12, 1890, when, in addition to the Money Prizes, Two Valuable Challenge Cups will be offered.
JOS. SMITH, Secretary.

Sow in June.
SUTTON'S PRIZE GLOXINIAS.—The strain which attracted so much attention and admiration at the Royal Horticultural Society's Show in the Temple Gardens, May 28 and 29, 1890, and awarded the Society's Silver-gilt Flora Medal. The *Nat. Jamesh's Gazette*, May 29, said—"The noble show of Gloxinias of Messrs. Sutton & Sons, of Reading, must be noted. If it were a question of beauty only, no Orchid surpasses these superb plants as Messrs. Sutton have developed them. They are perfect in form and splendid in colour." Price of seed 2s. 6d. and 5s. per packet, post free. SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, Reading.

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T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3 yr. old flowering Crowns for forcing, and 2 and 1 yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.
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J. W. BARNHAM Receives on Commission, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.
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E. S. THORPE, Chertsey, Surrey.

WANTED, CALLAS ETHIOPICA.—For particulars, stating size and price per 100, apply to C. SHEPHERD, Market Gardener, Stone Bridge, near Durham.

WANTED, Fresh Cut Leaves of FIBRE-BEARING PLANTS, such as Aloes, Agaves, Yuccas, New Zealand Flax, Rhea, &c., of medium growth, in bundles of 1 lb. weight and upwards. State price, carriage paid, to MODEL FIBRE FACTORY CO. (Limited), High Street, Lambeth, S.E.

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CLEARANCE SALE of BULBS, at Reduced Prices, for present planting, to bloom in Autumn—Gladioli, Anemones, Ranunculus, Tigridias, Tuberoses, &c., all in fine condition. Price LIST, free on application, to
BARR AND SON, 12, King Street, Covent Garden, W.C.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

PRIMULAS—PRIMULAS—PRIMULAS.—Twenty-first year of distribution. Williams' Superb Strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, same price; also double white PRIMULAS, 6d. each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

TROPÆOLUM SPECIOSUM. Hardy scarlet climber, strong plants established in pots, 1s. 3d. each, 12s. per dozen. Free by post or passenger train.
HOWDEN AND CO., The Nurseries, Inverness.

PRIMULA SINENSIS (Holborn Prize Strain) and CINERARIA (Covent Garden Strain), good plants, from stores, 5s. per 100; sample dozen, 1s. All packing and carriage free.—FAY AND SONS, Florists, Southsea.

50,000 COCOS WEDDELIANA.—Seeds just arrived in fine condition, which I beg to offer at low price.—F. ROSS, Bletchingley, Redhill.

JULIUS HANSEN, Pinneberg (Germany), recommends his LILY OF THE VALLEY, very strong pipes, 25s. per 1000 pipes; by taking 50,000, 24s.
Large Silver Medal, Berlin, 1890; Bronze Medal, Hamburg, 1889.

CACTUS PLANTS for SALE.—About 3 dozen very choice plants; various. Several now in bloom. May be seen on application. Offer wanted to clear lot.
Mrs. TANNER, 19, King Edward's Road, South Hackney, N.E.

To the Trade.
FERNS!—FERNS!!—FERNS!!!—In twenty most saleable kinds—Adiantums, Polypodiums, Cyrtomums, Pteris, &c. Adiantum cunentum, large stuff, ready to pot at once in 5 inch pots, 16s. and 20s. per 100; Pteris cretica cristata, and a few other kinds, from stores, 6s. per 100, 50s. per 1000.—J. SMITH, London Fern Nurseries, Loughborough Road, Brixton, S.W.

GREEN SPHAGNUM MOSS, clean picked, selected for Orchid growing, 5s. per bag.
JAMES BELL, 6, Stramongate, Kendal.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.
WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

GARDENERS' CHRONICLE (unbound), from, and including, 1878 to the present time; also a few JOURNAL OF HORTICULTURE.
Offers to GARDENER, Scio House, Putney Heath, S.W.

SALES BY AUCTION.

Thursday Next.

EXTENSIVE IMPORTATIONS of ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 26, at half-past 12 o'Clock precisely, fine pieces of CATTLEYA AMABILIS (very rare); C. LEOPOLDI, and C. GUTTATA, L.ELIA MAJALIS, EPIDENDRUM SCEPTRUM, also DENDROBIUM AGGREGATUM, D. BALLIONSIANUM, D. FIMBRIATUM OCULATUM, VANDA TERES AERIDES LOBBI, SACCOLABIUM, and other ORCHIDS from Brazil, Burmah, Mexico, &c., some received direct.

On view morning of Sale, and Catalogues had.

Thursday Next, June 26.

VALUABLE ORCHIDS IN FLOWER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 26, at half-past 12 o'Clock precisely, a fine COLLECTION of ORCHIDS, chiefly in Flower and Bud, comprising Dendrobium nobile nobilius and Cooksoni, D. Ainsworthii, D. McCarthiæ, fine forms of Cattleya Mendelii, C. Mossiæ and C. Gaskelliana, Odontoglossum Alexandræ, some extra fine O. citrosmum, Phalænopsis Mariæ, P. speciosa and P. tetraspis, Calanthe discolor, rare Cypripediums, Masdevallias, Oncidiums, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

24,000 fresh SEEDS of KENTIA FOSTERIANA just received direct, in fine order.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 26.

On view morning of Sale, and Catalogues had.

Charlton, near Sunbury and Shepperton, Middlesex.

MR. E. P. NEWMAN will SELL by AUCTION, in two lots, at the Railway Hotel, Shepperton Station, on WEDNESDAY, June 25, 1890, at 2 for 3 o'clock, an exceedingly valuable FREEHOLD PROPERTY, known as HETHERINGTON'S FARM, situate at Charlton, and comprising a convenient DWELLING HOUSE, with Garden, Outbuildings, Yards, and about 53 acres of exceedingly productive MARKET GARDEN LAND, let on lease at a rental of £165 per annum.

Particulars of Messrs. KENT AND SON, Solicitors, 2, Walbrook, E.C., and Hampton, Middlesex; and of the Auctioneer, 42, High Street, Uxbridge.

Hampton, Middlesex.

TWENTY ACRES of FREEHOLD LAND, situate near the Buckingham Road, having 950 feet frontage to the Main Road leading to Hanworth and Windsor, and an average depth of 1000 feet. Ripe for Building, or admirably adapted for a Nursery or Fruit Grower.

MR. B. WOOD will SELL by AUCTION, at the "Greyhound Hotel," Richmond, on TUESDAY, July 1, 1890, at 3 o'Clock precisely, the above.

May be viewed. Particulars and conditions of Sale can be obtained of Messrs. KENDALL, PRICE AND FRANCIS, Solicitors, 61, Carey Street, Lincoln's Inn, London, W.C.; and of Mr. B. WOOD, Auctioneer, Richmond, Surrey.

Tuesday and Wednesday Next.

The CELEBRATED STUDLEY HOUSE COLLECTION of ESTABLISHED ORCHIDS.

Absolutely without reserve.

HIGHLY IMPORTANT SALE of the FIRST PORTION of this renowned COLLECTION, the whole being remarkable for splendid culture and condition, and including a great proportion of plants matchless in point of rarity, by order of F. G. Tautz, Esq., who is compelled to relinquish their cultivation in consequence of a change of residence.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY NEXT, June 24 and 25, at half-past 12 o'Clock precisely each day, the FIRST PORTION of this SUPERB COLLECTION. Amongst the many fine things included in the First Sale, the following may be specially mentioned:—

Cypripedium cenanthum superbum	Cypripedium Bossereianum
,, Amesianum	Lælia elegans Blenheimensis
,, Crossianum Tautzianum	,, Studleyana
,, Measuresianum	,, callistoglossa
,, Arthurianum	,, elegans Morreniana
,, leucorrhodum	,, ,, Measuresiana
,, Morganiæ	,, ,, stelzneriana
,, plumerum	Cattleya Percivaliana alba
,, Lathamianum	,, Mendelii gloriosa
,, De Witt Smith	,, Reineckiana
,, porphyrochlamis	,, Fausta delicata
,, Wallaertianum	,, exoniensis
,, Lafo cadei	,, Gaskelliana alba
,, macropterum	,, Triane Empress
,, concolor Pongkiensis	,, Wagneri
,, Marshallianum	,, Mendelii Studleyana
,, vexillarium	,, ,, Wallacei
,, Leeanum superbum	,, ,, Wilsonii
,, pycnopterum	,, Loddigesi candida
,, Saundersianum	Odontoglossum vexillarium Measuresianum
,, Winnianum	,, Insleayi splendens aurea
,, Tautzianum	,, vexillarium superbum
,, tonsum superbum	,, triumphans album
,, michrochilum	,, Pescatorei melanocentrum
,, Mrs. Charles Canham	Dendrobium rhodostoma
,, Charles Canham	,, nobile Cooksoni
,, selligerum majus	,, ,, album
,, dilectum	Dendrochilum filoforme
,, villosum aureum	

N.B.—The whole of the Plants will be submitted to the hammer, and in no case will any plant be sold privately. The Catalogue is now in course of preparation, and will be ready in a few days, when copies will be forwarded on application.

Wednesday Next.

50,000 KENTIA BELMOREANA,
20,000 ,, FORSTERIANA.

In very fine condition.

Absolutely without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on WEDNESDAY NEXT, June 25.

On view morning of Sale, and Catalogues had.

Wednesday Next.

CYPRIPEDIUM AYLINGII in Flower. New Hybrid. Received unanimously a First-class Certificate Royal Horticultural Society and Botanical Certificate Royal Botanic Society; described by the Horticultural papers as a very elegant novelty.

MESSRS. PROTHEROE AND MORRIS will include the above valuable plant in their SALE, on WEDNESDAY NEXT, June 25.

Brunswick Nursery, Tottenham.

Expiration of Lease. First Portion.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, on the Premises, The Brunswick Nursery, Tottenham, N., close to the White Hart Lane Station, G. E. R., on THURSDAY NEXT, June 26, at 12 o'Clock, the erection of ten GREENHOUSES and ten PITS, with the Hot-water Piping, Boilers, and Brickwork; 120 moveable Lights; also a large quantity of Stove and Greenhouse Plants, Ferns, Chrysanthemums, Ampelopsis Veitchii, &c.

May be viewed one week prior to the Sale. Catalogues had on the Premises; at the Brimsdown Nursery, Enfield Highway; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

IMPORTANT SALE, by order of Mr. F. Sander.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 27, at half past 12 o'Clock precisely, a very fine assortment of imported ORCHIDS, including:—

EPIDENDRUM VITELLINUM MAJUS, large importation, in fine order.
CATTLEYA CITRINA, very fine clumps.
ONCIDIUM CRISPUM GRANDIFLORUM, a good lot.
ONCIDIUM ROGERSII, a splendid batch.
ODONTOGLOSSUM LUTEO PURPUREUM HYSTRIX.
VANDA CŒRULEA.
PLEIONE HUMILIS.
ONCIDIUM ORNITHORHYNCHUM.
ONCIDIUM EMULUM, with splendid bulbs and buds.
ODONTOGLOSSUM CORDATUM,
ODONTOGLOSSUM LEHMANNII, a lovely spotted form of O. cris-pum.
DENDROBIUM DENSIFLORUM.
L.ELIA ANCEPS, a fine Importation.
DENDROBIUM MARMORATUM.
CYMBIDIUM EBURNEUM.
CYPRIPEDIUM INSIGNE MONTANUM.
SACCOLABIUM BLUMEI and AMPULLACEUM.
VANDA CATHCARTII.
CYPRIPEDIUM CONCOLOR.

Also a varied COLLECTION of ESTABLISHED ORCHIDS, all in first-rate order, with many showing for flower, including Dendrobiums, Odontoglossums, Cattleyas, Calanthes, Lælias, Phalænopsis, Oncidiums, &c.

Also about 200 GREEN TREE FROGS.

ANGRÆCUM, NEW SPECIES.

Offered for the first time. A magnificent thing, and one of the finest introductions of recent times. The plant is of a robust habit with fine fleshy leaves resembling those of Vanda Parishii, borne on strong Vandeous woody stems, and producing stout arching sprays of large, pure white, fragrant flowers, with tails 9 inches in length. It is totally different to anything in herbaria, and is only represented in gardens by the small plant in Sir Trevor Lawrence's collection, the sole survivor of the two previous consignments. All the plants are offered, and being already acclimatised, are safe.

ANSELLIA SPECIES.

A new form of the A. africana section, but producing golden-yellow flowers, spotted with crimson, each 3 inches across, and often sixty or seventy on a spike. The plant is distinct in habit, and produces its noble spikes on growths from 9 to 18 inches in height, avoiding the unganly growth of typical Ansellia africana. It should be a magnificent show plant. See dried flowers.

Also some healthy plants, on native wood, of the fine and very rare ANGRÆCUM BILOBUM, one of the most elegant of the genus, and a few fine pieces of the rare Angræcum intractum; the hitherto unoffered A. armeniacum, and a distinct looking new Angræcum, with branched spikes of pretty flowers of delightful fragrance and long duration.

Also a few fine masses of two extraordinary CIRRHOPETALUMS, the whole collected in a hitherto unexplored region, from whence the precarious and costly passage renders it difficult to get plants alive.

On view morning of Sale, and Catalogues had.

Wilmington, near Dartford.

Two miles from Dartford, and 1½ mile from Swanley Junction.

Practically without reserve. FREEHOLD MARKET GARDEN GROUND. Important to Nurserymen and Market Gardeners. Possession will be given on payment of small deposit, and balance by instalments.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Bull Hotel, Dartford, on THURSDAY EVENING, July 3, at 7 o'Clock, 115 Plots of FREEHOLD BUILDING LAND, a large HOTEL SITE, two LEASEHOLD HOUSES, and 20 Acres of FREEHOLD LAND, suitable for Market Gardening, Nurserymen, Fruit Growers, &c.

Plans and Particulars of J. MERRICK HEAD, Esq., Solicitor, Reigate; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Cut Flowers, Plants, and Bulbs.

We hold Sales, several each week. Reference to senders of years standing. Particulars on application.

MESSRS. POPE AND SONS, Sale Rooms, 6, Phillip Street, adjoining Market Hall, Birmingham.

To Florists, Nurserymen, Landscape and Market GARDENERS.

FOR DISPOSAL, under the provisions of the will of the late Proprietor, an old-established BUSINESS of the above, situate in one of the most fashionable towns on the South Coast, doing a large trade; annual turnover between £3000 and £6000. To be sold as a going concern, or arrangements could be made with son of late Proprietor for a Partnership. Strictest investigation courted, and every information given to *bond fide* intending purchasers.

Address, in first instance, to R. B, Horncastle's, Cheapside, London, E.C.

East Retford, Notts.

FOR SALE, by Private Treaty, a Freehold NURSERY, in consequence of the death of the proprietor. It comprises 9 Span and Lean-to Houses, in full working order.

For full particulars and to view, apply, Mr. HODSON, 8, Market Place, Retford.

FOR SALE, a SEEDSMAN'S and CORN-DEALER'S BUSINESS, Surrey, 11 miles from city, under management. Manager will stay; owner retiring into country; all counter trade; all ready money; no bad debts; Will be sacrificed for £300 (plant, &c. cost this). Stock at valuation. Owner wishes to retire at once. Pleasant and profitable business, and easily learnt. Owner will assist buyer in every possible way.

FLORA, Box 851, Willing's Advertising Offices, 125, Strand, W.C.

FOR DISPOSAL, a NURSERY. A fully stocked and most desirable Nursery, in excellent order. Good reasons for selling. Immediate possession. Part of the purchase money can remain on at interest.—Apply to C. M., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE DISPOSED of, an old-established FLORIST BUSINESS, with Residence and Conservatory, near Maida Vale. Moderate Rent. Possession at June Quarter. Small sum required for Fixtures and Stock-in-Trade.

For Cards to View, and further particulars, apply to Mr. S. BARNETT, Estate Agent and Valuer, 83, High Road, Kilburn, N.W.

London, N.W.

TO BE LET, on Lease, an old-established NURSERY, occupying good position in a most fashionable Residential District. There are 12 Greenhouses, with several Pits, large Show-house, and 3 acres of Land. Vendor will grant Lease for 21 years. Stock at a valuation.

Full particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

To Florists.—Knightsbridge, London.

TO BE LET, in this very busy and aristocratic thoroughfare, a handsome SHOP, with good House, overlooking Hyde Park. The rent is very nearly let off, but possession of the whole could be had if desired. The business has been carried on for many years.

Mr. ELLIS, 176, Brompton Road, S.W.

Fruit and Poultry Farm.

TO LET, at Michaelmas, a SMALL HOLDING of 6 acres, with RESIDENCE.

Three acres planted with young Fruit Trees by landlord. Easy terms to Rent and Purchase.

Close to Barnham Junction Station, between London and Portsmouth on the South Coast.

For terms and particulars, apply, MARSHALL BROS. AND CO., Barnham. (Post town, Bognor).

N.B.—More Land can be obtained if required.

TO LET, on advantageous terms, a NURSERY, containing twenty five or more Houses, in full working order, containing about 4 tons of Grapes, Tomato Plants, &c. Within 15 miles of London. A good nine-roomed Dwelling-house, Cottage, Stables, &c. The proprietor having accepted the management of a large firm is the reason of disposal.

ALPHA, Mr. J. Barnham, Jun., Long Market, Covent Garden, W.C.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Crown Lands, Eltham Nursery, Kent.

TO BE LET, from Michaelmas next, about 35 acres of valuable LAND, in the town of Eltham, as a Nursery or Market Garden. For particulars, apply to Messrs. CLUTTON, 9, Whitehall Place, London, S.W.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN, Limited),

Have just received large and fine Importations of Orchids from India, Mexico, Brazil, Columbia and other countries, and will be glad to send full particulars to anyone favouring them with name and address.

The Company also have an immense stock of Established Orchids, descriptive-priced Catalogue on application to the Company, The Vineyard and Nurseries, Garston, near Liverpool.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.

J. J. CLARK, Goldstone Farm, Brighton.

Rare and Valuable Orchids.

MR. RICHARD PFAU has entrusted me with the sale of the following rare and valuable ORCHIDS, collected by him in Costa Rica, viz.:—

BARKERIA LINDLEYANA, or perhaps B. SPECTABILIS, nice plants with sound breaks, 5s. each.

CATTLEYA DOWIANA, good plants, semi-established, 7s. 6d.; ditto, strong established plants, 15s. and 21s.

ODONTOGLOSSUM KRAMERI.—According to Collector this very fine species will always remain scarce, being very rare in its native country. He says it is the fine dark variety, much superior to the lighter coloured variety from Chirequi. Nice plants with sound breaks 25s.; fine strong plants, 42s.

,, ŒRSTEDI MAJUS.—This very pretty and distinct var. has larger flowers, and several flowers on a spike, much superior to type. Nice plants with sound breaks, 3s. 6d., 5s., and 7s. 6d.

ONCIDIUM ANSIFERUM, or new species, only a very few nice plants with sound breaks, 7s. 6d.

TRICHOPILIA COCCINEA ATRORUBENS.—The entire lip of a deep blood-red colour, very fine var. Fine established plants, 7s. 6d. and 10s. 6d.

COCCINEA SUB-ALBA.—One single plant only found by collector, entire lip pure white, very faintly suffused with pink, a small blood-red patch deep down in the throat—very beautiful and distinct. Nice established plants, having flowered with me, 25s.

,, SUAVIS SUPERBA.—The best, highly spotted variety. Fine established plants, 10s. 6d.

TRICHOCENTRUM PFAVII. —A pretty winter flowerer. Small established plants, 5s. and 7s. 6d.

UTRICULARIA ENDRESII MAJOR, with flowers twice as large as the type—very fine. Sound bulbs in native soil, 7s. 6d.

Orders will be executed in strict rotation, and forwarded, POST AND PACKAGE FREE, to any part of Great Britain or Continent. Terms for cash only, either by Post-office Order or Crossed Cheque made payable to

EDWARD ORTGIES, Inspector of Botanic Gardens, Zurich, Switzerland.

"Irradiating the Present—Restoring the Past."

HARTLAND'S DAFFODILS.
New Series Edition.
Illustrated by GERTRUDE HARTLAND.

This publication is limited to 1000 copies. It is purely a Drawing-room Book, and work of art among Garden flowers; exclusive of interest. A key to same, descriptive and priced, can be had in July. More than probable, in 100 years, this edition, from the artistic point, will be scarce and valuable as a remnant of the "Daffodil mania" of this age, and particularly as it emanates from such a small place as Cork.

WM. BAYLOR HARTLAND, F.R.H.S., Seedsman and Florist, 24, Patrick Street, Cork.
TRADE CIRCULAR of Best Market Sorts, Post-free.

BEDDING PLANTS, &c. Surplus. Cheap to clear. Cash only. Good stuff. Turned out of pots and boxes.
ANTENNARIA TOMENTOSUM, 4s. per 100.
ALTERNANTHERA VERSICOLOR, 6s. per 100.
,, MAGNIFICA, 5s. per 100.
AGERATUM, Imperial Dwarf, 4s. per 100.
COLEUS VERSCHAFFELTI, 6s. per 100.
DACTYLIS GLOMERATA, 1s. per 100.
LOBELIA MAGNIFICA (cuttings), 2s. 6d. per 100.
PHLOX DRUMMONDI, 2s. 6d. per 100.
PERILLA NANKINENSIS, 2s. 6d. per 100.
DAHLIAS, in variety, 10s. per 100.
COREA SCANDENS, 4s. per dozen.
TROPÆOLUM LOBBIANUM, 1s. per dozen.
CHRYSANTHEMUMS, best sorts, 8s. per 100.
CUCUMBER PLANTS, Telegraph, 6s. per dozen.
WILLIAM HOLMES, Frampton Park Nurseries, Hackney, N.E.

Rare and Valuable Orchids.

MR. F. C. LEHMANN, German Consul at Popayan, New Granada, has entrusted me with the sale of the following rare and valuable ORCHIDS, collected by him in Ecuador and New Granada, in 1887 and 1888, all of which are now offered in perfectly established plants, viz.:—
CATTLEYA AUREA, 10s. 6d. and 15s. each.
,, TRIANÆ, Popayan varieties, 3s. 6d. and 5s.; very strong, 10s. 6d.
ODONTOGLOSSUM CIRRHOSUM, 5s. and 7s. 6d.
,, CRISPUM LEHMANNI, 3s. 6d., 5s., and 7s. 6d.
,, EDWARDI, 10s. 6d. and 15s.
,, HALLII LEUCOGLOSSUM, 15s. and 21s.
,, ,, XANTHOGLOSSUM, 10s. 6d. and 15s.
,, ROEZLII (Miltonia), 5s. and 7s. 6d.
,, VEXILLARIUM RUBELLUM (Miltonia), small plants, 5s.; fine strong plants, 12s. 6d.
ONCIDIUM KRAMERI, several plants on each block, 5s. and 7s. 6d. per block.
,, MACRANTHUM, 7s. 6d. and 10s.
,, PYRAMIDALE, rare and very pretty, with dense, upright panicles of golden yellow flowers with conspicuous clear white centre, 7s. 6d. and 10s. 6d.
,, UNDULATUM, very rare and pretty, beautiful, belongs to the macranthum section, 21s. and 31s. 6d.
TRICHOPILIA FRAGRANS ALBA (Pilumna nobilis?), all segments clear white with orange-yellow eye, very sweet-scented, 3s. 6d., 5s., and 7s. 6d.

Orders will be executed in strict rotation, and forwarded, POST AND PACKAGE FREE, to any part of Great Britain or Continent. The stock being very limited, early orders respectfully solicited. Terms for cash only, either by Post-office Order or Crossed Cheque, made payable to

EDWARD ORTGIES, Inspector of Botanic Gardens, Zurich, Switzerland.

INDISPENSABLE GREENHOUSE PLANTS.

PRIMULA SINENSIS and CINERARIA, superb strains, seedlings from stores 1s. 6d. per dozen, 10s. per 100; BOUVARDIAS, the finest and freest flowering kinds, small plants for growing on to bloom this winter, 4s. per dozen; single BEGONIAS coming into bloom or bud, lovely flowers, 1s. 6d. each, 10s. per dozen; FERNS in variety, distinct and beautiful sorts in small pots, twelve in twelve distinct species, 4s. TEA ROSES in the most lovely kinds, 1s. 6d. and 2s. 6d. each.

CLIBRAN'S, Oldfield Nurseries, ALTRINCHAM.

TURNIP SEED for SALE.—White Globe Turnip Seed, 1890 Growth, for Sale Cheap, in large or small quantities.—Apply to Mr. E. P. NEWMAN, Home, Pole Hill, and Hayes End Farms, Hayes, Middlesex.

FOR SALE, Three large AGAVES, Americana variegata, measuring each from 9 to 10 feet across, and 7 feet high, in perfect condition, and for Sale only through being too large for owner's house.
Apply to W. CROSS, Oaklands, Leamington.

G. B. FISCHER has to offer short strong Seedling LATANIA BORBONICA and SEAFORTHIA ELEGANS, from stores, 6s. per 100, 55s. per 1000. Also a great stock of useful PALMS of all sizes.
The Nursery, High Street, Clapham, London, S.W.

FOR SALE, 5 pairs of large ALOES: 1 pair 23 and 25 inches, 1 pair 26 and 27 inches, 1 pair 34 and 36 inches; 1 pair striped, 37 and 40 inches; 1 pair ditto, 28 and 30 inches, in prime condition, measured from rim of pots to end of leaves.
Apply, S. LITCHFIELD, Church Road, Yardley, Birmingham.

Price List of
LILIUMS and Forcing Clumps of LILY OF THE VALLEY, now ready.
Free on application.
H. W. OTTO, Florist, Gouda, Holland.

PALMS—PALMS.—Cheap, in fine health, in 3-inch pots, fit for 4-inch at once. Latania borbonica, and Corypha australis, and other sorts, 4s. per dozen, 30s. per 100. Samples, six stamps. Cash with order.
WILLIAM DAY, Sandygate, Sheffield.

SAMUEL SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire, begs to offer the following, of which he has made a specialty for the last twenty-six years—
PRIMULAS (PRIMULAS) and CINERARIAS, finest possible strains, the latest new colours and improved forms as sold in Covent Garden. Good Plants for next autumn and winter blooming, 1s. 6d. per dozen, 10s. per 100; extra strong selected, 2s. per dozen, 12s. per 100.
CYCLAMENS, CYCLAMENS!—Lamb's celebrated Giganteum strain, good plants, 2s. per dozen; extra selected, 2s. 6d. per dozen; all carriage free.
S. SHEPPERSON, Florist, Belper.

EAST LOTHIAN INTERMEDIATE STOCKS.

THOMAS METHVEN AND SONS offer their choice strain of the above, in five varieties, viz.: Scarlet, Purple, White, Crimson, and White Wall-leaved, at 1s., 2s. 6d., and 5s. each colour. Price to the Trade on application.
By Royal Warrant, Nurserymen and Seedsmen to the Queen, Edinburgh.

FERNS A SPECIALITY.

The finest, most varied, choice and interesting collection in the Trade. 1400 species and varieties of stove, greenhouse and hardy Ferns. Partially Descriptive Catalogue, including comprehensive List of useful Gardening Books, free on application.
ILLUSTRATED CATALOGUE (No. 21),
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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PLYMOUTH MEETING,
June 23, 24, 25, 26, and 27, 1890.

DICKSONS, Nurserymen & Seedsmen, **CHESTER,**
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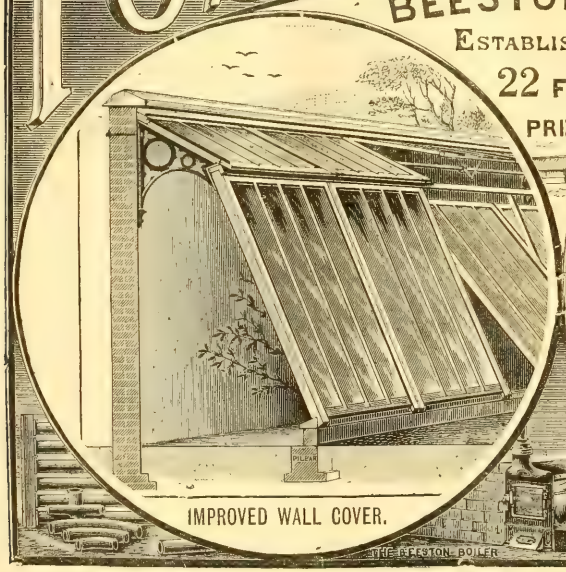
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Vol. VI., Third Series, JULY to DEC., 1889.
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THE

Gardeners' Chronicle.

SATURDAY, JUNE 21, 1890.

MEREWORTH CASTLE.

THE railway station nearest to Mereworth Castle is Wateringbury, two miles distant; but four miles' walk in the garden of England seemed to me more desirable than two, so I alighted at Malling—which, by the way, you should pronounce with the *a* broad, as in maul, and make a good mouthful of the first syllable, the same as when you open your mouth to receive a Tiptree Strawberry. For a country village, Malling looks so prosperous and substantial that you might be sure the land was good thereabouts, and that some special employment, such as fruit growing or Hop culture, afforded ample employment for the people. It was a shrewd remark of William Cobbett's, in riding up the valley of the Medway, that the numerous villages and large churches bespeak fertility, wealth, and population. The land is far beyond the average in fertility, and a small slice of it sufficed in old times, and still suffices, to support a larger village population and fill a bigger church than common. The picturesque remains of Malling Abbey show that the mediæval church had an extensive establishment here. Some of the ancient buildings still remain, and one portion of them has assumed the form of a substantial modern residence, with a great orchard adjoining partly enclosed by old stone walls.

Leaving the street of Malling behind, and its several handsome houses in the suburbs, and retracting the name of village, for it is, in fact, a small country town, you overtake several orchards, and then, within two miles, reach a lodge and iron gate, which form the entrance to a carriage-drive, leading through the woods to Mereworth Castle. This new road to his dwelling was completed by the late Lord Falmouth seven years ago; and, as his widow, the Dowager Viscountess of Falmouth, was not at home when I rang the lodge bell, I thought, perhaps, even a

stranger on foot, and unintroduced, might be permitted to follow his nose the nearest way to the Castle, but the worthy old lady at the lodge seemed afraid to unlock on account of her orders, and as I did not care to climb over the gate, I made my way to the little village, and so to the very singular-looking residence called the Castle. I lost nothing by the slight détour, for it must be admitted that the new road is painfully straight. The late Lord Falmouth was eminently a person of practical mind. All the world knows how straight he went throughout his life, and how straight he made his jockeys go. It is quite in keeping with his character that the road to his front door should have been driven as straight as the flight of an arrow. No doubt time is saved by this arrangement, and any man running a race for his dinner would wish the event to be settled on a road as direct as the carriage-drive of Mereworth Castle; but from a landscape gardener's point of view, roads of this sort are, in plain English, extremely ugly, especially when unrelieved by timber on the margins, as great part of this "new cut" is. On either hand are long lines of vegetables, of all kinds, but separated from the road by a broad margin of turf and a flower border, gay at the present time with clumps of the herbaceous Pæony, in much variety of colour; and as symmetry ruled supreme at one time at Mereworth, the colours of any pair on opposite sides of the road must match. It is a rare and curious sight, these two parallel lines of huge Pæonies, stretching to a distance of 210 yards, soon to be carpeted underneath with dwarf Nasturtium and other bedding plants.

The person who named the house a castle must have had in mind some castle in the air rather than a terrestrial building, since no part of it presents the slightest resemblance to a castellated residence. It is a fanciful-looking dwelling, situated in full view of the high road, at a bow's shot distance. The house is a replica of a residence which the builder, one of the great house of De Spenser, had seen in Italy, and dates from the year 1750. The site was much improved by the late Lord Falmouth, and if the house itself is odd-looking, the garden around is admirable. It always seems to me that when a very pleasing park surrounds a dwelling, and envelops it with green delicious turf, that such a site may be spoiled by pushing the park to a distance, and interposing numberless beds of flowers that blaze for a few months only in the summer. That mistake has not been committed here. The flower-beds are not extensive, and they are not entirely evanescent, since they are pleasantly edged with permanent Box. The wide lawns of green grass, with the park beyond, form a truly English and appropriate ornament. I had reached this point in my walk with Mr. Markham, the well-known head-gardener here, when a steady downpour of rain set in, and our visit to the extensive rosery and to other ornate enclosures near the house, surrounded with handsome clipped Yew hedges, had to be cut short. [The rosery consists of a square enclosure of about half an acre, surrounded on one side by a tall flat hedge of Yew, and on three sides by grand old shrubs, some evergreen, some flowering, which are all that remain of a once thickly-planted shrubbery. The shrubs suffered by contact with their neighbours, as they always do, but the fittest survived, if a little damaged in the contest. The Rose beds are long parallelograms, stretching almost from side to side of the garden, and are planted with dwarfs and very tall standards, 6 to 7 feet. The display is a good one, doubtless, as the plants mostly show great vigour, and would be a better one if rich mulchings might be afforded them. What is not Rose bed is the nicest of turf. ED.] We took refuge in the kitchen garden and its houses, where fruit and vegetable culture are admirably carried out by Mr. Markham, who is evidently a master of this branch of gardening.

In outdoor fruit growing, soil is even more important than climate, and we are here in a district where the soil is pre-eminently suited to the production of every kind of fruit, from Cob Nuts to Peaches. At the other end of the haste, the home-road, near the old woman's locked gates, it seemed to me that the soil was poor. A fruit farmer, I fell in with, said it would grow good fruit when broken up, and so said Mr. Markham. I cannot therefore doubt it; but the vegetation and the native timber are stunted compared with that near Malling, and I presume that the best timber grows, here as elsewhere, on the best land! The stony subsoil of the Mereworth woods is, however, often covered, Mr. Markham says, with an unctuous and rich marl, in which every kind of fruit tree flourishes, and which needs very little manure till the trees come into bearing. The production of heavy crops alters the case, because the export of soil constituents then need proportionate imports to support the drain. It is astonishing how entirely many farmers have ignored the simplest principles of science in the mismanagement of their orchards, which they leave unmanured for generations, and still wonder at the starved produce. Some years since I visited Wateringbury, one of the most productive parishes which the famous Medway flows through. My object was to inspect the shorthorn herd of world-wide fame belonging to the late Mr. Leney. The broad backed beauties of that famous breeder were grazing in a Cherry orchard, and Mr. Leney told me that the trees—large as forest timber—had been formerly starved, till their poor small fruit became unfit for the London market. But he had fed his big pets so freely with oilcake on the pastures, that the trees were again producing large Cherries of the best quality.

Peaches revel in the soil of Mereworth, and the walls are well planted with them. The trees are mostly dwarfs, fan-trained, and consist of the best, earliest, mid-season, and late varieties, American and French. We noticed Noblesse, Alexandra Noblesse, Belle Beauce, Hale's Early, a splendid variety, indoors or out; Têton de Venus, Grosse Mignonne, and Early York—delicious, if smallish.

All the best varieties of Nectarines grow with equal goodness and freeness, and the fruit comes of a very high colour, and it may be noted as a remarkable fact, that the Stanwick variety does not crack in the Mereworth soil. The Peach and Nectarine trees suffered a good deal this season from blister and aphis, but are now clean, and not much the worse for the attack. The remedies employed were soft soap, and Quassia chips boiled in water, the trees being syringed with the mixture twice, or at the most thrice. As we all know, these enemies are not the only ones, for red spider will soon put in an appearance on Peach foliage in dry weather, but repeated syringing with clear or soapy water will clear out these insects.

There are 8 acres of kitchen garden situated near the end of the straight road I have mentioned, and my attention was at once taken with the splendid vigour and perfectly healthy look of the cordons of Apples running round the margins of the walks. They consist of a collection of large and showy varieties, whose names perhaps Mr. Markham will give in some of his contributions to the *Gardeners' Chronicle*, for the number seemed so great that time did not allow me to place them on my notes. The examples of espalier-trained Pears were as remarkable for clear stems, healthy foliage, and desirable robustness as the Apples, and some varieties which had escaped injury by frost were bearing good crops. Pear trees on walls were mostly of greater age than the espalier, and good bearing seemed the rule with them. For want of protection, the Fig trees on some walls had had their shoots cut back 6 or more inches. It was an experiment, but the lesson it taught has been duly learnt. The garden affords a capital soil and site for the Mulberry, which ripens its fruit well here on a platform of turf. Many kinds of vegetables had yielded their produce at an early season. Cabbages had been cut three weeks at the time of my visit, May 9, and as Mr. Markham is known to excel in vegetables and fruit, out-doors and in, I may mention for the information of those who desire such guidance that the sorts are Mein's, Early Enfield Market, Early Evesham, Veitch's Early, and Ellam's Early, the last-named being the earliest on the ground and liable to a certain drawback—it must be cut as soon as it is ready, or it will split. Lettuces had been in use a fortnight, and Potatos were 18 inches high. Ne Plus Ultra French Beans were well out of the ground, under the shelter of a hothouse, where London, and Walcheren, and Veitch's Pearl Cauliflower, also found shelter and warmth. Myatt's Ashleaf is the only Potato grown here, and its excellent quality may be partly due to the soil, for it is undisputed that the flavour of vegetables is much affected by the soil. Asparagus had been cut freely since April 25. Monstreuse de Viroflay Spinach had been cut all through the winter, but it has been found to bolt before Veitch's Improved. Both have much more vigour than older varieties. The early Peas in this model garden were 24 inches high, and the earliest of all—Veitch's Extra Early—was in full blossom [and is now being gathered; the gardener has great faith in Champion of England Pea. ED.] A curiosity among the early vegetables was Veitch's Extra Early Milan Turnip, with strap-shaped leaves. By the middle of May the Turnips would certainly be 3 inches in diameter. The Windsor and Mazagan Broad Beans were a foot in height. Strawberries were in full blossom out-doors, and were fruiting so successfully within that they require special notice. There are two Strawberry-houses, each containing 300 plants. Sir C. Napier was in blossom in one case, and ripe in another, a lot of earlier-fruited plants having been removed. The crop then ripe, and ripening, presented a beautiful sight, the fruit being remarkably large and firm, and of a good bright colour. Probably the capital colouring may be partly due to Mr. Markham's plan of separating the fruit from the leaves, and exposing it by a simple arrangement of upright twigs and slight cross-sticks, over which the fruit-stalks are laid, so as to lift them well up, while the leaves are kept from shading the Strawberries by pegging them back out of the way. The crop already cleared consisted of Viscountess; many of the fruits weighed 1 oz. each. Noble is a woolly Strawberry compared with Sir C. Napier. French Beans had been picked some weeks in this well managed but not extravagant establishment. Melons are usually early—the second week in May. The late lord was not an advocate of numerous sorts of any fruit. His idea was to find out the best sort, and then stick to it ever afterwards, and grow no other. Green Gem was always the favourite sort here. But some persons may prefer netted Melons, and for the sake of variety, Sutton's Triumph and a few others have now been admitted.

The true Green Gem Melon is, as its name implies, a green-fleshed variety with a dark green skin, which so remains when the fruit is ripe. It is thick-fleshed, thin-skinned, very rich and juicy, and of great specific gravity, with no great number of seeds. A good fruit would weigh 2 lb. to 3 lb. Triumph is a handsome netted fruit, of very fine flavour when true, and the house in which it is grown is well ventilated, and no attempt is made, by giving the plants copious waterings, manurial or otherwise, to increase it beyond its normal size. Flavour in some kinds of fruit is a fixed quantity, and if this be distributed through fruits of great size, it becomes largely diluted and not very perceptible. Golden Gem Melon, a medium-sized oval fruit, of good eating quality, and Blenheim Orange Melon, are grown in a house with the others.

Cucumbers in the adjacent house were exceedingly fruitful. The first are generally cut on Good Friday. Lockie's Perfection is esteemed here for its excellent quality and colour. The Cucumbers are grown in good loam of the country, manured with

wood-ashes in preference to dung, so as to avoid an over-gross habit. Melons are grown in the heavier soil, which abounds here, and feels "greasy" in the hand. Strawberries in pots are planted in similar soil, well rammed. The old red Tomato, although other varieties are grown, is considered the most prolific for early indoor fruiting, and it will ripen well out-of-doors when others fail to set their blooms. When the soil becomes exhausted somewhat, guano-water is afforded it once or twice a-week.

The Grapes in one of the houses were bearing a crop on stout rods, 14 feet long, reaching to the ridge. They had done their work very rapidly, having been propagated from eyes in February last year, and planted in the following June, in succession to some old Vines of Hamburgh which ripens in May. Alternate rods of the young Vines were left for bearing, and allowed to run the full length, 14 feet as just stated. These will be removed. The permanent Vines were stopped at 4 feet. There are five vineries, and in one of these we found a full crop of fine bunches of Muscats without a shanked or a seedless berry; in another, Hamburghs, two years old in July, and ripening and colouring well. The Vines are all as healthy as possible, with a vigorous appearance and leathery foliage. The other kinds of Grapes grown are Madresfield Court, Lady Downs, and Gros Colmar.

In the two Peach houses, Peaches have been grown weighing ½ lb. The sort, Waterloo, which was started this year, February 1, and will be ripe June 1, before Stirling Castle, Grosse Mignon, or Bellegarde. [We saw fruit of Hale's Early picked on June 14, which on being weighed by Mr. Markham turned the scale at 9 oz. ED.] The rain continued to fall pretty freely as I quitted the grounds, and took the road to Wateringbury Station for Maidstone. But a warm rain does not deter the birds from singing, and they piped away pleasantly in the hedges, the nightingale among them. In fact, the *prima donna* of the feathered race was singing loudly by the roadside before Mr. Markham's door, and we paused in the dripping shower to listen to her. *H. E.*

NEW OR NOTEWORTHY PLANTS.

CATTLEYA × INTRICATA, *Rchb. f.*, VAR. MACULATA, *n. var.*

CATTLEYA intricata is evidently a natural hybrid between C. intermedia and one of the rather numerous forms of C. guttata, as pointed out by me at p. 70 of the last volume (July 20, 1889). A few days ago Mr. Malcolm Cook, of Kingston Hill, Surrey, brought to Kew a fine plant which is evidently derived from the same parentage, though somewhat different in colour. The sepals and petals are of a delicate rosy blush, with many rosy-purple spots, in this respect recalling the variety Prinzii. The side-lobes of the lip are of a uniform delicate blush, and the front lobe deep amethyst purple. It is a very charming thing. It was collected on the mainland of Santa Catherina, Brazil. *R. A. Rolfe.*

THE LILY DISEASE.

IN the winter of 1888, through the kindness of General Russell Hastings, of Hamilton, Bermuda, I had the opportunity of investigating a disease, epidemic in the Lily fields there from March to July. Diseased specimens had previously been shown to several naturalists who had visited Bermuda, and a few of the same had been sent to the United States for examination. None of those who saw these specimens were able, upon a merely cursory examination, to identify the disease; so that the subject still remained open for investigation.

Towards the end of February I sailed for Bermuda, in order to observe personally the phenomena attendant upon the first stages of the disease, which usually begins early in March. A few words on the cultivation of the Lily in Bermuda, and upon the history of the disease, may not be out of place.

The industry is a comparatively new but prosperous one, being only a few years old. The Lily cultivated is the so-called Lilium Harrisii, a dwarf variety of Lilium longiflorum. This variety has been propagated from year to year by bulb-scales, and by a few plants raised yearly from seed. The latter are always more vigorous than those raised from bulb scales; they tend, however, to return to the original longiflorum type. The bulbs, planted in the early autumn, grow throughout the winter months, and flower in the spring. They are taken up again early in the summer, and shipped to the United States, where a good market is also found for the flowers in the spring months. The Lilies are planted in rows, in small fields; these fields are surrounded by high Oleander hedges, which serve to protect the plants from the wind.

So far as I know, the Lily disease was first noticed about 1885, since which time it has yearly become more serious, until at present it threatens to do serious damage to the Lily crop. It makes its appearance in the spring, when the days begin to grow warm. This marked difference in the temperature between day and night results in a heavy fall of dew, so that even after the sun is high in the heavens large dew drops may be found upon the Lily leaves. A little cool weather, or a few warm, dry days free from dew, will check the activity of the disease; while a warm, damp day will cause it to spread with great rapidity. The disease first appears as a minute orange-coloured spot upon a leaf or flower, usually on the upper side of the leaf. The spot gradually increases in size, and finally spreads throughout the whole leaf. In this way whole plants may be killed, and only the stalks left standing.

Shortly before visiting Bermuda for the second time, my attention was again directed to the fungus as a cause of the disease by the appearance of Professor Marshall Ward's description of a similar disease caused by a fungus growing upon the Lilium candidum in England. Upon my arrival in Bermuda, in February, 1889, I renewed my efforts at inoculation with bacteria, but in every case without success.

The fungus appeared to me to be identical with the Botrytis recently described by Prof. Marshall Ward* as growing upon the Lilium candidum in England, and from a specimen sent to him Prof. Ward has identified it as the same. So far as I know, the Lilium candidum is exempt from the disease in Bermuda, but this species is only occasionally grown there, and then with only a few together. Under similar circumstances the longiflorum also is generally exempt, the plants in the fields alone suffering. The true longiflorum is not considered to be as susceptible to the disease as the Harrisii.

The principal conclusions arrived at in this paper are the following:—

1. A disease, hitherto unexplained, and threatening to become a serious epidemic in the Lily fields of Bermuda, has been assigned to a definite cause.

2. There is no evidence that the blight is due to the stings of insects.

3. There is no evidence that the disease is caused by bacteria.

4. There is strong evidence that the disease is caused by a fungus, growing upon and within the leaves or flowers.

5. The fungus which causes the Bermuda Lily disease is identical with the Botrytis recently described as the cause of a similar disease in England.

In making the investigation just described, it was hoped not only to discover the cause of the disease, but also to suggest remedial measures. In this connection I may remark that the fungus itself seems to be delicate, so that its growth might probably be checked by almost any of the poisons used in the treatment of plant diseases, were it not for the difficulty of applying these effectively. Either a powder sprinkled on the leaves, or a liquid sprayed upon them, would here be ineffective, for the moisture would soon remove them, leaving the fungus free to grow. If, however, the fungus were present at the time of the application of the remedy, that part of it growing outside of the leaf might be killed, although that would not prevent the mycelium within the leaf from continuing to grow.

I have, however, observed that plants growing under the shelter of the Oleander hedges are remarkably exempt from the disease. This I attributed at first to the drippings from the leaves, which I thought might partake of the acrid character of the sap of the Oleander. I am inclined to believe, however, that it is rather because the Lilies under the hedges are remarkably free from moisture. In fact, the overhanging hedge collects most of the dew, so that the dew drops do not readily gather upon the leaves of the Lily plants, and thus, perhaps, no opportunity is given for the growth of the fungus.

It might, therefore, be found feasible to grow, in alternate rows with the Lilies, some other crop, which, being higher, and having more spreading foliage, should keep off the dew. A row of stakes with branches wattled among them might serve the same purpose, and check the virulence, even if it did not entirely prevent the recurrence of the disease. *Alexander Livingston Kean.*

* "A Lily Disease," by H. Marshall Ward, M.A., F.R.S., F.L.S. *Annals of Botany*, vol. ii., No. 7, November, 1888.

THE BOTANICAL GARDENS, OLD TRAFFORD, MANCHESTER.

DURING Whitsun week, though the weather was dry and a low temperature at night, with cold winds by day, these gardens were yet delightful, for the full flush of their early growth was upon them; and a vigorous leafage was accompanied by free heads of bloom. One cannot help wondering that tree and shrub do so well here, within three miles of the centre of the city, and the atmosphere at all times grimy and thick. Laburnums, Chestnut, Lilac, Thorns in variety, Pyrus, Rhododendrons, pontic Azaleas, and the Gueldres Rose, enrich the gardens; one cannot fail to notice how admirably the grounds are kept, and not merely for show days, for Fellows attend daily. Entertainments of various kinds are held.

I asked Mr. Paul, the capable foreman of the gardens, what was done with the exhibition-house and annexe when the plants making up the Whitsun show were removed? A few of the spacious bays in the latter are filled with hardy Rhododendrons in fine bloom, and in the remainder are placed Liliums, Nicotiana affinis, Azalea amœna, Chrysanthemum Precocité, and other early varieties. On every hand the visitor sees something that is being brought on to furnish commanding groups in the exhibition-house.

One plant which Mr. Findlay grows in large numbers, and finds most valuable for summer and autumn decoration, is Francoa appendiculata. He has very large specimens of this plant in pots, that throw up many spikes of bloom. They come into flower about the middle of June, and last for a long time. The plants are raised from cuttings taken in September, and grown on generously, and while blooming they are liberally stimulated with manure-water.

In the houses everything was in the best order. The fernery is a great source of attraction to visitors at all times. In the show-house there were some beautiful specimens of Schizanthus retusus and pinnatus, which is always such a prime feature at Whitsuntide. The plants are grown from seed sown in September, and grown on, and about the first week in February five plants of one variety are put into a 10-inch pot. The plants are quite small when put into the flowering pots, but they afterwards grow fast

and fine pyramids of flowers are obtained. The plants remain in bloom for a considerable period.

In one of the houses for exotics a specimen of Clerodendron Balfourianum is planted out, which at Whitsuntide was in full bloom, and, indeed, had "heaped up its flowers in happy plenteousness." Mr. Paul had loosened the shoots from the roof of the house, and allowed them to hang down, and one was enabled to realise how well it had blossomed. For five months of the year no water is given, but when it starts to grow it is watered freely.

Bedding-out was proceeding apace. Mr. Findlay largely used Polyanthuses for spring display, and their vigorous growth was astonishing; but they had to make room for the summer plants. The leading plants employed are:—Dwarf Tropæolum The Queen, Centaurea ragusina; dwarf growing Pelargoniums, of all types; Iresine, Phlox Drummondii, Stocks, Asters, a dwarf white Antirrhinum, called Worsley White, which is raised from cuttings; Pentstemons, and especially a fine dark variety named Horace Vernet; Delphiniums, Lilium auratum, L. speciosum, Pyrethrum aureum selaginoides, Antennaria tomentosa, Pansies, and Violas; a very fine and effective dark blue Lobelia, which is raised every year from seed; herbaceous Phloxes, &c. By the use of these, a very effective summer display is made. *R. D.*

[In the current number of *Manchester Faces and Places*, an account is given of these gardens and their management, by Mr. Bruce Findlay, of whom a portrait is given, together with an appreciative notice. ED.]

THE SINGLE-FLOWERED PÆONIES.

THESE showy, hardy border flowers have become very popular during the last few years, and are running the double varieties closely for decorative purposes, although the latter are still highly esteemed. The single forms have a beauty of their own which appeals to most persons, and their shape is certainly symmetrical when compared with the confused petals of the doubles. Some single varieties of P. albiflora make excellent plants for large herbaceous borders. The white, delicate pink, and rosy-tinted varieties are also very pleasing, but the purple, purplish-crimson, and those of darker shades, are excellent in effect when planted out; these are independent of the many distinct species now becoming numerous in cultivation. We have in our garden about thirty distinct, single-flowered species, and all of them of the easiest imaginable culture, with the exception of P. Browni. This species I have managed to keep alive for some years, but it makes no progress, and has not yet flowered.

An elegant species of small growth is P. tenuifolia, with pretty finely divided leaves and crimson blooms. There is also a double variety of P. tenuifolia, which is as free in growth as the single form. The height of a plant of tenuifolia, when grown in good soil, is about 18 inches. P. peregrina and P. peregrina compacta, of Levantine origin, are the earliest to flower. The flowers are crimson, and the leaves of large size; the compacta variety grows to a height of 18 inches, but the type is rather taller than that. It is a species found in many old gardens, and was cultivated by Miller, at Chelsea, and by Salisbury, at Brompton.

P. decora has large rose-pink flowers, and a height of 3 feet. We have P. arietina, which has rosy-crimson flowers, and its two varieties, Baxteri, with crimson-tinted, and Andersoni, with rose-coloured flowers. The plants attain a height of 2 feet. P. arietina is likewise an old inhabitant of our gardens, the species being figured in the *Botanical Magazine*, from a specimen that flowered in Salisbury's garden in 1807. P. mollis is very distinct as a species, and forms a compact plant of 20 inches in height, with broad, downy leaves and rich purplish-rose flowers.

The true P. officinalis, a very old garden plant, finds a place in our collection. The flowers, purplish-rose, have prettily crumpled petals; it was a garden plant so long ago as 1548, and had produced double forms soon after its introduction, a double crimson and double blush white being mentioned by Gerard and Parkinson. The latter writer says the double form produces ripe seeds, which being sown produce both single and double flowered varieties. The variety P. anemoneflora is remarkably distinct, the stamens having disappeared are replaced with narrow acuminate twisted petals, the outer petals large, and of a crimson colour beautifully incurved. This variety grows to a height of 2 feet. P. anomala is a distinct species, but is probably one of the least beautiful; the flowers are reddish-purple. The plant is said to be of Siberian origin, and yet it is not hardy enough to withstand our winters, owing to their excessive humidity. I do not find that it is here liable to die off in the winter, but then the border in which it grows is well drained.

P. Emodi does remarkably well with us, and is one of the most beautiful of Pæonies; the plant attains a height of 3 feet, and the lovely white flowers are 6 inches in diameter, with numerous yellow anthers, which set off the flowers to great advantage. The foliage is distinct, and of handsome shape. Dr. Moore, who flowered it at Glasnevin, stated that it was the most distinct of all the herbaceous Pæonies, and also the most tender; but I cannot say that I have found it to be tender in our garden. Sir Joseph Hooker remarked of it that it is a common plant in the temperate parts of the Himalayas, from Kumaon to Kashmir.

P. Wittmanniana, with creamy-white flowers, is a beautiful species, distinct in foliage, general appearance, and in its flowers. Sir Joseph Hooker says of the plant that there is but little to separate this species from P. Emodi and P. albiflora. The figure in *Botanical Register* for 1846, t. 9, taken from a plant in the Royal Horticultural Society's Garden at Chiswick, whence it was sent in 1842, has yellow flowers, and Lindley stated that 25 guineas was demanded in those days for a single plant. It is a native of shady spots in forests in Caucasia and Armenia. I may add that in our collection it is perfectly hardy. The true P. albiflora has pure white flowers, which are fragrant at eventide, and the plant has more resemblance to P. Emodi than to P. Wittmanniana. The bright red varieties also go under the name of P. albiflora, so that in this case the name is misleading.

The plant grows about 18 inches in height; P. hybrida seems to be a cross between P. tenuifolia and some other red-flowered species, it having the finely divided foliage of P. tenuifolia, but with larger purplish-crimson flowers. P. Russii is a handsome plant, 30 inches in height, with well formed purplish-crimson flowers, and conspicuous yellow stamens. The above-named Pæonies are distinct and handsome garden plants. I am sorry that I can say nothing about P. Browni, which is a very rare plant, difficult to grow; it has dark red flowers, and the centre of each petal is almost black. The plant grows 1 foot in height, and the flowers are from 1 to 2 inches in diameter. It is a native of California, and the American *Gardeners' Monthly* says of it:—"Pæonia Browni, though spreading over a great range of station and climate, is never met with in large numbers; a dozen, perhaps, will be found together, and then you might go for fifty miles, and not find another. That it will do well in any locality is evident from how it grows wild, being found on the hot plains of Los Angelos and San Diego, and also near the limits of perpetual snow on the Sierra Nevadas. It shows no preference for wet or dry soil, blooming equally well in both." So much regarding its geographical distribution. The gardener finds it one of the most difficult of hardy plants to manage; but with this exception, single Pæonies may be said to be of the easiest cultivation; a rich, deep, open soil, and free drainage, they delight in. I trenched the border where our plants grow to a depth of 2 feet, and put in plenty of rich manure. I also for the first year or two placed a mulch of decayed stable-manure in winter around each plant; but this, not being necessary any longer, is omitted.

For the sake of comparison, our plants were planted together, but the effect is better when the plants are set out some good distance apart in a border of miscellaneous herbaceous plants. The plants do not require much attention, remaining for several years in one place without removal.

I find, on referring to my notes, that I have omitted P. lobata, a species with lovely carmine-rose flowers, beautifully cupped, and having a height of 2 feet. *J. Douglas.*

EAST SHEEN LODGE.

CLOSE to the Sheen entrance to Richmond Park, is situate the residence of the Duke of FIFE. The mansion is large, but unpretending architecturally Large additions are being made to it, however, while in the pleasure grounds great alterations are in progress under the charge of Mr. OSBORN. When completed, these will change for the better the present somewhat flat and monotonous surface. Flower-gardening is brilliantly carried on here. At the time of our visit, the beds shown in our illustration were filled with Tulips, beautifully grouped according to their colours, so that graduated harmonies and not violent contrasts prevailed. Houses and pits in the kitchen garden were full of good bedding-out plants, ready to be planted out in due time. The plants, being kept in a growing state all the winter, are good-sized plants by the time they are wanted in June. There are some stately trees scattered about the lawn, among them a fine Paulownia, which flowers every year. Conifers, as a rule, do not thrive, the dry, gravelly soil, perhaps, not being propitious to them. At one end of the terrace is a Japanese summer-house of Bamboo, picked out with buff, the interior a rich deep blue (fig. 128). When provided with curtains, lattice-work, and oriental pottery, this building is both quaint in appearance and comfortable in hot weather.

ROSES.

ROSE PROSPECTS.

I WAS recently through some of the Western Counties—Somerset, Gloucester, Worcester, Hereford, and Shropshire—returning home from Manchester through the Peak District, and I never, I think, was so impressed with the loveliness of our "tight little island" as on that rapid run in the loveliest time of the year, for I think no time is equal to the last week in May and the first week in June; the foliage was in perfection, untouched by sharp frosts, and the varied tints of Ash, Beech, Maple, and other trees, were delightful; while the golden masses of Broom and Gorse, the former the brightest of all our native flowering shrubs, make even railway embankments lovely. Altogether, one could not help feeling what scenes of beauty lie around our doors, while we compass sea and land to see some fresh scenes in which our own land can equal.

But I did not get so absorbed in this as to forget the flower I love so well, and I have been again impressed with the difficulty of giving any decided opinion, owing to the extreme variation in our weather; thus, on Monday, May 19, we had here, in East Kent, a most lovely day, but when I got down to Bath, I found that it had rained continuously from morning until night; and Tuesday, which with us so fine, was, up to a late hour in the afternoon so wet as seriously to damage the attendance at the show on Wednesday, for the ground was so wet that many were afraid to venture out; while I have this morning received from a valued friend in East Anglia a most mournful tale of Rose leaves curled up, green-fly prevalent, and a general gloomy lookout; but, on the whole, I believe that we have not had for many years so bright a prospect. This comes to me from all quarters. We passed through May without those spring frosts which so often prove disastrous to the young shoots, especially those of Teas. In some places rain was

wanted, and which we have now got. Our special culture, Hops, often proves a very good indicator to me of the prospects of our Rose gardens, and although the nights have been cold, their foliage has not turned yellow, and I hear no complaints as yet of vermin on them.

At Bath there is a very keen competition amongst amateurs in pot Roses, and in no place that I know of are they so well done. We know that in the metropolis, growers for sale are the only exhibitors, and those at the great Whitsuntide show at Manchester were not at all equal to those shown at Bath. Especially would I notice those exhibited by the Rev. Edward Handley, which, both for growth and excellence of arrangement, were very noteworthy. There were also some very good cut Roses, and I was glad to see that two, at any rate, of the more recent Tea Roses promise to fulfil the expectations formed of them—Madame Hoste and Ernest Metz, the former a bold yellow flower; but let no one imagine, as I heard a visitor say, that it is to supersede Maréchal Niel; it is a different kind of Rose, and not nearly so deep in colour—in fact, reminding one rather of Cloth of Gold. Ernest Metz is a very good pink-tinted flesh-coloured Rose. I have in my own garden some very beautiful blooms of Lady Castlereagh, which promises to be a most useful Rose; the colour is a deep rosy-yellow, with rose colour at the margin of the petals; it is a good grower and free bloomer. When I saw Mr. Handley's garden, and the number of plants he found it necessary to grow, and the space they took up, I do not wonder that so few amateurs attempt growing Roses in pots.

There are some things which not only the exhibitor but every careful grower will have much on his or her mind just now. His attention will be first of all given to that which destroys so many hopes—

The Maggot.—For the worm in the bud—the beast which every Rose grower dreads, and which, protected by the leaves in which it enfolds itself, defies insecticides of whatever kind—there is but one remedy, hand picking. Each tree or plant should be diligently and carefully examined, and no mercy shown to the offender when found, a squeeze between the fingers is the least he can expect for his intrusion, and in no other way can the injured Rosarian treat him.

Aphides.—As yet I have seen none of these on my plants; there is a belief here amongst Hop growers that the easterly winds bring the lice on their plants, and that it is favourable to the increase of all kinds of insect pests. I cannot vouch for this, and indeed doubt it, but we have had a good deal of easterly and north-easterly winds lately, but as yet I have not see aphides. Where the collection is small, running the finger and thumb up the shoots will get rid of a good many, the remainder may be syringed off; where a large number is grown, the latter process will be the one adopted, and the various insecticides will supply the material wherewith to effect the destruction; here, too, no mercy must be shown. There is often a difficulty in applying these, and I imagine that the new Stott Distributor is likely to be a valuable help to the garden for this purpose, as also for arresting another plague—

Mildew.—As yet I have seen nothing of this in the open ground; there are a few traces of it on some Tea Roses on the wall, showing, I think, that one great cause of it is the alternation of temperature, the wall becomes heated during bright sunshine, and then the thermometer falls to a low point at night, as it has done frequently in May and June, and fungoid growth seems then to take place. Various plans have been proposed for this, but of late years sulphide of potassium has been very largely used, and with good effect; it should be applied with a syringe, in the proportion of one ounce to four gallons of water. There are some places which are especially subject to this pest, and where there is not a free circulation of air, or where the Rose



Fig. 126.—East Sheen House, Mortlake, the residence of the Duke of Teck. (See p. 764.)

garden is not shaded by trees, it is sure to appear; but bad as it is, it is not nearly so disfiguring to the Rose bushes as—

Orange Fungus.—A pest with which I was plagued some years ago, but which has left me alone for some time. It does not at first show itself on the upper surface of the leaves, but spots of a bright orange on the underneath surface evidence its existence, and this is one reason why it is so pernicious; it is there before you are aware of it, and the matter of syringing is a difficulty, as it must be done so as to reach the under surface. It is very humiliating to see a Rose garden over which you have expended much care, and which has given you quantities of bloom, reduced in a few days to bare poles, for this is its effect—the leaves all fall off; and to some extent this must damage the future health of the plant; but it is remarkable how soon they seem to recover from it. Here, too, I should use sulphide of potassium, and with Stott's "sprayer" the work ought to be effectually done.

I have now written of elements of destruction, but there are one or two other things which ought to be thought of at this season.

Application of Liquid Manure.—This is often put off until it is too late, for it is of very little use if delayed until near the time of blooming: it should be done when the buds are forming; it then imparts vigour to them, and increases both their size and colour. Solution of guano, cow manure and soot, and various other liquids are used. It is well to give them a good soaking twice a week, and if rain follows so much the better. The Rose unhappily is a gross feeder, and will take in almost any amount, but it may be overdone.

Disbudding.—There is nothing which it is more difficult to persuade the ordinary amateur to rigourously carry out. The exhibitor knows better. He knows that if he is to have large blooms, it is useless to leave two or three buds on a shoot. They become small and ill-shapen, and should rain come, they become a soddened mass. It is far better to have one good bloom than three or four indifferent ones. This is also another case in which prompt action is necessary. There are generally found three or more buds at the end of the shoot, and there is no better plan for removing these than that of using a common quill toothpick; but any light instrument will answer the purpose. It is well in handling them to injure the foliage as little as possible, as it is now very tender.

Another word with regard to Rose prospects. There is, I think, every prospect, at present, of an early season. I remember some years ago, when the end of June used to be considered about the height of the Rose season, when the Crystal Palace show was always held on the last Saturday in that month. Are we going back to those times? I imagine that there will be a fluster amongst some committees who have fixed their shows late, but of course the weather of June may alter things very much. But, taking into consideration the well-ripened wood of last year, and the absence of frosts in May, I think we may look forward to what we have certainly not had for some years—a good Rose season. *Wild Rose*. [Publication unavoidably delayed. Ed.]

DISA TRIPETALOIDES.

FOR the original description of this pretty species by Mr. N. E. Brown, we refer our readers to our issue of March 23, 1889, the material for the same being supplied by Mr. J. O'Brien, Harrow-on-the-Hill, the introducer, and the first to flower the plant. (See fig. 127.) The most noteworthy features of the plant is its freedom of growth, adaptability to different modes of culture, and the extraordinary duration of its flowering. Of the first specimen to flower this year Mr. O'Brien says it was wintered in a cold-house, the small plant, which was in a pan, sending up three flower-spikes, one in advance of the others. The first flowers expanded towards the end of the month of April, the plant being exhibited at the Royal Horticultural Society in the beginning of the following month. Kept in a cold frame, the same spike has lost, at this date (June 14) but two of its flowers; two more are fading; eight are perfect, and seven are in bud; making up, in all, nineteen flowers on one spike. The other two spikes are coming on in different stages, so that the flowering season of this one plant will extend over, at least, a period of three months. Mr. O'Brien has also plants standing in a cold frame which have been repeatedly frozen hard, and many flower-spikes coming up on these; and at the Royal Gardens, Kew, it has done equally well in a temperate-house.

The flowers are white or blush, spotted with rose; the inside of the hooded upper sepal is very prettily marked with bright rose-coloured dots; and the back of the lower sepals is of rose-colour.

One by one the newly introduced Disas show themselves to be worthy garden plants. D. racemosa is handsome and free to grow and flower; and others are to be found, here and there, that are well done. The blue-flowered, grassy-leaved ones, are perhaps the worst-managed at present, due consideration probably not being given to the fact that they are generally speaking heath, and not marsh plants, like the species under notice, and others of the section represented by the beautiful D. uniflora, which, under the name D. grandiflora, attain to great beauty in many gardens.

PLANT NOTES.

ACHILLEA PTARMICA.

THE Milfoils are mostly well known, and the common white Yarrow is a native weed, often too commonly met with in fields and lawns. The pink variety is less frequently met with, and is so showy as to merit a place in any rock garden or border. Among the cultivated kinds there are several of great value, and one of the best of these is A. ptarmica, the Sneezewort, which grows about 2 feet high, and produces numerous corymbs of white flowers, which are of great use as cut blooms, lasting a long time when placed in water. The double variety, A. ptarmica flore-pleno, is equally, or even more, serviceable in the same way, and both are very hardy, free-growing plants that admit of ready increases—the single from seed, and both by division of the roots. The Caspian Milfoil, A. eupatorium, is well adapted for planting in shrubbery borders or semi-wild places, as it is strong in habit and attains a height of 3 feet or thereabouts, and produces large corymbs of bright yellow flowers, making a fine show.

ANCHUSAS.

There are few hardy plants that will compare with the Anchusas at this season, the lovely blue of their flowers being quite unrivalled, except perhaps by the Gentians and Lithospermum. The finest is A. italica, a vigorous grower, attaining a height of from 3 to 4 feet, and sending out numerous large racemes of bloom. A. capensis is another fine species, but which is not so hardy as the foregoing, and should therefore be planted in a sunny and sheltered situation on light soil, where it will grow into an object of great ornament. The British species, A. sempervirens, is also very beautiful. It has numerous small blue flowers of a lovely shade, and tall branching stems, and is just the plant to place at the sides of woodland walks, or in the wild garden, and in either situation it is quite at home. At Wolverstone we have it in quantity in our hardy fernery, where it grows very freely, and is always admired. All these Alkanets admit of ready increase either by seed or division. *J. S.*

ORCHID NOTES AND GLEANINGS.

MR. HAYWOOD'S ORCHIDS.

COMPARED with some other collections, it would not be possible to call Mr. Haywood's a large one, but he has a nice manageable number in the highest state of health and cleanliness. In fact, I do not think Orchids could be better grown anywhere than they are at Reigate under Mr. Salter, the gardener's, care. Just now there are in flower among others, Odontoglossum crispum, which is represented by a large number of plants, the petals of nearly all of which are large and full, and of most delicate lilac tints. Great care must have been taken to get together such a representative group of the various crispums. There were also some splendid forms of O. Pescatorei. Prominent among the Cypripediums were a fine variety of Bellatulum and C. Veitchii or superbiens. Other noticeable Orchids in flower were Masdevallia Schlimi, and Dendrobium Brymerianum and Deari, the last-mentioned having been in flower for three months. It is a good idea of Mr. Salter's to place Pitcairnias, Sonerilas, and other fine-foliaged plants in small pots, so that they keep dwarf among the Orchids, as some offset to the monotonous appearance of the pseudobulbs. The wall of one house is beginning to be covered with sorts of Pothos, which will have a very enlivening effect. *C. A. M. Carmichael.*

MR. F. G. TAUTZ'S ORCHIDS.

On Tuesday and Wednesday next (June 24 and 25), Messrs. Protheroe & Morris will sell by auction the first portion of the well known Studley House collection.

SUNNY HILL, LLANDUDNO.

ALL who knew the fine collection of Orchids Joseph Broome, Esq., had at Didsbury, near Manchester, will be prepared to hear that the Orchids at Llandudno are still grand examples of skilful culture, yet, owing to the mildness of the climate at the Welsh Brighton, the outdoor garden of such a practical and enthusiastic horticulturist as Mr. Broome offers as much of interest to the gardener as the indoor plants. All kinds of flowering plants, from herbaceous perennial Ferns, Pelargoniums, and other florists' flowers up to Orchids have found in Mr. Broome a successful grower and exhibitor.

During all these years many a plant has doubtless suggested itself as a likely subject for growing outdoors, in favourable situations, and a glance round the pretty garden by the sea, and sheltered by the rugged hills and rocks at Llandudno, reveal not a few plants usually found in greenhouses doing well in the open air.

Partly covering the steps leading to a garden at a lower level, specimens were observed of the white Marguerite, which had been there all the winter, and were 4 feet across, and covered with blooms; grown in this way, Marguerites become dwarfed, the height of these plants being only 2 feet. Large tufts were seen of "blue Marguerite" (Agathæa cœlestis), a South African plant, sometimes found in the greenhouse, but which could not be stronger or prettier when growing in its native country. Also growing most vigorously, and with an amplitude of foliage not met with in inland gardens, were Japanese Maples, Tree Pæonies, and other Chinese and Japanese plants; whilst the presence of clumps of Cypripedium spectabile in shady, moist nooks of the rockery which runs round one portion of the garden, of Aponogeton distachyon in the water, of Lapageria rosea on a wall, and of rows of Mignonette from which flowers have been cut all through the winter, and which are still flowering, spoke of the mildness of the climate.

The ordinary garden flowers come to great perfection at Llandudno; the Narcissus, Polyanthus, Auricula, and Wallflower are beautiful in a wonderful degree; some rows—one might almost say some dwarf hedges—of single and double Wallflowers were covered with blossoms, and had a very dense growth. Everywhere in this neatly arranged garden, flowers appear; on the rocks, walls, and borders the Aubrietias, Silenes, Saxifragas, Roses, Clematis, Doronicums, &c., are extraordinarily beautiful just now; and the Coniferæ are in perfect health, with very bright tints of various greens.

THE ORCHIDS.

At the present time the main part of the Orchid display is made up of flowers of Cattleya Mossiæ, large specimen plants, some of them with more than a score blooms on each, their great size and beauty of colour being partly attributable to the goodness of the strain, and partly to their being well managed,

and the favourable climate. It is a certainty that nowhere else have we seen so fine a lot, taken as a whole. Some magnificent flowers had a width of 9 inches across the petals, and 8¼ inches when measured diagonally across the sepals. One grand variety is very near to the one exhibited at the Temple Show last year by Mr. Smee, and named C. Mossiæ Schroderiana. It has a large frilled lip, white in the centre, tinged at the base with primrose-yellow, the usual purple marking on the lip being most absent. Several of the high-coloured varieties are very good, and there is a glow over the crimson on the lips of these, and the C. Mendeliis, not usually observable. In the same house were some good plants of Cattleya Lawrenceana, and one of these plants, with fourteen flowers, perhaps is equal to any yet seen; C. Skinneri was in great beauty. Lælia elegans Turneri has made marvellous growths; and the largest and richest crimson coloured of the section—L. e. Broomei—appeared to be as distinct in its growth as in its flowers. Among the Cypripediums, specimens of C. villosum aureum, and C. v. majus were noticed, with from eighteen to twenty-five flowers, and these plants have been in bloom for two months, still being very fresh-looking; C. caudatum, C. Lawrenceanum, C. ciliolare are well-bloomed. With the Cypripediums was a plant of Peristeria elata, with three spikes. In another house was noticed a number of fine Miltonia vexillaria, one of them being furnished with a flower having a fine white lip, and six flower-spikes; fine specimens of Lælia purpurata, Cattleya intermedia, Dendrobium suavissimum and other Dendrobes, all of which are most vigorous. In the warmer houses were Aërides Houlletianum, a superb variety; A. Fieldingii and A. Lobbii, with several spikes on each; some Vandas, amongst them a finely coloured V. teres; the showy old Oncidium sphacelatum, with many spikes reaching from side to side of the house; Cattleya gigas and C. Dowiana in fine health.

The cool houses were brightened up by coloured Masdevallias being placed among the plants of white Odontoglossums in flower. In the greenhouses, among the usual plants seen in such structures were some specimens of the handsome annual, Schizanthus retusus, which, like the other plants here, speak well of the skill and attention of Mr. A. Cole, Mr. Broome's gardener. They are about 4 feet in height and 3 feet in diameter, and are literally covered with their white lavender or rosy-lilac flowers. Mr. Cole kindly imparted his method of growing this good old-fashioned plant. The seeds are sown in the autumn, and, when ready, are planted two or three in a pot, kept cool during the winter, and grown on, and repotted as they require it in the early part of the year. The method is simple, and, although useful handling is required, no trouble should be thought too great in order to secure such a fine plant in good condition. The specimens seen would put to shame many an exhibited flowering stove and greenhouse plant. *J. O'Brien.*

THE ORANGE GROVES OF FLORIDA.

(*Continued from p. 707.*)

The cost of cultivating and manuring will vary from £10 to £15 per acre, according to the age of the trees. After the fruit is sized, it is wrapped in tissue paper and placed carefully in boxes, which are nailed down, branded, and sent off to the market. Last year's crop was a small one, owing to the exceptionally dry weather in May, causing the fruit to drop off when of small size. I saw only two groves in which the trees bore a good crop, and one of these had never before borne a crop of fruit, and was in a low-lying moist position. The other was General Sanford's grove at Belair. This had the advantage of steam pumps and water pipes all over the grove, so that he was enabled to water the trees during the time the dry weather lasted, employing lawn sprinklers attached to the hydrants for the purpose. The crop was estimated by independent authority to be 10,000 boxes. Most of this was grown on 30 acres of ground, and the whole would be worth 10,000 dols., or about £2080, without any expense being incurred in gathering and marketing. This collection of Orange trees is the finest in Florida. There are also a number of other fruits, and one large plantation of Lemons. The grove was started about twenty years ago, several of the trees coming from Messrs. Rivers' nurseries at Sawbridgeworth, in Hertfordshire. The enthusiastic manager, Mr. Austen, a Scotchman, has been in Florida more than twelve years, and he is able to speak well of the country in regard to its healthiness, &c., and has great belief in the future success of Orange growing if it be done well. A tree of the Grape fruit—a variety of the Shaddock Citrus decumana—in this grove had the heaviest crop I ever saw of any kind of fruit. The tree was about 30 feet high, and 12 feet in diameter of head, and was estimated to have 2 tons of fruit upon it. There is very little demand for this kind of Citrus, it being used only in making *compotes*.

Pines, &c.—Many other kinds of fruits grow well in Florida in certain positions, but for various reasons they cannot be relied upon as staple crops. I saw the finest Pines there I have ever seen, which were much larger than those one usually sees grown in a hothouse at home. These were the property of Mr. Westcott, an enthusiastic amateur, near Orlando. He had specimens of the Smooth Cayenne and Charlotte Rothschild varieties, with ten and twelve rows of large pips, and a conical-fruited variety called "Abakka," which had fifteen rows of pips. These Pines were then (December 7) in the open air, and the fruits were getting ripe. The pips of the fruit swell out to a very large size here under good culture. Mr. Westcott puts a good covering of horse-dung over the roots, some long dry grass on the top of this, supplies the plants with chemical manures abundantly, and waters the plants about twice a week with a hose.

As a rule, Pines are grown in Florida under light airy sheds, these are made by putting strong posts in the ground about 6 feet high, with cross-pieces on the top, and then nailing laths all over the top and sides, about 1½ inches apart; this benefits the plants in two ways, it prevents injury by the sun's rays in hot weather, and serves as a slight protection from frost which occasionally visits Florida; but I regret to hear the above-mentioned plants have been killed since I left, although a shelter had previously been erected over them—others in the neighbourhood have escaped with very little damage.

The Guava grows well, and does not seem to require any manure or attention; in some places seeming to be almost wild. There is very little demand for the fruit, notwithstanding it makes excellent jelly. Bananas grow and fruit well, and look very picturesque when standing near the lakes or on the banks of the small streams. The Mango is occasionally seen, but it is one of the most tender fruits grown there, and has to be matted up in winter. Strawberries pay for growing in suitable positions, but there are not many of these near Winter Park and the surrounding district. It is necessary in such a hot and dry climate to have a certain amount of soil as well as sand to grow them in. This is only found where swamps and similar places have been drained, and even in such positions I was told that irrigation is almost a necessity for them, although, in such places, there may be water within 2 feet of the surface, and doubtless a good deal is supplied from below by capillary attraction. One grower I called on, made 600 dols.—or, say £120—from three-quarters of an acre last season. Firm-fleshed Strawberries are grown, as the fruit must be sent a long distance. The Florida Seedling and Noonan are two varieties very much in favour. They are gathered almost green, as some of them have to be sent to New York, a distance of 1200 miles, and even when allowed to colour they have very little flavour. The season commences in December or January, and lasts until June. The plants do not crop heavily as with us, but they continue to bear a few fruits all the time. Besides the fruits mentioned above, Le Comte Pears, Grapes (of the Scuppernong and White Niagara varieties are grown, and some of the best Muscat Grapes are being tried); Persimmons, Peaches, Mulberries, Blackberries, Loquats, Limes, Citrons, Figs, Water Melons, &c., are grown with more or less success; but only in limited quantities.

No corn or grass can be grown here, and vegetables only thrive in favoured spots, near the lakes, &c., where the sand contains more humus, and is really a sandy peat, which does not dry up so quickly. In such-like places vegetables grow well and fast, and arrive at maturity, unless a frost should come, when, of course, they are killed, and a fresh start has to be made. Potatos planted on December 4 were ready to dig by the middle of January, and Peas sown at Christmas-time were almost ready by the end of February; but every plant must have a lot of manure given it, in order to grow it successfully. When no frost occurs, it would probably be possible to have Peas and new Potatos all the year through, if they were irrigated.

Some of the gardens are carefully tended, and a very fine effect is possible here, if plenty of water be given the soil. The best garden I saw was at the Seminole Hotel, in Winter Park. This is a very fine building, built all of wood, like most of the houses in Florida, and contains 250 rooms; it is well patronised during the winter months by parties from colder climates.

I noticed particularly some fine plants of Celosia pyramidalis in the beds here, which were 3 feet across; some plants, nearly 20 feet high, of Ricinus, a variety with very pretty crimson spikes of flowers; nice beds of Pelargoniums; Hibiscus sinensis; some of the taller plants were carpeted underneath with Tradescantia zebrina. Alternanthera is used instead of Box-edgings, and looks very pretty. The grass on the lawn is of one kind only; it makes stems after the style of a minute Bamboo, and is occasionally found growing wild; it is called Bermuda-grass, and with plenty of water regularly supplied, it keeps green and fresh during the hot weather. The view from the top of this hotel is very fine, Lakes Maitland, Virginia, and Osceola being all near at hand. A good steamboat is kept on the two latter lakes for visitors, and everything is done by the Winter Park Company to make a visit to Florida agreeable.

The Pine forest in its natural state with the exception of the tracks cut through it, is close at hand; it seems a usual practice to cut down all the Pines, &c., when clearing the land for cultivation, and afterwards to plant lines of trees along each side of the roads near to the towns, as all the land in America is laid out square, and the roads run at right angles, these avenues sometimes run a long distance. A species of evergreen Oak which grows in the forest is generally used for this purpose; young straight trees are selected with stems 2 to 3 inches in diameter, the heads are sawn off, about 10 feet from the ground, and the branches cut off, leaving only a bare pole; these are dug up with very little root attached, and planted where required early in the spring. Sometimes a little fertiliser and some water is afforded the tree for a time; but they soon grow to a good size in spite of this rough treatment, and an avenue of them is a very pretty sight. The wild Orange is sometimes used for the same purpose, but one can hardly see the reason for using it when good Orange trees are just as easily got. This practice of laying all the land out in squares by the State has much to recommend it, as a record of each plot is easily kept, and the transfer of land from one owner to another is a simple affair; but these straight roads and fences will eventually spoil the scenery of the country when all the forest is brought under cultivation.

Among other plants and flowers cultivated in gardens, I noticed a very pretty archway at Winter Park formed of laths, &c., erected over a gateway into a garden, and covered with Orange and white-flowered varieties of Thunbergia alata, which looked beautiful in full flower. Plumbago capensis and P. rosea are often seen doing well. Poinsettia pul-

cherrima forms very fine bracts. One splendid plant which I saw was about 15 feet high and 12 feet across, and had a large number of its scarlet flower-heads. Acalypha marginata does well in the open; Tecoma capensis is very handsome when it receives a little attention. One specimen I noticed tied to stakes about 10 feet high, was covered with its orange-red flowers, and was a very striking object. Bignonia Cherere grows at random over roofs of houses and verandahs, &c., and forms one of the finest sights imaginable in the way of a flowering plant. One fine specimen of this plant deserves especial notice. A small arbour had been formed by nailing a few pieces of wood together, enclosing a space about 8 feet square, and 8 feet high; a plant of this species of Bignonia had been planted in the centre, and the stem taken straight up; it had afterwards grown all over the sides, covering the whole structure completely, and some of the shoots had run in the sand among the wild grass and bushes near for a distance of 30 feet, and these young shoots were flowering at every joint. The trusses of bright orange-red flowers formed a picture not easily forgotten. Choice kinds of Coleus do well; Vincas rosea and alba make fine plants, and seem to be always in flower; Gardenias grow in some places 6 feet high, as healthily as Laurels, but in other places they have a pale, sickly look. Mealy-bug is occasionally seen, but it does not infest Gardenias and other things in Florida as it does in our hothouses if neglected. Oleanders do well, and make fine plants 20 feet high. The Giant Bamboo is occasionally seen in fine graceful specimens 40 feet high. Grevillea robusta is very pretty when 8 to 10 feet high. I saw a few specimens over 30 feet. The Avocado Pear was of the same height, and had grown up from the ground since the frost in January, 1886, when it was killed to the ground.

Yucca aloifolia makes a fine plant, one that I measured was 16 feet high, and the stems 35 inches in circumference. Some of the fan-leaved Palms form splendid plants, but these are really indigenous. Rose bushes flower all the winter sparingly, and they do not, as a rule, form such vigorous bushes as here; but I saw one very fine lot of Maréchal Niels in flower on December 23, which were budded close to the ground on a native Rose, and had made shoots nearly 20 feet long. Canker in this plant is unknown in Florida. They give these Roses plenty of water, and mulch the roots with manure, and apply chemical manures besides.

Owing possibly to the quickness of growth, the flowers are not so large or highly coloured as we are accustomed to see. Agave americana, and some of the other species, soon flower and make large plants, the warm climate and sand apparently suiting them. I saw one fine plant of Russellia juncea flowering well, also the small single Russian Violet was doing well in one instance; various kinds of Ricinus, Cannas, Opuntia, Abutilons, Euphorbias, &c., are often seen, and there seems no limit to what might be grown with a little attention. *W. H. Divers, Ketton Hall, Stamford.*

(To be continued.)

IRISES.

Nothing else among hardy plants can approach these for beauty and diversity of form, and shaded colours, and a bed or border of mixed sorts in full bloom is a glorious sight at this season. The most chaste and refined are the bulbous kinds known as Xiphions, which require a very different treatment to the fibrous-rooted, thick rhizomed, flat, or German Iris, as these latter will succeed almost anywhere in a garden or brook-side [But need drought to ripen. Ed.]; but the Iris xiphioides needs a light dry soil and a warm situation. The best place to have them in really good condition, and they are worth any amount of trouble, is a border sheltered by a wall or hedge, and facing south, and if the soil has been properly prepared previous to planting, the plants may safely be left to take care of themselves.

The way to start with them is to dig out the soil, or trench it deeply, and mix in with it plenty of sand, leaf-mould, and a little mild rotten manure, and then the plants will increase rapidly and send up a great number of blooms. The flowers are excellent for cutting, and make a splendid show in vases, and lasting a long time in water.

The same may be said of the German and Japanese species, both of which are magnificent, the last-named producing blooms from 6 to 8 inches across. The varieties among these are great, every year seeing fresh importations from that distant land; and in this country they seed and cross readily, and



Fig. 127.—Disa tricratioides. (see p. 766)

new sorts are continually being raised in that way.

The Japanese Irises do best in moist loose soil, sending their roots deeply into the earth. Iris germanica, although the commonest of Irises, is not the less striking, and the effect of masses of the plants is very fine. The plants will succeed almost anywhere, but, like other plants, they pay well for good cultivation, spreading rapidly. Their increase is easy by division of the roots, which may be effected at almost any season, as the fleshy roots (rhizomes) are very tenacious of life, and by the exercise of ordinary care in planting, every piece will grow. The way in which they look best is in large beds or groups; and when planted in that way it is an easy matter to top-dress the plants with rich mould—a great help to them in making their growth. *J. S.*

Plants and Their Culture.

Greenhouse Plants.—The Amaryllis should now have light in plenty to ripen their bulbs, and late-flowering bulbs should be afforded weak manure to assist growth. These bulbs do well on a shelf in a vinery. The seedlings of Amaryllis may be put in an intermediate-house, keeping them free from red-spider and thrips, and encouraging them to grow freely. Keep hybrid Rhododendrons in a warm, moist corner of the greenhouse, syringing them three or four times daily. If these plants are well syringed, and the underside of the foliage made wet, they will not be troubled by insects, and will give trusses of bloom in the autumn months.

Camellias and Azalea indica should be shut up early in the afternoon to encourage growth; and, in the case of large Camellias, planted out, a dressing of soot once in a month, well watered into the soil, will be found beneficial. Soot-water may be used for plants in pots. Azaleas will be benefited by doses of Clay's Fertiliser, given occasionally. The forced plants which may have completed their growth may be removed to a cool house, and in a short time afterwards plunged in a sheltered spot in the open, that is rather shady, but not overhung with trees, syringing them in fine weather. If the pots are not plunged, they should be protected from the sun by being put into pots of a larger size.

Ericas requiring shifting should be attended to, not over-potting them. Epacris growing freely should not be shaded, as this induces weak growth. Begonias may be shifted. The tuberous-rooted species require plenty of space to grow, and a cool house to prevent drawing of the stems. Statices will now take abundant supplies of moisture, and sometimes liquid manure, and when in bloom, overhead syringing must be discontinued; and, if greenfly be troublesome, an occasional sponging of the undersides of the foliage with tobacco-water will keep the plants clean. Smaller plants may be shifted before becoming pot-bound—these plants will give good bloom in the autumn.

Kalosanthes should get a light place and some stimulus to growth, and be stopped to encourage the side growth. The early plants of Celosias will have filled their pots with roots, and will require liberal treatment. Later sowing of Celosias should be well syringed, and shifted when necessary. Another sowing made now will be useful in the autumn, and the plants may be grown in cold frames. Cockscombs need much the same treatment; but I do not advise these for employment in the autumn. Fuchsias should be shifted on as required, stopping the shoots of those wanted for late blooming. Cuttings of Fuchsias inserted singly in small pots, or three in a 60-pot, make plants which will be useful in the late autumn. Liquid-manure should be afforded all well-rooted large plants showing bloom. The late flowering Pelargoniums will require the same treatment if they are to make good trusses. The double and single-flowered Ivy-leaved Pelargonium, if in small pots may be shifted, and a few sticks and ties given them for support. Winter blooming plants should get their final shift, and be placed in the open air with full exposure to the sun.

Chrysanthemums, shifted into their flowering-pots, require ample space when standing in their summer quarters, and staking the plants must be attended to, the small stakes being removed if there are any. *Geo. Wythes, Sion House, Brentford, W.*

Fruits Under Glass.

The Orchard House.—The early fruit in this division will probably be ripe if not already gathered, and when that is the case means should be taken to get the wood thoroughly matured, not by the withholding of water and liquid manure from the roots, but by increased ventilation, or, better still, the entire removal of the lights. Give the trees a thorough washing with the engine, and strive to maintain the old foliage in a healthy condition as long as possible. As soon as the fruit is gathered, prune away useless spray and any unfruitful wood, and pinch in gross shoots, so as to benefit the weaker ones. Fire heat is no longer necessary. Trees in pots may be removed to the open air and plunged in coal-ashes or tree-leaves, in a sunny position, top-dressing them with turf and rotten manure, and affording them abundance of water at the root.

In succession houses, plenty of atmospheric moisture will be required whilst the fruit is stoning and swelling, and the presence of mildew must be keenly watched for, it being very prevalent in these late fruit-houses. Dredging with flowers-of-sulphur, repeated at short intervals, is the best remedy for mildew, but the sulphur must be fresh and powdery. Syringe the trees once daily, but endeavour to have the foliage dry before nightfall by keeping up a gentle circulation of the air.

In orchard-houses the fruits of Peaches, &c., may be retarded till October—that is fully as late as on walls outside. Check green-fly and red-spider by the frequent use of soapy-water or diluted tobacco-water and the garden-engine, or tobacco-powder may be puffed on to the aphis on their first appearance. Ripe Cherries may be kept on trees in pots for some time, if a dry atmosphere be maintained.

Plums require the same kind of treatment as Peaches, but the flavour is brought out more fully if the plants are plunged outside to ripen.

The early Green Gages now ripening should have no more stimulus than that afforded by clear water; the top-dressings should be renewed as often as the roots take possession of them.

Melons.—Sow seeds fortnightly, and pot on into 6 or 8-inch pots in strong gritty loam. These plants will take the places of those now ripening their fruits. Prepare beds for replanting, and thoroughly cleanse the house or pit, whitewashing walls with hot lime and sulphur, and painting the ironwork, wires, &c., with petroleum. Clear out the soil, plant out on hillocks of fresh loam made firm, keeping the collar of the plants well above the surface. Stake, water, and afford the plants a moist atmosphere of 75° to 85°, and 10° more with sun-heat, the bottom-heat being about 80°. Crops may be taken at this time of year, say, of four to six Melons per plant, and moderate-sized fruits from 2 to 4 lb. each are generally of better flavour than over-fed monsters. Allow no crowding of laterals, and preserve the old leaves healthy to the finish, and avoid checks by severe pruning; but rather go over the plants on alternate days. The above will hold good for Melons on dung-beds, but a stagnant atmosphere must be avoided, or canker will appear. If it appear, rub fresh-slaked lime repeatedly on the parts affected, and as a further precaution, put a handful of charcoal-dust around the collar of the plant, train the bine thinly over a layer of old pea-sticks, thin out useless laterals at short intervals, and elevate the fruit above the foliage as soon as it is set. Syringe the frames according to the weather, and top-dress the beds with loam when the roots make their appearance. Keep a steady bottom-heat of 80° by turning over the linings when the heat declines much, adding a little fresh previously prepared material. One bushel of gritty calcareous loam, with a double handful of bone-meal to each plant will, with top-dressings, grow Melons in hot beds to perfection. Ventilation should be judiciously given day and night, in order that the bine may grow wiry with short stout leaf-stalks, such plants nearly always setting their fruit well. *W. Crump, Madresfield Court, Malvern.*

The Hardy Fruit Garden.

Wall Trees.—The spurs of Pear, Plum, and Apple trees, when aged, often grow to a great length from the wall, and much of the benefit trees derive from being trained on walls is lost. The practice to leave at each pruning a little more wood on the spurs, so as to gain in bloom, is the cause of this. At this time of year, when it can be seen where the fruits are, it is a good plan to cut close to the branches any of those long spurs which are destitute of fruits, and from the base fresh growths will usually start, and make fruitful spurs the next year. Trees to be kept fruitful in all parts must have a succession of young wood coming on in various stages, young branches being laid in whenever vacancies occur, but only where they will get full exposure. Plums are greatly benefited by the cutting away of unfruitful spurs, and laying in of fresh shoots annually. I am inclined to think that it is the safest time to prune all kinds of stone fruit trees when they are in full leaf, but carefully avoiding too great severity. Pinching of the shoots in summer is much preferable to excessive winter pruning, and may be made to take its place in great measure.

Apples, Pears, Plums, all kinds of Cherries, except Morellos, also some kinds of Apricots, bear their fruit on spurs either naturally long or short, and it is necessary that those which grow to a great length should, as a rule, be stopped at the fourth or fifth leaf; if stopped closer than this, the buds close home will break into new growth, instead of developing into fruit-buds. When stopping has been once done at the distance named, any further growth at this season may be stopped at the first joint, and this stopping may be repeated as often as is necessary. If, as sometimes will happen, new shoots are left of too great a length, or not stopped, do not remove such all at once, as that would give the trees a check, but take off a few of them at intervals of three days. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

Seakale.—These should be kept clean and free of weeds by hoeing, and be well supplied with strong liquid manure, the application on light soil being very beneficial to the crop. A rich deep soil and full exposure suit the plant, and on such no difficulty is experienced in getting stout well-ripened crowns in one season; and the poorer the soil, the more liberal must be the feeding of the plants, and the thinning out of surplus buds on the crowns, and without which another season's growth will be required before it is fit to force. Remove every flower-head from the old plants, and those spring-planted should be carefully examined, pulling off the weak growths, and leaving but one to each root. Some gardeners plant other kinds of vegetables between the rows of Seakale, which occupy the land during the earlier part of the first year, but this should not be done.

Peas.—In warm localities, Peas may be sown so late as the 21st of the present month, and if the weather be fine to a late period in the autumn plenty of good pods may be expected; but, as a rule, about the 10th is the latest time at which to sow the tall varieties of Peas, and second early varieties afterwards. The earliest varieties may be sown as late as the beginning of July, but it is seldom that small Peas are cared for late in the year; and, moreover, the Marrowfat Peas from the June sowings last until cut down by frost.

Spinach.—In dry weather the seed should be sown on cool aspects in beds by itself. There is no need for digging the ground after other crops have been cleared off for good Spinach, if it be in good heart, drills being drawn just deep enough for the covering up of the seed. This is quite enough for this evanescent crop on light soils, and for several other crops we do not believe there is anything to be gained by digging so frequently as we do.

French Beans.—At intervals of a fortnight to three weeks, sowings of these should be made in amount according to demand. The plants on warm borders will require earthing up, whilst Canadian Wonder or Red Flageolet, if sown on ground in good heart, may be slightly supported with short twiggy branches. The plants may be syringed in the afternoon in dry weather, so as to check red-spider. *H. Markham, Mereworth Castle, Maidstone.*

EDITORIAL NOTICES.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY,	JUNE 24.	Royal Horticultural Society: Fruit, Floral, and Scientific Committees and Exhibition of Tea Roses, by the National Rose Society.
THURSDAY,	JUNE 26.	Royal Botanic Society: Floral Parade and Feast of Flowers.
FRIDAY,	JUNE 27.	British Fruit Growers' Association: Strawberry Conference at Royal Aquarium.

SHOWS.

TUESDAY,	JUNE 24.	National Rose Society: Exhibition of Teas, at the Royal Horticultural Society's Meeting, Westminster.
WEDNESDAY,	JUNE 25.	Royal Horticultural Society of Jersey, Richmond (Surrey).
FRIDAY,	JUNE 27.	Royal Aquarium, Westminster, with National Tank Society (two days).
SATURDAY,	JUNE 28.	Reigate. Eltham.

SALES.

TUESDAY,	JUNE 24.	First Portion of the Studley House Collection of Orchids, at Protheroe & Morris' Rooms (two days).
THURSDAY,	JUNE 26.	Orchids in Flower, and Imported lots, 20,000 Kentia Seeds, &c., at Stevens' Rooms.
FRIDAY,	JUNE 27.	Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—62°.1.

The Gardeners' Benevolent.

ONCE again we have the pleasure of signalising a great success for this tried Institution. Mr. HARRY VEITCH is as popular as a man can be, and well he deserves his popularity. Mr. CUTLER—though it is quite unnecessary to say a word about him—is a secretary there is none to rival, and his gentle persuasiveness (he himself calls it "cheek," but we do not find that word in the dictionary bearing any such significance), is such that few can resist and none resent his appeals. At any rate, between the two gentlemen, who, of course, are aided by local secretaries and others anxious to help the good work, a sum of well-nigh £3000 was secured at the late festival for the benefit of those infirm gardeners who have had the foresight in their working-days to make provision for the future, and to contribute, while they were able, their mite in relief of the necessities of their brethren. The principles of such an Institution need no advocacy; nor, we are thankful to say, does their application to practice. The Institution is thoroughly well managed, and amply deserves the support of the gardeners of this country: that it needs it, is shown by the fact that no fewer than sixteen persons were of necessity left out at the last election. The festival took place while our last week's number was passing through the press, too late to enable us to take note of it in that issue; but we can now append a short account of the proceedings from our own reporter:—

The fifty-first anniversary festival of this excellent institution was held at the "Albion," Aldersgate Street, on Thursday last week, and the popular chairman of the occasion, Mr. HARRY J. VEITCH, must be congratulated on its being one of the most successful gatherings which have ever taken place. A large company was present from all parts of the kingdom, and Continental horticulture was represented by M. de GRAAFF, of Leiden, and M. D'HAENE, of Ghent. The chairman made a touching appeal on behalf of those gardeners whose lot in life has been a hard one: and in support of his appeal he gave an outline of the doings of the institution from its commencement, now over half a century ago, up to the present time. In 1839 their income was only £126, out of which one pensioner was supported; but so rapidly have matters advanced, that now no fewer than 154 pensioners find relief in their old age. Forty years ago, £493 were paid in pensions, whereas last year the amount reached £2,348. During the same period, the annual subscriptions had increased from £542 to £1,328. The chairman alluded to the excellent services rendered by their secretary, Mr. CUTLER, who had contrived to reduce the expenses of management from 20 per cent. in 1850, to only 12 per cent. in 1889. As striking evidence of the advantage of being a member of the institution, the chairman caused some merriment by stating that they had on their books a pensioner who is 102 years of age, and who has received in pensions no less a sum than £490, in return for subscriptions amounting to 18 guineas, and the whole company agreed with the chairman's remark that that was not a very bad investment. He also dwelt on the fraternal feeling which exists between gardeners, and read two letters—one from a man with ten children, enclosing £2 15s., and another from a man whose wife had been under the doctor's hands for nine years, and himself for two years, and yet who had managed to send £1 3s. 6d. The reading of these letters evoked well-merited applause. Having dwelt upon the bright side of the picture, the chairman cleverly adduced many reasons why the institution was deserving of all support, and stated that, large as was their income, they wanted still more to provide for the sixteen persons who were waiting election. The result of the chairman's exertions, with the assistance of the stewards, represented the substantial sum of nearly £3,000, of which, it is pleasant to reflect, the gardeners themselves of the United Kingdom gave close upon £800. Among the other speakers were Mr. H. SHERWOOD, vice-president and trustee; Mr. THISELTON DYER, Director of the Gardens, Kew, who expressed his admiration of the self-reliance, intelligence and skill exhibited by English gardeners; Mr. SHIRLEY HIBBERD, who in a characteristically humorous speech, in proposing the toast of the President and Vice-president of the institution, incidentally mentioned that the Duke of WESTMINSTER had promised £1,000 towards the Horticultural Hall; Mr. H. J. ADAMS; Mr. DICKSON, Chester; Mr. de GRAAFF, whom the chairman described as the king of Amaryllis growers; M. D'HAENE, Mr. PARKINSON, Mr. MUNRO, and Mr. WEBBER. The chairman, in giving the last toast of the evening, "To our next merry meeting," expressed the hope that the next festival would prove even more successful than that one, as Mr. EDMUND YATES had promised to preside. The pleasure experienced at the dinner was largely contributed to by the singing of Miss ETHEL WINN, Miss MARY BELVAL, Mr. J. BARTLETT, and Mr. R. HILTON. Mr. R. F. KINKEE was pianist. After the dinner, the chairman gave each of the lady *artistes* a gold bracelet, as a *souvenir* of the occasion; and we must not omit to mention that most of the beautiful dessert was the present of Mrs. H. J. VEITCH.

THE GARDENERS' ORPHAN FUND.—A special meeting of the committee was held at the Caledonian Hotel, Adelphi, on the 13th inst. Mr. JOHN LAING, presiding. The Hon. Secretary, Mr. A. F. BARRON, reported that the chairman of the committee, Mr. GEORGE DEAL, was in a very critical state of health, an announcement received with the greatest regret by the committee. The balance at the Bank was stated to be £518 12s. 4d., Mr. BARRON reporting that a very large proportion of the annual subscriptions had been paid. A financial statement in regard to the Covent Garden *fête* was then submitted, showing a profit of £170. The sum received by means of collecting boxes at the *fête* was £20 3s. It was unanimously resolved that thirty-four special life votes, in accordance with the amended rule XII., § *b*, be placed at the disposal of the sub-committee of standholders, appointed to assist in carrying out the *fête*. A hearty vote of thanks was passed to the standholders for making such an admirable display. Several details of the coming annual dinner were considered. Later on, there was a meeting of the joint committee for the *fête*, Mr. ASBEE presiding.

COMPRESSED TEA.—The *Kew Bulletin* for June contains an account of the manufacture of compressed tea at Hankow. This tea is in use throughout Russian Siberia, and is made of tea dust compressed by steam power, and differs from the brick tea of Tibet, which is made of the entire leaves pressed together. The Timber trees of the Straits Settlements are next passed in review, the notice being founded on the collections of the late Dr. MAINGAY. The remainder of the part is taken up with correspondence, showing the desirability of extending the cultivation of Cotton in West African colonies.

MR. J. G. BAKER.—Mr. J. G. BAKER, F.R.S., has been appointed Keeper of the Herbarium and Library at the Royal Gardens, Kew, in place of Prof. OLIVER, who has resigned. Mr. BAKER has held the post of First Assistant in the establishment for twenty-four years, having been appointed in January, 1866. Mr. BAKER'S valuable services to horticulture, and his never failing willingness to help those who appeal to his knowledge, have been so well tested that this appointment will be hailed with great satisfaction.

HYDE PARK.—There is at the present time no finer floral sight in London than is presented by the beds and solitary plants of hybrid Rhododendrons and Pontic Azaleas, planted on the soft green turf on the north side of Rotten Row. The plants are from Mr. ANTHONY WATERER'S famous American Nurseries, Knap Hill, Surrey, and have been chosen with an eye to harmonious yet brilliant colouring The solitary plants, often measuring 10 feet in height, and as much through, consist chiefly of R. ponticum in variety, whilst the finer Rhododendrons, and the Azaleas, now a little past their best, are disposed with much good taste in beds of a variety of shapes, and nearly always of large extent.

NATIONAL ROSE SOCIETY.—The annual dinner, heretofore held in December, the date of the Society's formation, will this year take place on Tuesday, June 24, at the rooms of the Horticultural Club, Hotel Windsor, Victoria Street, at 6 P.M. The chair will be taken by the very reverend the Dean of ROCHESTER. A large attendance is expected.

PRESENTATION OF PRIZES AT THE HORTICULTURAL COLLEGE, SWANLEY.—The half-yearly distribution of prizes took place at the above college on Friday, the 13th inst. The chair was taken by Mr. J. C. JOHNSON, J.P., who was supported by Mr. JNO. MCDOUGALL, M.L.C.C., Prof. CHESHIRE, and Mr. A. H. BOND, Resident Director. Mr. J. PENTLAND SMITH (Science Lecturer), and Mr. C. W. H. GREAVES (Secretary), were also on the platform. After an address to the students by Mr. JOHNSON, and speeches by Prof. CHESHIRE and Mr. BOND, the prizes were presented to those who had been successful at the sessional examinations recently held. Prizes were also given for the best practical work in the glass-houses, cultivated plots, &c. In the course of his remarks, the Resident Director referred to the



View in the Public Gardens at Oodeypur.

methods adopted at the college, and the practical results of such training, pointing to the success of those who had not neglected fruit-growing, and other branches of horticulture in their farming operations, as evidence of the opening which horticulture affords to young men at the present time. The distribution of prizes was followed by an entertainment given by the students.

The Clyde Disaster Fund.—It will be in the recollection of our readers that a fund was opened, some time since, for the benefit of the widows and families of Mr. Hall and Mr. Fraser, who by a most unfortunate accident were drowned in the Clyde, in September last. The total amount collected was £469 17*s.* 6*d.*; the expenses for printing appeals, postage, &c., amounted to £6 17*s.* 6*d.*, thence leaving a balance of £454, which has been equally divided between the two families, and the amounts invested in Grand Trunk Railway of Canada 4 per Cent. Debenture Stock. Mr. William Thomson, jun., of Clovenfords, N.B., has kindly consented to act as joint trustee with Mrs. Fraser for the sum invested for her benefit. The thanks of the committee, says Mr. F. Horsman, the hon. secretary, are due to Mr. Harry Veitch and Mr. W. H. Protheroe, for the great pains they have taken in securing such a good and safe investment, and we trust the subscribers will be well satisfied with the result.

Linnean Society.—At a meeting of the above Society, on June 5, Prof. Charles Stewart, President in the chair. Messrs. Harvey and W. F. Kirby were admitted, and Messrs. W. H. Beelby and S. Gaskring were elected Fellows of the Society. The President then nominated as Vice-Presidents for the year, Messrs. W. Carruthers, P. Martin Duncan, J. G. Baker, and F. Crisp. Mr. H. Little exhibited and made some remarks upon the remarkable Aroid, Amorphophallus Titanum, which had flowered at Kew last year. Mr. James Groves exhibited a specimen of an Orobanche parasitic upon a Pelargonium. The following papers were then read and discussed: -1, Mr. G. F. Scott Elliott, "On a Collection of Plants made by him in Madagascar." 2, Rev. G. Henslow, "On Weismann's Theory of Heredity applied to Plants;" 3, Prof. Windle, "Teratological Evidence as to Heredity of Acquired Conditions;" 4, Mr. Harvey Gibson, "On the Development of the Letrosposary in Rhabdochroton Rothii, Naegeli;" 5, "On the Position of Chantransia, with a Description of a New Species," by Mr. George Murray and Miss E. Baker; 6, Miss A. L. Smith, "On the Development of the Cystocarp in Callophyllis laciniata;" and 7, Mr. B. Carruthers, "On the cystocarps of some Genera of Florideæ."

Gloxinias at Messrs. J. Veitch & Sons, Chelsea.—A very beautiful strain of erect-flowering Gloxinias is now in flower at this establishment. By experiments in hybridising, long-continued, a plant has been secured with horizontally-poised foliage, of much robustness of growth, measuring, in some cases, 2 feet across the entire plant, and sometimes prettily marbled, and numerous flowers coming in a mass on stout footstalks, and showing well above the foliage. The plants now in bloom consist of tubers which flowered last year, and a younger generation from seed or leaf-cuttings. We specify a few of the more striking: Virginalis, pure white -this variety has occasionally carried 120 flowers, the usual number for this and others being sixty to seventy. Spotted flowers are now getting beautifully varied in colours; reticulated ones in crimson and violet on white grounds are beginning to show themselves in the seedlings, and are thought much of. Orion is a lilac flower of a new class, with a spotted margin; Celia has a broad margin of purple, the throat being white; Cygnet is white, with a violet-shaded margin to the segments; The Moor, dark purple, shaded margin, and short tube; Comet, bright crimson—a very fine flower; Orestes, deep crimson, with a margin of a lighter shade of colour; Irena, a cheerful shade of scarlet, with a white throat; Mrs. Atkinson, spotted with mauve-purple on white; and Nestor, fiery red, and spotted in the white throat —the best flower of the class. The flowers of these Gloxinias require to be pulled off the plants, in this respect differing from older types, which, as everyone knows, lost their flowers on the least movement, a fact due, probably, to the impossibility of these newer types of flowers being self-impregnated.

Horticultural Exhibition Fixtures.—The Aylesbury Floral and Horticultural Society holds its annual exhibition on July 3; Kettering and District Horticultural Society on July 7, this being Feast Monday in this town, and a general holiday with the townspeople; Waltham Abbey and District on July 24; the Cardiff—formerly the Glamorganshire —Horticultural Society, on August 13; and the annual exhibition of Taunton Deane Horticultural Society, on August 14.

Fruit Show in the City.—On the invitation of Sir James Whitehead, Bart., Master of the Fruiterers' Company, the following gentlemen assembled in the Guildhall on Monday afternoon last to confer with a Committee of the Company on the advisability of holding an exhibition of home-grown fruit in the City of London during the ensuing autumn—namely, Messrs. A. F. Barron, G. Bunyard, J. Cheal, J. Emerson, Shirley Hibberd, Faunce de Laune, J. Laing, G. Paul, T. F. Rivers, A. H. Smee, H. Turner, and J. Wright. Dr. Fotherby, R. S. Mason, and H. R. Williams, Esqs., Past Masters, with Mr. O. C. T. Eagleton, were present on the occasion. Sir J. Whitehead, who presided, explained the objects in view, and deplored the diminishing quantity of hardy fruits raised by cottagers and farmers. During his Mayoralty last year, he made an appeal to the public to raise a sufficient fund for yielding an annual income to be applied to the furtherance of that object. At the present time, subscriptions amounted to about £1500. He wished to draw public attention to the desire of the Fruiterers' Company to increase that fund, and the best method of doing so was the question they had to consider. The proposition to hold a fruit show under the Company's auspices in the City had been favourably received, and if it was considered practicable by the practical men around him, he should do his best, as would his colleagues, to make it a success. He wished it to be distinctly understood that they had no idea of being in opposition to, or acting in conflict with, any existing society or association which was working to the same good end; but the Fruiterers' Company had done a little, and desired to do more, and he therefore asked for co-operation and suggestions. The first question was, whether there would be any fruit this year? and that having been satisfactorily disposed of, a conversation ensued on the advisability of the Royal Horticultural Society assisting in the project, Mr. G. Paul remarking that he believed the Council would regard the matter favourably, but he had no authority to give any definite pledge. The following resolution, proposed by Mr. Smee, seconded by Mr. Rivers, and supported by Mr. Hibberd, was passed unanimously:—"That this meeting of a Committee of the Fruiterers' Company and of practical fruit growers, is of opinion that an exhibition of home-grown fruit, implements, &c., held in the City of London in the autumn of the present year, would tend to increase the interest of the general public in the cultivation of fruit in our homesteads and cottage gardens."

Chambre Syndicale of Ghent.—On the occasion of the monthly meeting of the above Society on the 9th inst., the following plants received Certificates of merit:—Vanda Parishi Mariottiana, a very distinct variety, shown by MM. Edm. Vervaet & Co.; Cupania elegantissima, shown by M. A. Van Geert; C. elegantissima, shown by M. Louis Van Houtte; Cattleya Mossiæ var. (unanimously), a very fine flower, of the darkest hue, and a splendid plant; Cypripedium Fraseri, C. hirsutissimum×, C. barbatum, and flowering in Europe for the first time; and Odontoglossum species, raised from crispum or Pescatorei, which were all shown by M. Jules Hye; Miltonia Leopoldina (Reichenbach), shown by M. Ed. Pynaert, a splendid flower, which will be figured shortly in the *Revue de l'Horticulture Belge et Etrangère;* the flowers are deep rose, of unusual size, their most distinctive feature being the triangular blotch of deep purple which is seen at the base of the lip. Odontoglossum Pescatorei, remarkably distinct; Aërides Godefroyæ, with petals and sepals bordered with rosy-carmine, a very dark lip, and a border of dark rose, shown by M. A. Van Imschoot; and Cattleya labiata Warneri, of deep colour and well-developed lip, shown by MM. Boelens frères. Cultural Certificates were awarded (1), to Cattleya Mossiæ Reineckiana, from M. J. Hye; (2), to Cypripedium Roebelini, from the same grower; and (3), to Lilium giganteum, from MM. Boelens, which bore fourteen flowers on a stem of unusual size. A Certificate of Merit for novelty was accorded to Cuparia elegantissima, shown by the establishments of M. Louis van Houtte, and by M. Aug. van Geert. Honourable mention was accorded to Vanda tricolor and Cattleya Warneri, of MM. Vervaet & Co.; to the Nanodes Caput Medusa, of M. Schmitz; and to a variety of Odontoglossum guttatum, shown by M. J. Hye; to Cattleya gigas, from M. D. Haene; to Epidendrum Stamfordianum var. Wallisii, from M. Van Imschoot; to Odontoglossum vexillarium, from MM. Boelens; to Adiantum venustum, shown by M. Spae-Vandermeulen. *C. de B.*

Utilisation of Botanic Gardens.— We learn from the *Scottish Leader*, of June 10, that a departmental committee has been appointed by the Government to inquire into the whole working of the Royal Botanic Garden and Arboretum, Edinburgh. The chief object of this committee will be to ascertain how these institutions may best be utilised in the interests of education and the public generally, and what may be necessary to make them more useful as a means for the better study of botany. In this connection the establishment of a forestry school for Scotland will form a special subject of inquiry. The committee will hold its sittings in Edinburgh during the month of August, and its report will, it is expected, be issued before the end of the year.

Mr. Walter Gardiner.—At a meeting of the Master and Fellows of Clare College, held recently, the tenure of the Fellowship of Mr. Walter Gardiner, M.A., F.R.S., was extended for a further period of six years, on account of his marked service to botanical science.

Early Potatos.—Mr. B. Grist, gardener to Lady Hamond Græme, of Norlands, Great Yarmouth, dug Sutton's Ringleader Potato on May 7 in the open border. He considers this variety to be the earliest Potato in cultivation, and many other authorities have expressed a like opinion.

"Epping Forest Mismanagement."—A *brochure* is being circulated under the above title, consisting of reports and criticisms by Sir T. Fowell Buxton and Mr. E. North Buxton, verderers of the forest; Professor Boulger, Professor Meldola, Mr. A. J. Burrows, Mr. Deputy Bedford, and the Forest Rambler's Club; the object of publishing the pamphlet being to bring before the people of London —and it is these who are mainly concerned –the various acts of forest mismanagement perpetrated; together with a few indications of improved methods of dealing with forestry matters.

Lilies.—We are reminded of the advent of the Lily season by the receipt of a package from Mr. Ware. On the same ground that the Frenchman deprecated "*toujours perdrix*," and the Englishman expressed his dissatisfaction at the constant recurrence of rabbits, we own to a feeling of satisfac-

tion that the Daffodils and the Chrysanths. (excuse the abbreviation—it is more correct than "mums") are temporarily dethroned. We shall be glad enough to see them by-and-bye, but in the meantime we bow to the rising stars, Roses and Lilies, and take down with renewed pleasure ELWES' superb *Monograph* and PAUL'S *Rose Garden* from the shelves, where they have remained undisturbed for the winter. Mr. WARE sends us a beautiful form of Lilium Washingtonianum, in which the lilac-flushed segments are prettily spotted with minute purple dots, especially towards the throat of the flower; and a pretty form of L. pardalinum, called maritinum.

DRAWINGS OF ORCHIDS.—Messrs. PROTHEROE & MORRIS recently sold a collection of 286 life-size Orchid drawings by Durham, in twenty-two volumes, for £350. A Cattleya Mossiæ alba fetched 130 guineas.

THE LONDON AGRICULTURAL SEED TRADE ASSOCIATION held its annual dinner on June 6, when the chair was ably filled by N. SHERWOOD, Esq. After the usual loyal toasts having been drunk, the Chairman gave the toast of the evening, "Prosperity to the London Agricultural Seed Trade Association." He remarked that the London Agricultural Seed Trade Association during the years it has existed has done an immense amount of real good work, mainly in forming rules in the interest of the trade, which, hitherto, had been carried on in a most hap-hazard manner, and also in settling disputes which are constantly arising. He could not too strongly speak on the subject, for men often turn to law and spend large sums of money over trifling matters that could be settled in an easy and inexpensive manner by the Arbitration Committee. Then again, the Society has adopted means to stop seed adulteration, notably the colouring and doctoring of inferior white Clover from the Continent, which has gone on to an enormous extent. He strongly advocated an Association of this kind which brings the members together in a pleasant and social manner for the interchange of opinions, and which tends to smooth the friction often arising in business matters. The Society has also drawn attention to the practice of naming foreign grown seed similar to English grown, and in making an effort to compel sellers to faithfully describe the seeds they sell; and if farmers would only pay more attention to the quality when buying, the work of the Association would be rendered much easier.

ROSE SHOWS IN 1890.—Mr. E. MAWLEY, Rosebank, Berkhamsted, Herts, kindly contributes the following list of show fixtures of the present season:—June 19, Ryde; 24, Drill Hall, Westminster (N.R.S.); 25, Richmond (Surrey); 27, Royal Aquarium, Westminster; 28, Eltham and Reigate. July 1, Canterbury, Colchester, Hereford, Sutton; 2, Bagshot, Brockham, Croydon, Dursley, Hitchin; 3, Bath, Farningham, Norwich; 5, Crystal Palace (N.R.S.); 8, Gloucester, Ipswich, Winchester*; 9, Brighton*, Diss, Ealing, Tunbridge Wells; 10, Birkenhead, Woodbridge, Worksop; 11, Ulverstone; 12, New Brighton; 15, Christleton; 17, Birmingham (N.R.S), Bedford, Helensburgh; 22, Tibshelf; 24, Salterhebble (Halifax). August 2, Ripley. In the case of Brighton and Winchester (marked *), where the exhibitions extend over more than one day, the date of the first day's show only is given.

MR. A. G. CATT.—Those of our readers who enjoy the acquaintance of Mr. CATT, the contributor of the Orchid Calendar at the present time in these pages, will learn with regret of the death of his second eldest son by drowning, which occurred accidentally on the 14th inst.

STRAWBERRIES.—As showing the comparative earliness of various Strawberries, Mr. SMITH, of Newport, Monmouthshire, tells us that in Farmwood Nursery, King of the Earlies was picked on June 2, Captain and a few Garibaldis on June 5, Dr. Hogg on June 8, and on June 16, 60 lb. weight of the above varieties. James Veitch and the Duchess of Edinburgh are also changing colour, and Cherries will be ripe before the week is out. These nurseries are situated on the south side of a steep hill, and catch the full force of the wind from the Bristol Channel; the soil is still, resting on a clay subsoil, with limestone beneath.

STOCK-TAKING: MAY.—The Trade and Navigation Returns for the month of May, published on Saturday last, are of the usual voluminous and interesting nature. We note that the imports for the month show a decrease of £1,494,403, and an increase in the amount of exports of £2,519,385, compared with May of 1889. We may note that for the five months there has been a decrease in the imports of £4,577,331, and an increase in the exports of £5,310,160, compared with the corresponding period of last year. The following is our usual extract from the summary of Imports from foreign countries and British possessions:—

	1889.	1890.	Difference.
	£.	£.	£.
Total value of imports	34,835,408	33,341,005	—1,494,403
§II.—(A.) Articles of food and drink—duty free	11,492,716	11,419,016	[illegible]
(B.) — do., dutiable	1,846,611	1,636,428	[illegible]
§VI.—Raw materials for textile manufactures (including Flax, Hemp, and Jute)...	7,776,424	5,807,126	[illegible]
§VII.—Raw materials for sundry industries and manufactures (including wood and timber, hewn, sawn, split, dressed; vegetable materials, for paper-making, &c.)	3,203,806	3,295,143	[illegible]
§IX.—Miscellaneous articles (including Clover, Grass, Flax, Rape, Linseed) ...	997,972	1,056,243	+59,171
(B.)—Parcel Post ...	32,971	34,365	[illegible]

Taking stock at the time of that perhaps greatest of all great exhibitions held at South Kensington—the Colonial and Indian Exhibition—it was to be seen how rapid were the strides being taken by India and Ceylon in the matter of Tea growing and exporting to this country. The Trade Returns since that time are in evidence, and those of to-day show that the prophets were in the right, and that the glory was departing from China. China furnished the lessons for our Eastern planters, and these have been necessarily slowly but surely improved upon, whilst the Chinese growers appear to have stood still. The exports from the Chinese ports are decreasing just as those from Ceylon and India increase. Our readers will remember the Commission sent by the Government of China to the plantations of the British Indian "barbarians," and the report made on its return. Various recommendations were made with the view of saving Chinese trade, one being the sending of lecturers to England to prove the weakness of the new Teas as compared with the old—that the only genuine article was the Celestial. The lecturers have not yet been advertising themselves here, and the Returns go more and more against John Chinaman, who will have to put in practice what he saw done by his young competitors. The accompanying excerpt possesses its usual interest for market gardeners, and are probably read in connection with market prices:—

		1889.	1890.	Difference
§ II. Fruit:—				
Apples, raw	bush.	63,554	29,148	—34,406
Unenumerated, raw	,,	14,455	31,574	+17,119
Onions	,,	350,146	327,186	—22,960
Potatos	cwt.	133,523	209,846	+76,323
Vegetables, raw, unenumerated	Value	£54,865	£69,857	+£14,992

A word to the printers of the Trade Returns may not be out of place here. If the figures representing "differences" are rightly printed, then the quantities imported are incorrect in one or two instances. This should be seen to, as the returns in the items noted are valueless, or worse.

HOOKER'S "ICONES PLANTARUM."—The first part of the eleventh volume has just been published (WILLIAMS & NORGATE). This volume is to be entirely devoted to Indian Orchids, of which some twenty-five are figured in the part before us. Some of them are highly curious and interesting, but not of a character to find favour with the Orchid Committee.

CREOSOTED TIMBER.—We occasionally receive complaints from gardeners and their employers concerning the injury done to plants when creosoted timber is employed in the construction of plant-houses, and the impossibility of minimising the injury by any known means. Mr. ARCHIBALD MACKIE, gardener, Rosehaugh, Avoch, Ross-shire, writes, that his structures, consisting of Orchid and Melon-houses, vineries, ferneries, are constructed with creosoted timber, which causes no injury to the plants contained in them, although the creosote oozes through the paint, and is very perceptible to the sense of smell. We should be glad to have the experience of gardeners and others who have had charge of plants in houses built of timber similarly treated.

MR. E. BENNETT.—Our energetic old correspondent and excellent gardener, writes that he has, in addition to the management of his two nurseries, undertaken the charge of the extensive gardens at Harefield Grove, Uxbridge, where the glass houses are very numerous.

THE LATE J. VAIR.—This talented gardener to Lady DOROTHY NEVILLE at Dangstein, near Liss, was well known in his day to the horticultural world as the cultivator of the magnificent collection of plants, only rivalled by that at Kew, of which he had charge. An appeal made by Mr. EVANS, gardener to L. S. HODGSON, Esq., Lythe Hill, to his fellow-gardeners, to erect a head-stone over VAIR'S grave, has met with generous response, a sum of £10 13*s.* 6*d.* having been subscribed. Of this amount, £6 have been expended in a grave-stone, 10*s.* in expenses, the balance, £3 8*s.* 6*d.*, going to the Gardeners' Royal Benevolent Institution, to which Institution the deceased gardener was a subscriber for thirty-three years.

HARTLAND'S DAFFODILS.—Mr. HARTLAND has published under the above title a series of original illustrations, representing some forty of the best varieties, drawn by Miss GERTRUDE HARTLAND, and engraved by Mr. WELCH. The book is elegantly and tastefully got up, the paper cover representing the bark of the Silver Birch. No text of any kind accompanies the plates.

PLANT NOMENCLATURE.—An interesting example of "do as you pleasedness" is given in a recent number of the *Orchidophile*. There is a Cypripedium called C. vittatum; there is a variety of it called C. vittatum breve. This much is admitted. But it also appears that in spite of this, the plant is also known in gardens as C. Binoti, and this name is retained in the *Orchidophile*. The reasons given are (1), because the plant is well known in gardens under this name; (2), because M. BINOT has sent it to Europe under this name for the last twenty-five years; (3) because it was distributed under that name prior to 1876; and (4), because M. BINOT is a good fellow! These are very good reasons in the abstract, we do not contest them, we ask simply whether those reasons would not be equally well met by calling the plant in gardens Cypripedium "Binot" or Binot's Cypripedium? This case is so very simple—the mere omission of the final "i" would surely satisfy horticultural requirements, while it would violate no botanical rules, and create no confusion. In this case, at any rate, the orchidist is not asked to give up anything

except one letter at the end of the word. So long as a name does not make pretence to represent something which is incorrect, or a state of affairs which is not true, no one has any right to object. So long as it does the reverse, so long in the interest of convenience, not to say of law and order, ought a protest to be made.

THE BRITISH FRUIT GROWERS' ASSOCIATION.—The following papers will be read at the Strawberry Conference, to be held by the British Fruit Growers' Association, in the Library at the Royal Aquarium, Westminster, on Friday, June 27 next at 5 P.M., T. FRANCIS RIVERS, Esq., in the chair:—"The Origin of the Cultivated Strawberry," by Mr. SHIRLEY HIBBERD; "The Culture of Garden Strawberries," by Mr. JOHN WRIGHT; "The Culture of Strawberries for Market," by Mr. G. BUNYARD; "Seedling Strawberries," by Mr. THOMAS LAXTON.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION, BERLIN.—We learn from the report of the Treasurer made at the meeting *des Vereins zur Beförderung des Gartenbaues*, on May 29, which appears in the *Gartenflora*, of June 15, that the total sum taken in the period from April 25 to May 8, the duration of the exhibition, amounted to 183,000 marks=£9150. The expenses were correspondingly high, still the Verein has been enabled to buy 51,000 marks Prussian Consols.

NEW FERNS.—At the last meeting of the Royal Horticultural Society, Messrs. CLIBRAN, of Altrincham, exhibited the following new Ferns:—

Pteris serrulata.—A form in which the frond had about five pairs of pinnæ. The two lowermost pairs were divided nearly to the base, the remaining three pairs were undivided, the terminal segment divided, but on one side only, and about its middle into a solitary segment. All the segments were long and very narrow, gradually tapering to a fine point.

Gymnogramma ochracea.—An elegant form, in which the ultimate pinnules were greatly reduced in width, so that some of them were mere threads.

Pteris erecta.—A curious form with three pairs of pinnæ; each pinna divides nearly to the base into two narrow, oblong obtuse segments, of which one was much smaller than the other. All the larger segments (but none of the smaller ones) were divided at the apex into a loose tuft of rounded wavy lobes overlapping at the margins.

THE ORCHIDEENNE.—The twentieth meeting was held in Brussels on June 8, when 515 Orchids were then exhibited. Certificates were awarded as follows:—

Diplomas of Honour of the First Class.—To Cypripedium Fraseri, from M. J. Hye-Leysen; to Catasetum Rodigasianum, from M. Linden; to Odontoglossum species nova, from M. J. Hye-Leysen; O. species nova, from M. J. Hye-Leysen.

Certificates of Merit of the First Class.—To Cattleya Reineckiana, from M. J. Hye-Leysen; to C. Reineckiana, from M. Peeters; to C. Mossiæ var., from M. Van Imschoot; to C. Mossiæ var., from M. J. Hye-Leysen; to Cypripedium Lawrenceanum var. Hyeanum, from M. J. Hye-Leysen; to Phaius Henryi, from M. Van Imschoot; to Cattleya Mossiæ var. alba, from M. Peeters; to Odontoglossum crispum var. album, from M. Warocqué; to O. c. var. Leopoldi, from M. Warocqué; to O. c. var. rotundiflorum, from M. Linden; to O. c. var. fastuosum, from M. Linden; to Cypripedium argus var. Moensi, from M. le Comte de Bousies.

Certificates of Merit of the Second Class.—To Cattleya Mendelii var., from M. le Comte de Bousies; to Odontoglossum crispum var. caudatum, from M. Linden; to Broughtonia sanguinea, from M. Van Imschoot; to Cypripedium leucorrhodum, from M. Peeters.

Cultural Certificates of the First Class.—To Lælia purpurata var. alba, from M. Wallaert; to Odontoglossum luteo-purpureum, from M. Warocqué; to Vanda suavis var. Rollissoni, from M. Warocqué; to Cypripedium Lowii, from M. Warocqué; to Miltonia vexillaria, from M. Peeters.

Cultural Certificate of the Second Class.—To Cattleya Mossiæ, from M. Peeters.

The next will be held on Sunday, July 13.

GARDENING IN INDIA.

[SEE SUPPLEMENTARY SHEET.]

THERE seems to be a prevalent idea among those who have not been to the tropics, and especially India, that gardening there must be a very simple affair, just in the same way as some imagine that tigers prowl about the streets, and cobras meet you at every turn; but the reverse is actually the case; good gardens, like tigers, are, in fact, not plentiful, and it is possible to live in India a long time without ever seeing a cobra outside a snake-charmer's basket.

Before I went to India, I had similar erroneous notions, particularly as regards Indian vegetation; I fancied I was going to see a Kew Palm-house-like aspect everywhere; mighty Palms, and rampant climbers; in short, just like the choice "bits" of jungle scenery that travellers in the tropics are wont to beguile us by pen and pencil. It is true that when we entered Bombay's magnificent harbour at sunrise, and I saw the towering groves of Palmyras (Borassus flabelliformis), that stand like gaunt sentinels on the amphitheatre of hills overlooking the harbour, I began to think that the dream of my life of seeing a tropical jungle would soon be realised. The same day I visited the Victoria Gardens and others among the principal gardens of Bombay, and I was enchanted with all I saw, for though it was November, the gardens were at their climax of beauty; their spring-tide of flower, in fact, after the monsoon, as the long rainy season is termed.

I think it is pardonable in a young gardener if, on first seeing a tropical garden, he goes wild with delight, and otherwise shows signs of temporary insanity. I have a distinct recollection of being in that condition when I entered the Victoria Gardens in Bombay, and saw growing in the greatest luxuriance in the open air plants that from childhood I had been accustomed to see cribbed in pot, and confined in a glass-house. So great is the difference between pot-grown plants in a stove and those growing in unrestrained vigour in the tropics, that they are often scarcely recognisable, and I blushed at my ignorance when, on asking the names of certain plants, Mr. Carstenson, the Curator, mentioned the most familiar names. The things that struck me most were such well-known stove climbers as Bougainvilleas, Bignonias, Allamandas, Ipomœas, Passifloras, which send their lissom shoots from tree to tree just as the Traveller's Joy and Honeysuckles do in our hedgerows, and the brilliant colour they give to an Indian garden scene is quite indescribable—it must be seen to be understood. The groves of tall Palms give support to shade-loving Philodendrons and other clinging Aroids, and in the shade below grows a multitude of smaller things—Pancratiums, Crinums, Alocasias, various Bromeliads, Begonias, and such-like, while there is a dense lawn-like carpet of the creeping little Artillery plant, Pilea muscosa, or whatever its latest name may be. I could not better describe the Palm grove than by comparing it with the central part of the Palm-house at Kew, supposing the roof was away, and the big Palms spaced out more widely.

What we term "fine-foliage" plants are no less remarkable, especially the high-coloured shrubs, like Croton, Acalypha, Caladium, Dracæna; for there they develop such rich tints, especially the Crotons, that even the famous Liverpool Croton growers could not approach. I saw a shrubbery of Crotons—a hundred or more—planted in the full sun, close to a wall at one of the railway stations; and I thought I had never seen such a marvellous sight in the way of leaf-colour; and the sorts included most of the newest—all dense, symmetrically grown specimens.

I thought of Mr. Baines and his famous "elephant" specimens, the result of years of patient skill, when I saw in a simple forecourt in the Bombay suburbs some gigantic specimens, faultless in training, and crowded with bloom, of Ixoras, Jasminum sambac, Bignonia venusta, Bougainvillea lateritia, Petrea volubilis, and others. The owner, a railway man from Lancashire, seemed unaware that he was doing anything very remarkable; he liked flowers, and liked to see the front garden "look a bit smart."

It is not only in the Victoria Gardens that one sees such luxuriant vegetation, but you see it everywhere—in the city gardens, of which the Elphinstone Circle Garden is a noteworthy example; in the Fort, where European commercial life is carried on; as well as on the picturesque height known as Malabar Hill, where the wealthy natives as well as Europeans have their bungalows, and, in most instances, beautiful gardens about them; but all this is due to the perpetually moist atmosphere and high temperature that prevails throughout the year, so that when you leave the sea-girt island of Bombay and its Cocoa-nut woods, you enter upon quite different scenery whichever direction you take. Going south towards Madras, you have to climb the ghauts, as the western range of mountains are called, and there you see Nature's gardening in its grandeur, until you reach Poonah, and beyond that city you pass through the trackless wastes of the Deccan. Going up country towards Guzerat, the train takes you through a marvellously rich agricultural country, where the fields of Cotton and cereals are measured by the square mile. On towards Baroda, you come to what is aptly called the "garden of India," where the rich farm lands are interspersed with magnificent timber trees, where the Tamarind and the Mango give a distinctive feature to the landscape, diversified now and again by natural groves of the Toddy Palm (Phœnix sylvestris) and Palmyras, and this kind of scenery goes on in a more or less varied way right through the vast stretches on to the Punjaub and the North West.

It is thus that the stranger derives his first impressions of India, and if he enters it by the other great gateway, the opening scene is even more impressive as he goes 100 miles up the Hooghly before reaching Calcutta. The banks of the Hooghly are typical of an Indian jungle, abounding in vegetation of the wildest description, and where the tiger, moreover, is not a stranger.

The further you go inland the less tropical the vegetation becomes, and the more difficult it is to make and maintain gardens, and the difficulties attending gardening, in the sense that we understand the term, accounts for the comparative rarity of fine examples. These difficulties arise purely from climatic causes, the long period of drought and the excessive rainfall spread over a comparatively short period. It is, indeed, not an easy matter to maintain an inland garden in freshness from one monsoon to another, which interval varies from eight to nine months. But by the ordinary native system of irrigation, much may be done; and those who can afford a more costly system, can keep their lawns green throughout the year.

As regards the subject-matter of these discursive notes of gardening in India, I think it best to divide it, as methodical Loudon did in his *Encyclopædia of Gardening*, where he treats on the state of gardening in different countries. His divisions are—gardening as an art of taste and design, and gardening as an art of culture. As regards India, so far as my scant knowledge goes, there is very little to say about one, and a great deal, more than I can go into here, about the other. About the gardens I saw, the majority exemplified very little design, and the tasteful bits resulted more from accident than design. Europeans unquestionably are leaving their marks everywhere about the country in the matter of gardens, as well as on the buildings, and everything else; but the want of intimate knowledge of the principles of design are too apparent. The fact is, that in India, as indeed in this country, too, everybody thinks that he can lay out a garden, a simple matter say they, what is there in it? The results too often show that there is a good deal in it. But in India this is more excusable, because professional gardeners are scarce, and very rarely you find a native capable of designing even a flower plot well. Consequently, you get the military officer or the civil servant with spare time, essaying

to do what he knows very little about; but for that matter he would build you a steam-engine or make a fiddle, for a man in India must be more or less a "Jack-of-all-trades." I heard of a German out there who qualified himself for a landscape gardener by being an expert at house-decorating, and sure enough he transferred his elegant scrolls and aimless contortions to the walks and roads of a public garden he designed. Among the gardens that stand out prominently as fine examples, are the great public gardens of Calcutta and Bombay, the botanical garden in the former place being probably the finest in the world; while remarkable also are the Government House gardens at Barrackpore, and the picturesque Eden Gardens. Those in the Nilgherries at Ootocamund and Bangalore, favoured as they are by a delightful mountain climate, are highly spoken of by everyone who has seen them. The gardens at Poonah, which, like the other great centres has been long under the influence of the British, are famous throughout India, for the climate there favours the growth of plants that will not thrive in the plains. I was much pleased with the Government House garden at Ganesh Khind, which were for many years under the management of an old Kew student, Mr. Woodrow, now Professor of Botany at the College of Science. The Bund garden, too, struck me much, both on account of its design—a series of terraces—and for the high keeping of it by a native superintendent.

At one time the best gardens were confined to British territory, but in future we shall have to go to the native States for fine gardens. Already great progress has been made, doubtless the outcome of the periodical visits to Europe of the native princes, who have seen for themselves what English gardening is. Among States that can boast of famous gardens is Oodeypore, under the direction of Mr. Storey, who has, I hear, done wonders in making the State gardens there what they are now. I have not yet seen them, but a friend who has travelled throughout India tells me that they are really fine, enriched by magnificent tree growth, and embellished in a costly yet tasteful way. I am told that the lakes alone are worth the 70 miles ride on camel-back to see, being of great extent, and have delightful surroundings. The view in the Oodeypore Gardens (see Supplement in present issue) shows a fountain of simple yet massive design; and doubtless Mr. Storey has it full of Water Lilies, that give such a charm to water basins in India. The trees in the background are Tamarinds, which are among the finest trees in India, as stately and massive as an Oak, yet as graceful as an Acacia. I have measured some with boles 27 feet in circumference. Noteworthy gardens in other States include that of Jeypoor, over 70 acres in extent, designed by Dr. De Fabeck; Durbungha, which was at one time under the direction of Mr. Maries, but who is now, I hear, doing a great deal in gardening at Gwalior, also a native State. There are also fine gardens at Patiala and Chikalda, while I hope that the various palace gardens and parks that I am designing and laying out for H.H. The Gaekwar of Baroda will in time compare with any in India. I have said nothing about native gardens pure and simple. Judging from what I have seen, there is very little to say about their design; the native idea of a garden is a square plot, with his bungalow in the centre of it. The plot varies in extent according to the importance of its owner, but there is no variation from the straight lines and symmetrical figures he delights to portray on the ground. After the diamonds, squares, and trapezoids are cut out and duly edged, he proceeds to plant them with masses of the things he most requires; but the stock things are Limes, Guavas, and such like fruits, and with flowers like Jasmine and Roses, of which a prodigious quantity are required for religious festivals and ceremonies. But there is a good deal of common sense in all this, for a garden so laid out is easily irrigated and kept in good order. He is not troubled about æsthetics, "breadth of effect," or "picturesque skylines." A garden to him is a place to grow things to eat, or use in some way, and that is all that he wants. In the unregenerated gardens around the palaces, you see much that is absurd according to our canons of taste, but invariably there are fountains, often of beautiful design; but as a rule, out of all proportion as regards size to the extent of the garden. I think it was Bishop Heber who said that the natives of India built like giants, and finished their work like jewellers, and this is true of their buildings; but in the matter of gardens they seem to be like pigmies, incapable of originating any broad design, which alone can set off to the fullest advantage their wonderful buildings.

Gardening in India, as an art of culture, is such a wide subject that I will not attempt it here. The methods of cultivation and propagation, which, though primitive, are often highly ingenious, and altogether I have a good opinion of the native mollee. He is skilful, and generally very painstaking, but it takes him some time to get into European ways of doing things. Mr. Woodrow, in his book, *Hints on Indian Gardening*, deals with the practical part of gardening in a very thorough way, which cannot fail to influence the future condition of gardening in India. *W. Goldring.*

PLANT PORTRAITS.

ANGULOA UNIFLORA, *Illustration Horticole*, t. 101.

CLIVEA MINIATA, Madame Paul Briquet, *Illustration Horticole*, t. 102.

CUPRESSUS LAWSONI, Westerman's golden variety, *Bulletin d'Arboriculture*, &c., April.

EUCALYPTUS CALOPHYLLA, *Moniteur d'Horticulture*, May 10.

LYCASTE SCHILLERIANA VAR. LEHMANNI, *Gartenflora*, May 1.

NYMPHÆA ZANZIBARENSIS FLOR. RUBRO, *Revue de Horticulture Belge*, May.

OXALIS BOWIEANA, *Garden*, May 31.

PEACH HALE'S EARLY, *Bulletin d'Arboriculture*, April.

HOME CORRESPONDENCE.

FRUIT PROSPECTS IN THE NORTH.—The fruit trees in the north of Yorkshire are sufficiently advanced to give one a pretty good idea what the crops will be this season. Altogether the promise is good, although in some places Plums and Pears in the open have suffered; in fact, those that were in bloom in the early part of April were nearly all destroyed. On April 1, we had 9° of frost; on the 2nd, 8°; and on the 3rd, 7°; twenty nights out of the thirty in April we had frost, consequently Pears and Plums on the standards were terribly injured. Apricots fared better; they were in bloom, and set in March, when the weather was moderately fine. Although cold, we were then without frost. Peaches here on a wall partially heated are good; these were set in March, and April frost did them no harm, as they were protected. The wonder is that Gooseberries and Currants are so good as they are, as they were in flower through all the frost in April; fortunately, the atmosphere was very dry, consequently they were saved; excepting the champagne Gooseberries, bush fruit, I think, will be good. Strawberries have a great promise everywhere in this neighbourhood. Apples promise a very abundant crop, although in many places whole bunches of bloom have fallen off without setting; in many instances, these can be well spared, as the trees when in bloom were perfect garlands, and very handsome. *William Culcrewell, Thorpe Perrow.*

PÆONIES.—Your reflections on p. 736, how much any "well-found" garden would lose in brightness, if there were no such things as Pæonies in the early days of June, is splendidly exemplified in a Reigate garden. In this garden there is a straight path of 100 yards or so; on one side is lawn, and the other a thick mass of foliage, in which pink Thorns and variegated Sycamores are very conspicuous. At the foot of the trees and shrubs is a border about 1½ yard wide planted with scarlet and pink Pæonies alternately, with yellow Calceolarias and blue Violas in front of them. The glow of colour from the long line of gorgeous flowers is so brilliant, as to stay the attention of any passer-by on the road a considerable distance away. There is no flower in cultivation which is so effective in the distance as the Pæony. A pleasing feature in this border, when you come close to it, is the graceful foliage of the Solomon's Seal, numbers of which are growing behind the Pæonies, and afford them a beautiful setting. Ruskin, in his *Studies of Wayside Flowers*, has a drawing of his own of Myrtilla regina (to use his nomenclature), "sketched for her gesture only." Looking at the Norman arch of a flowering spray of the Polygonatum after a shower, when each leaf was glittering with bright globules of rain bright as diamonds, made one wish to be an amateur photographer, if happily one might catch thereby some of the loveliness of the picture to perpetuate it. *C. A. M. Carmichael.*

TREE PÆONIES.—These gorgeous early-flowering plants seed freely, and it is a wonder that we have hitherto had so few varieties in our gardens, but we now are being enriched by them at a rapid rate. They are very valuable as pot plants for conservatory decoration, but do not force readily, and do best when they are allowed to come gently into bloom. Outdoors they start a little too soon for our cold variable springs, and often get cut when in leaf, but they soon recover when warm weather sets in. To prevent injury as far as possible, they should be planted in sheltered spots, which the sun does not reach before noon. *J. S.*

PROFITABLE VINE-GROWING.—The Vines at this nursery consist of the true Black Hamburgh, and the crops hitherto have been fair, the method of pruning followed being the spur; but I am now making experiments with the view of obtaining a much heavier crop. The appearances, so far, are very satisfactory. Instead of shortening last year's shoots to two eyes, two spurs with six eyes were left, and the growth made and the size of the bunches will lead me to adopt this method generally. There are twelve Vines in the vinery, planted in an outside border at about 5 feet apart, and next season, instead of leaving two eyes to each spur on these Vines, every alternate spur will be left with six eyes, and at the end of the year these will be shortened back close to the main rod, the strongest being left to grow on for fruiting the next season; the other spur, shortened back to two eyes, will be allowed to remain with about six eyes the next season, the strongest shoot being selected to grow on for fruiting. The Vine border was trenched and heavily manured with cow-manure eighteen months ago, strong growths on the Vines being this season the result of this kind of treatment. To me it seems a waste of labour, and is the cause of light crops, to prune strong fruiting young wood so close, the forces of the Vines accumulating in these shoots during their growth affording materials for producing a heavy crop the ensuing season. The main rods will be kept, under my new method, wide enough apart to prevent overcrowding. *E. Cording, Effra Nursery, West Norwood.*

IBERIS CORIFOLIA.—Where summer arrangements have to be considered, this Iberis, which is at the present time in good bloom, should not be planted, it being a loss of beauty in the garden when it has to be removed to make way for bedding plants. In a rockery here—and this is its proper place, or the herbaceous border—we have plants which are 4 feet across. It grows freely, and is easy to establish in a short time. Cuttings of the plant put into a cold frame in sandy soil about the end of the month of September, making them firm, and keeping the frame rather close, soon form a callus, complete rooting not taking place for a long time. The plants, if kept in the frame, will be in good condition for removal the following April. Neater and denser plants, and more of them, are obtained in this way than by division of the roots. *E. M.*

PELARGONIUM SEEDLINGS OUTDOORS.—I was surprised to find, when examining one of the beds here, in a very open situation, a quantity of seedling Pelargoniums. The bed was planted with Waltham Seedling last year, and there is no other bed within fifty yards of it. The seedlings which came up are Robert Fish, Crystal Palace Gem, and Black Douglas. The plants have just obtained their third pair of leaves, and are doing well. The bed had no protection in winter. *E. N., Fulham.*

CALCEOLARIAS.—One of the finest strains in the country of this showy flower is to be seen at Woodhatch, Mr. T. B. Haywood's garden. His gardener, Mr. Salter, who is quite an enthusiast in their culture, by careful selection of seed, has got together a collection which for brightness and variety of colour and

substance is as near perfection as possible. There seems to have been a tendency of late among Calceolaria growers to raise the darker-toned varieties; Mr. Salter has not aimed at this, for nearly half the flowers in the house are of lively and bright colours, which contrast well with the darker ones. It is interesting to notice the differences in the shape of the pockets in Calceolarias. There are so many variations as to make one wonder what could have been the original type from which they have been all evolved. *C. A. M. C.*

SOME STRAWBERRIES WHICH FORCE WELL.—Strawberries in houses are giving their last fruits, and perhaps a few remarks would not be out of place as to which varieties do well in this garden. We force but three or four varieties, and to get a really good Strawberry which suits the soil and locality, it is necessary for a gardener new to the district to find out by trial which one suits; for want of this test we often hear condemnation from one grower and praise from another. Take, for one instance, the Noble; I cannot speak well of its flavour, although it is a good cropper with me, and of large size. In the appended list I would say that the chief part are for home consumption, only a few being packed for travelling. To begin, the first that is put into heat is Vicomtesse Héricart de Thury, then follow on the others in the order in which they are placed: La Grosse Sucrée, Eclipse, Pioneer, Laxton's Noble—a variety which I am not going to force again. The best of these is Eclipse. It is the finest Strawberry that can be grown with a certainty of cropping, and with me none equals it in flavour. It is a variety that I would advise gardeners to grow. The Strawberries in my list are so well known that it is needless to say anything about them: Keen's Seedling, James Veitch, President, Sir Joseph Paxton, Sir Charles Napier, British Queen. James Veitch, very large and of good flavour, and if a large Strawberry be required, it is the one to grow. *G. Howes, Merton.*

BLACK PRINCE STRAWBERRY.—Having read the several notes lately regarding early Strawberries, it may interest some of your readers to know how well Black Prince has been done at Addington Park for a long series of years without ever changing the stock. This season it is later than usual, but five punnets of berries were picked on June 10—good, fair-sized, and well-coloured, and to-day (June 17), thirty to forty punnets could be gathered. On inquiry, I find the method of growing it has never been altered since 1851, and has been attended to by the same person, who carefully layers the strongest runners in pots as soon as runners are procurable, and when thoroughly established, plants them on a piece of well-prepared ground, 18 inches apart, the number being from 250 to 300; and never has there been a failure all these years. The crop this season is a very heavy one. Very often the first dish has been gathered on June 1. The soil is a light gravelly loam, and the subsoil is chalk. *A. B.*

THE EARLIEST STRAWBERRY.—I notice that you say Crescent Seedling has proved to be the earliest at Chiswick this year. I have been gathering Noble since the 2nd inst., and considering they have realised 2*s.* to 3*s.* per lb., I consider it is the most profitable to grow. Last year, I was even earlier, gathering them in May. *A. D. Healey, North Waisham, Norfolk.*

ARAUCARIA IMBRICATA FRUITING IN THE NORTH OF ENGLAND.—At a meeting of the Bradford Naturalists' Society, held on Monday, June 2, Mr. E. Robinson described a short holiday he recently spent in the neighbourhood of Milnthorp, Westmoreland. He had noted many choice plants on the Dalham Tower Estate, including a fine example of Araucaria imbricata, which was bearing fruit—eight cones for the first time—and of which the gardener was especially proud. So rarely does this tree fruit in Britain, that every instance of its fruiting is worth placing on record. *S.*

MEZEREUM BERRIES AND GREENFINCHES.—I was under the impression that Mezereum berries were poisonous, and up to three or four years since no creature touched them; but now each year, about the first week in June, or as soon as the kernel is formed (but not ripe enough to gather), the greenfinches come in shoals, and short work they make. The ravenous way in which they come is wonderful, and where they come from is a puzzle, for usually one or two pairs are all we see, but the fact remains that every seed is taken in about three days. This season I had a row netted, but unfortunately the net, 1 inch mesh, was ineffectual, and the little wretches made their exit very quickly; however, one day I had them watched, and seventeen greenfinches paid the death penalty. But, notwithstanding this, I have lost every seed. Has anyone else had the same experience? *Charles Noble, Bagshot.*

THE APPLE CROP.—A short time since, it seemed to be almost a certainty that there would be a good crop of Apples, bloom being abundant and apparently strong, but from some cause or other it has not set at all freely, or if so, the young fruits are fast falling, and it seems as if there would be but few left. Our Apple trees are tolerably free from maggot, which I attribute to liming, as I hear that the insect is very abundant in other places where, presumably, liming was not practised, and is doing much damage. Gardeners are mostly of opinion that a fine dry time is favourable for the setting of flowers, and the weather, while the latter were open, was remarkably bright and arid, but although the days were warm and sunny, the nights were chilly, and to the low temperature experienced must be placed the whole of the mischief. These repeated failures of Apples are very disheartening, and must have a discouraging effect on the advocates of a more extended culture of the fruit; but so uncertain is our climate, that we may get an entire change, and have a series of warm genial springs, such as we enjoyed many years ago, and then all will be well with the planters. *J. Sheppard, Woolverstone Park.*

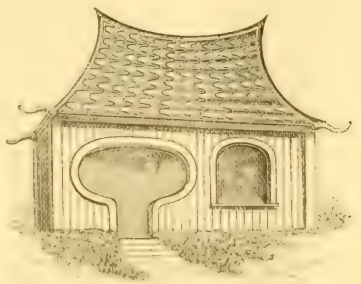


FIG. 128.—SUMMER-HOUSE AT SHEEN LODGE. (SEE P. 761.)

LILIUM HARRISII.—A plant often met with at shows in London and elsewhere, is the above plant, which may be seen grandly grown in 6-inch pots, and carrying from ten to fourteen flowers. This variety of L. longiflorum is a treasure to the gardener, and good for many decorative uses, it being amenable to pot culture. *J. Sheppard.*

SHIRLEY POPPIES.—The flowers of this type of field Poppy were gathered by me on May 24, from plants raised from seeds sown on a south border last October. The warm weather brought on the plants very fast, and plenty of flowers have been obtainable since that date. In no way do the cut blooms show to greater advantage than when placed by themselves in tall vases, with foliage of some kind. Cut when fully open, the flowers travel badly, and last only a short time; but when taken from the plants at various stages of bud development, and avoiding those which have not attained their proper size, and put at once into a vessel of water, the flowers last much longer. It is interesting to see the buds burst into flower in water; at first the petals are all crimped, and appear to be very small; gradually the crimping disappears, the petals develop, and remain wonderfully fresh for ten days. As decorative plants out-of-doors, Shirley Poppies are highly thought of by us. We grow them in bold patches and clumps in the herbaceous borders and other places, and among the Roses, where they make a show quite late in the autumn. These Poppies repay some labour being incurred in preparing the ground for them, which should be rich, and in supplying them with liquid-manure during dry weather. The worst thing that can happen to them is to crowd them in the seed-bed, the plants remain weak, and the flowers come small in size, and few in number. Six inches from plant to plant is the least space to allow, greater space is better still. Some of our plants are 4 feet high and 2 feet through. I sow seeds early in February for succession, and again in the first week of April, thinning out the plants as soon as large enough to handle, and going over them again shortly afterwards. No stakes are needed by the plants. *E. M.*

VEITCH'S MODEL BROCCOLI.—Mr. Gilbert, in last week's *Gardeners' Chronicle*, takes exception to my note on the above, and is of opinion that at whatever date this useful Broccoli is sown in the spring, all the plants will come in together. I am of a different opinion, having for several years adopted the plan I advised, namely, of making two sowings, so that I am able to speak from certain knowledge. I usually sow a small quantity of seed early in March and again in the first week in May—that is a difference of two months—and from the plants raised in March we get nice heads at about the end of March and early in April the following year. This early sowing is pricked off as soon as large enough, and afterwards it is planted between the rows of the second early Peas, which are placed rather far apart to admit of three rows of Broccoli being planted when ready. From these plants we cut at the date above-named, and from the May sowing a month to six weeks later. This gives the succession I mentioned. Mr. Gilbert may ask, why sow a late Broccoli for cutting early in spring, when there are kinds that will not take so long a time on the ground? My answer is, that the Model is a variety that happens to be preferred to any other, being a pure white, and comes in with nice small heads; and, what is one of its greatest recommendations, the plant will stand a severe winter without injury, which other varieties will not always do; for when a large breadth of this valuable spring vegetable is destroyed, it is a loss not easily made good. The later sowing can be kept for some time by laying the plants in on a border facing north. These will produce only small heads, but in late districts it is found to be generally necessary to prolong the supply of Broccolis till the Cauliflowers come into use. We are now cutting Cauliflowers in abundance, and have only just finished the cutting of the Model Broccoli sown last year in May, not having been obliged to lift the late Broccoli to keep up the supply. *G. Wythes, Syon House.*

BRUGMANSIA SANGUINEA.—There is a fine plant of this in full flower in the conservatory of H. Michell, Esq., Undermount, Isle of Wight. It is more than 13 feet in height and diameter, and was, in the month of May, a sight well worth going many miles to see, there being over 300 fully-expanded flowers, and hundreds more coming on. Mr. Barlas, the gardener, told me that the plant had been in flower all the winter, but when I saw it, it was at its best He cuts the shoots hard back every season, and early in August, and flowering commences in November, lasting till it is cut back. The double-white, sweet-scented Brugmansia is also there planted out close by; it is not such a fine plant as the other, although showing a quantity of flowers, whose perfume pervades the whole house. These species of Brugmansia are well worth growing when there is a sufficiently large house, and a border to plant them out. *A. H.* [Brugmansias do very well grown in tubs, and the plants may then be made use of in the flower garden, placing them in a warm and sheltered spot. They are subject to aphis, and difficult to keep clean when kept under glass in the warm weather. ED.]

THE RECENT FROSTS.—Mr. Coomber records the injuries done to vegetation in Monmouth as being the product of a frost on May 30. Here, in Middlesex, the chief mischief was done on the morning of June 1, because the night had been intensely bright, clear, and quiet, although, perhaps, not much colder than was the night preceding, but then the wind was brisk, and there was little dew. It was not possible to regard the early portion of the night of May 31 with other than feelings of grave apprehension. In the low-lying places, where Potatos, Runner Beans, &c., were specially exposed to the first rays of the sun, much mischief was done, that was fully apparent soon. With regard to Strawberry plants, then almost white with bloom, some few days had to elapse ere they told what harm had been done; now the black eyes in large quantities of the finest flowers are only too apparent. These have suffered most again where the soil is naturally moist, or the site a low one. One grower said that he found his bloom worst hit where previously mulched, as the fashion is with long manure. That, however, may have been a pure accident, and in no way connected with

mulching. Even where blooms have not been entirely destroyed, there can be no doubt but that the fruits will come somewhat distorted in many cases. All the same, there will, of course, be plenty of Strawberries, as all breadths have not suffered. The chief want seems to be a good ground rain of several hours' duration, and then the breadths might carry their crops to full maturity. *A. D.*

EPIPHYLLUM RUSSELLIANUM GAERTNERI.—This is a distinct and beautiful novelty; in habit closely resembling the typical E. Russellianum, but rather more compact. The flowers have a star-like form, with numerous, narrow, acutely-pointed petals of a pecular bright red shade. It was to have been seen lately in full bloom in Messrs. R. P. Laird & Sons, West Coates Nursery, Edinburgh. Its value as a decorative market plant is being rapidly realised. *W. S.*

MIGNONETTE.—It would be very unpleasant were all soils so obnoxious to Mignonette seed-growth as ours is here, or as it usually is where it is stiff, cold, and clayey. When at Farnham Royal, where, in spite of the elevation, the soil in Mr. James' gardens is very clayey, I noticed that all the plants of the fine strain of Giant Red Pyramidal, which is grown there, had been turned out singly, and with ample room, because seed sown in the open ground either germinates badly or late. I have always experienced the same difficulty here, and am constrained to take so much trouble with even a common hardy annual, such as Mignonette is, to sow seed under glass, and dibble the plants out into the open ground. The soil this past spring has been exceptionally difficult for the planting of anything, but especially for small plants like Mignonette, which produce so few fibrous roots. After potting and repotting, shallow drills had to be drawn, water poured along them, the seedling plants dibbled out about 12 inches apart, and watered in, also watered several times later. For a week or two the plants look poorly enough. Presently, however, they break out, and soon after become very fine individual specimens. If the trouble be considerable, the growth later is ample. The three best forms of ordinary Mignonette are the Giant White, so fine for covering, and for making bunches of side-shoots; the Giant Pyramidal Red, so fine both outdoors and in pots; and Golden Queen, a beautiful yellow-flowered compact kind, well worthy of universal cultivation. *A. D.*

STRAWBERRY, AUGUSTE NICAISE.—This year I have grown this fine Strawberry indoors and out, and for the first time, and in future I intend to grow it more extensively. It is a free grower and a great cropper, producing fruit of immense size, fine colour, and good flavour. The finest crop of Strawberries of any variety I ever saw was at Wilton House Gardens, near Salisbury, a few years ago. The plants were growing in a wide border running parallel with one of the Peach walls, in rows 2 feet apart, and at about the same distance in the rows. The variety was Auguste Nicaise. However, for forcing purposes, size, and quality, and firmness of pulp, and the good condition they invariably reach their destination after a long railway journey, there are, in my opinion —and I have tried a good many varieties—none to beat President and Sir Joseph Paxton. In order to get the plants intended for forcing well-established in their fruiting pots, and with large, well-ripened crowns by the middle of the month of September, they should be layered now, or in a short time, into 6-inch pots. *H. W. Ward.* [For an account of the best method of layering, we would refer our readers to p. 741 in our last issue. ED.]

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

TUESDAY, *June* 10.—Present: Mr. Morris in the chair; Mr. Pascoe, Prof. M. Ward, Mr. Blandford, Prof. Church, Dr. Müller, Mr. McLachlan, and Rev. G. Henslow (Hon. Sec.).

Delphinium, Injured Foliage of.—Prof. M. Ward reported upon the specimens sent to the last meeting. The damage appeared to have occurred in the bud, and was probably due to the low temperature of the night of May 31. There was no fungus, and he had met with a similar case elsewhere. With regard to the lowness of temperature, it was remarked by Prof. Church that at Twickenham 10 per cent. of Tomatos were destroyed on that night, Mr. Morris observing that the thermometer on the grass at Kew registered 27° F., or five degrees of frost.

Cerambyx miles, L.—On a further examination of the caterpillars of boring beetles, brought to the last meeting by the Rev. G. Henslow from Malta, Mr. McLachlan noticed three specimens of the Cerambyx, and two of a Lamellicorn, or Stag-beetle, as well as one of the Wood-leopard moth, which had perforated the stem of a Cassia (though it was usually found in Pear trees) from Mr. Harry's garden at St. Julian's, Malta. Another remedy, in addition to that of "spearing," was suggested by Mr. Blandford, viz., to blow tobacco-smoke down the hole, when the beetle would attempt to escape, and could be easily caught. It is very important to observe where the beetles lay their eggs, and to catch them on the wing at the time. The name was wrongly reported in the account published in the *Gardeners' Chronicle* of the proceedings of the last meeting; and the name of the plant-bug should also have been inserted, Lygus pabulinus, L.

Icerya Purchasi, Maskell.—Mr. Morris exhibited some mounted specimens, received from Mr. Lewis, of Ealing, of this so-called "cottony cushion" scale insect from Australia, prepared for the Kew Museum; they included adult females, with ovisacs, and the "Lady-bird," Rodolia Iceryæ, as well as remains of the Tcerya which had been destroyed by the Rodolia.

The Fog Report.—Mr. Morris called attention to the fact that the Royal Society had assigned £100 "on the recommendation of the Government Grant Committee, for an inquiry into the composition of London fog, with special regard to the constituents of fog injurious to plant life." An informal conversation followed with reference to chemical investigations to be undertaken at the laboratory of University College, under the superintendence of Dr. Oliver.

Cynomorium coccineum.—Mr. Henslow exhibited specimens of this parasitic flowering plant from Malta. It was formerly supposed to grow only in "The Generals' Rock," a small island close to Gozo; but is now found at Mnaidra, on the south side of Malta, and in Sicily and Algiers. It is popularly known as Fungus melitensis, and formerly in great repute as a styptic remedy for hæmorrhage, &c. It is parasitic upon Inula crithmoides, a shrubby yellow-flowered Composite, which abounds on the rocks of Malta, giving the appearance of Furze bushes at a distance.

Lemon Seeds Germinating.—Mr. Henslow showed specimens of embryos which had begun to germinate while within the fruit.

SCOTTISH HORTICULTURAL ASSOCIATION.

THIS Association held its ordinary monthly meeting in 5, St. Andrew Square, Edinburgh, on the 3rd inst., Mr. James Greive, Vice-President, in the chair. Mr. James Holmes, Winton Castle, read a paper on "Natural Selection," which elicited an interesting discussion.

Exhibits were rather numerous. Mr. A. Grant, St. Leonard's Hill, Dunfermline, exhibited a fine specimen of Cypripedium Stonei, which was highly commended by the adjudication committee.

Mr. MacHattie, Newbattle Gardens, Dalkeith, exhibited an excellent decorative Pelargonium named Newbattle, a seedling raised by the exhibitor. The raiser has grown it for the last three years, and considers it one of the best for decorative purposes. It received the Certificate of the Association. It is a dwarf, compact grower, and an abundant bloomer. The same exhibitor set up cut blooms of fifteen species of Masdevallias; also a tiny plant of M. tridactylites, having thirty-four blooms, and a good plant of Restrepia elegans, also well bloomed.

A very handsome round white Potato in the way of Village Blacksmith, but obviously a large grower was tabled by Mr. John Downie, Beechhill Nursery, Edinburgh. It was named Beechhill. The Committee thought it distinct and promising, but desired to see samples of it in its proper season, those sent being out of season, although perfectly sound.

A branch of Pavetta caffra was exhibited by Messrs. Dicksons & Co., Waterloo Place, Edinburgh; and Mr. Morris, Hay Lodge, Trinity, exhibited an interesting collection of hybrid Rhododendrons.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending June 14, is furnished from the Meteorological Office:—

"The *weather* was dull, unsettled, and showery during the greater part of the period, with occasional thunder and lightning, but towards its close, the conditions showed considerable improvement.

"The *temperature* has been slightly above the mean in 'Ireland, S.,' and has just equalled it in 'Scotland, W.' and 'Ireland, N.'; in all other parts of the kingdom, however, it has been 1° or 2° below. The highest of the maxima which were generally recorded on the 10th varied from 66° in 'Scotland, N.' and the 'Channel Islands,' to 74° in the 'Midland Counties' and 75° in 'England, E.' Towards the end of the period, the daily maxima were very low for the time of year, especially in the North. The lowest of the minima were registered in most places on the 8th, when the thermometer fell as low as 29° in 'Scotland, N.' (at Lairg), 30° in 'Scotland, W.' (at Glenlee), and to between 33° and 36° in 'Scotland E.' and most of the English districts; in 'Ireland N.' the temperature did not fall below 44°, in 'Ireland, S.' 47°, and in the 'Channel Islands,' 48°.

"The *rainfall* has been less than the mean in 'Scotland, N.' and 'Ireland, N.,' but in nearly all other districts there has been an excess.

"*Bright sunshine* has been very deficient generally, the percentage of the possible amount of duration having ranged from 12 to 23 in Scotland, from 14 to 35 over England, and from 32 to 33 in Ireland. In the 'Channel Islands' the percentage was 38."

[BY the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.						RAINFALL.			BRIGHT SUN.	
	Above (+) or below (—) the Mean for the week ending June 14.	ACCUMULATED. Above 42° for the Week.	ACCUMULATED. Below 42° for the Week.	ACCUMULATED. Above 42°, difference from Mean since Jan. 1, 1890.	ACCUMULATED. Below 42°, difference from Mean since Jan. 1, 1890.		More (+) or less (—) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Percentage of possible Duration for the week.	Percentage of possible Duration since Jan. 1, 1890.
		Day-deg.	Day-deg.	Day-deg.	Day-deg.		10ths Inch.		In.		
1	1 —	62	0	+ 155	— 72		2 —	112	21.6	23	27
2	1 —	76	0	+ 72	— 58		2 —	95	12.8	23	29
3	1 —	51	0	+ 46	— 93		4 +	81	9.2	14	27
4	2 —	93	0	+ 17	— 39		2 +	85	9.5	35	36
5	2 —	90	0	+ 11	— 26		0 av.	78	9.2	22	31
6	1 —	100	0	+ 27	— 68		3 +	81	11.3	30	34
7	0 av.	88	0	+ 86	— 73		4 +	99	21.8	12	31
8	2 —	89	0	+ 72	— 81		2 +	91	13.4	25	30
9	1 —	95	0	+ 2[illegible]	+ 12		3 +	95	16.1	37	35
10	0 av.	97	0	+ 47	— 55		1 —	105	13.8	32	32
11	1 +	105	0	+ 46	— 14		0 av.	107	20.0	33	34
12	1 —	99	0	+ 111	— 22		5 +	101	15.1	38	41

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts — 1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts — 7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

MARKETS.

COVENT GARDEN, June 19.

OUTDOOR Strawberries are now arriving in large quantities, but not in well matured-condition, and prices have fallen considerably; Grapes are in excess of demand, and are only cleared at very low rates. Our market has been somewhat heavy this week. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1	6- 7 0	Peaches, dozen,	4 0	-20 0
— Tasmanian, case	15	0-20 0	Pine-apples, St. Michael, each		2 0- 6 0
Grapes, lb.	1	6- 3 0	Strawberries, lb.	0	6- 2 0
Lemons, per case	12	0-20 0			
Melons, each	1	6- 3 6			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per bdle.		...12 0- ...	Mustard and Cress, punnet	0	4- ...
Beans, French, lb.		2 0- ...	Onions, per bunch	0	5- ...
Beet, red, per dozen	1	0- 2 0	Parsley, per bunch	0	6- ...
Carrots, per bunch		0 6- ...	Rhubarb, per bundle	0	6- ...
Cauliflowers, each		0 3- ...	Seakale, punnet	2	0- ...
Celery, per bundle	1	6- 2 0	Shallots, per lb.	0	6- ...
Cucumbers, each	1	0- 1 6	Spinach, per bushel	6	0- ...
Endive, per dozen	2	0- ...	Sprue, per bundle	1	6- ...
Herbs, per bunch	0	4- ...	Brussel Sprouts, per lb.	0	3- ...
Leeks, per bunch	0	2- ...	Tomatos, per lb.	1	0- ...
Lettuces, per dozen	1	6- ...	Turnips, per bunch, new	0	4- ...
Mushrooms, punnet	1	6- ...			

POTATOS.—The market since last report has hardened, and in many cases higher prices have been obtained. Foreign arrivals (except French) have ceased. Best samples of Maltas and Canarys are now cleared off the market. Cherbourg Rounds are rather slow to sell at 5s. per cwt.; Jersey and Cornish, 7s. to 8s.; East Kents, 16s. Prices for old Potatos keep firm, which is probable to the end of the season. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6	0-18 0	Foliage plants, various, each	2	0-10 0
Arum Lilies, per doz.	8	0-12 0	Fuchsia, per doz.	4	0- 9 0
Aspidistria, doz.		...18 0-42 0	Heliotrope, per doz.	5	0- 8 0
— speci. plants, each	7	6-10 6	Hydrangeas, doz.		...12 0-18 0
Begonias, per doz.	6	0-18 0	Ivy Geranium, p. doz.	3	0- 6 0
Cactus, per doz.		...12 0-24 0	Linums, various, per dozen		...18 0-30 0
Calceolaria, p. doz.	6	0- 9 0	Lobelia, per doz.	4	0- 6 0
Cyperus, per dozen	4	0-12 0	Marguerites, doz.	6	0-12 0
Dracæna terminalis, per dozen		...30 0-60 0	Mignonette, per doz.	4	0- 8 0
— viridis, per doz.	12	0-24 0	Musk, per dozen	2	0- 4 0
Erica Cavendishii, per dozen		...18 0-48 0	Nasturtiums, p. doz.	4	0- 6 0
— ventricosa, doz.	15	0-24 0	Palms in var., each	2	6-21 0
Euonymus, in var., per dozen	6	0-18 0	Pelargoniums, scarlet, per dozen	3	0- 6 0
Evergreens, in var., per dozen	6	0-24 0	— per doz.	9	0-18 0
Ericas, various, doz.	8	0-24 0	Petunias, per doz.	6	0- 9 0
Ferns, in var., doz.	4	0-18 0	Roses, various, doz.	12	0-24 0
Ficus elastica, each	1	6- 7 6	— (Fairy), per doz.	6	0- 9 0
			Saxifrages, per doz.	18	0-24 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2	0- 4 0	Pinks, various, 12 bn.	2	0- 4 0
Bouvardias, per bun.	0	6- 1 0	Pelargoniums, scarlet, 12 spr.	0	4- 0 6
Callaesthiopica, 12 bl.	3	0- 5 0	— dozen sprays	0	6- 1 0
Carnations, 12 blms.	1	0- 2 0	Primulas, double, 12 sprays	1	0- 1 6
— 12 bunches	4	0- 6 0	Paeonies, 12 bunches	6	0-18 0
Cornflower, 12 bun.	2	0- 4 0	Pansy, or Heartsease, 12 bunches	1	0- 2 0
Eschscholtzia, 12 bn.	2	0- 3 0	Poppies, various, doz. bunches	1	6- 6 0
Eucharis, per dozen	4	0- 6 0	Pyrethrum, 12 bun.	3	0- 6 0
Gardenias, 12 blooms	1	6- 3 0	Roses, Tea, per doz.	0	6- 1 6
Iris, various, 12 bun.	6	0-18 0	— coloured, dozen	2	0- 4 0
Ixia, doz. bunches	3	0- 6 0	— red, per 12 bun.	3	0- 6 0
Heliotropes, 12 spr.	0	6- 1 0	— Safrano, dozen	1	0- 2 0
Lilac, white, Fr., bun.	4	0- 6 0	— outdoor, 12 bun.	6	0-12 0
Lilium, var., 12 bl.	0	6- 4 0	Ranunculus, 12 bun.	2	0- 4 0
Maiden Hair Fern, do.	4	0- 9 0	Spiræa, doz. sprays	0	6- 1 0
Marguerites, 12 bun.	3	0- 8 0	Stephanotis, 12 spr.	1	6- 3 0
Mignonette, 12 bun.	2	0- 4 0	Sultan, 12 bunches	4	0- 6 0
— French, per bun.	1	6- 2 0	Tuberoses, 12 blms.	0	8- 1 0
Myosotis or Forget-me-nots, 12 bun.	2	0- 4 0			
Narcissus, various, doz. bun.	1	6- 8 0			

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *June* 18.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market bare of business. Consumptive sowing wants are, of course, just now at very low ebb, and no speculative inquiry shows itself. A considerable advance has taken place in Cocksfoot. Small orders are received for seed Mustard and Rape seed. For Blue Peas the demand is light, but values keep steady. Feeding Linseed, with a good business passing, tends in sellers' favour.

CORN.

Averages.—Official statement of the average prices of British corn, imperial measure, for the week ending June 14:—Wheat, 32s. 8d.; Barley, 25s. 7d.; Oats, 20s. For the corresponding period last year:—Wheat, 28s. 4d.; Barley, 21s.; Oats, 19s.

FRUIT AND VEGETABLES.

SPITALFIELDS: *June* 18.—Scarce supply of fruit; demand good; plentiful supply of fresh vegetables, new and old Potatos; demand fairly active. Prices: Gooseberries, 4s. to 4s. 6d. per half-sieve; Strawberries, 6s. to 7s. per peck; English Tomatos, 5s. to 8s. do.; foreign do., 1s. to 2s. per box; Rhubarb, 2s. to 3s. per dozen bundles; Asparagus, 1s. to 1s. 9d. per bundle of 100 heads; Seakale, 1s. to 1s. 3d. per punnet; Cabbages, 2s. to 4s. 6d. per tally; Cauliflowers, 2s. to 4s. per dozen; Radishes, 3s. to 4s. 6d. per tally; Spinach, 4d. to 1s. per bushel; Peas, 2s. 6d. to 3s. 6d. do.; do., 5s. to 6s. 6d. per sack; Beetroots, 6d. to 1s. per dozen; frame Cucumbers, 2s. 6d. to 3s. 6d. do.; Greens, 1s. to 1s. 6d. per dozen bunches; new Carrots, 2s. 6d. to 4s. do.; spring Onions, 1s. 9d. to 3s. do.; Parsley, 1s. to 1s. 6d. do.; Mint, 1s. 6d. to 2s. per dozen bundles; Horseradish, 1s. 1d. to 1s. 4d. per bundle; Endive, 1s. 6d. to 2s. per dozen; Cos Lettuces, 1s. to 1s. 3d. per score; Mustard and Cress, 1s. 6d. to 2s. per dozen baskets; Egyptian Onions, 4s. 6d. to 5s. 6d. per case.

STRATFORD: *June* 18.—Cabbages, 1s. 6d. to 3s. 6d. per tally; Greens, 1s. to 1s. 6d. per dozen bunches; Mangels, 12s. to 18s. per ton; Onions, Egyptian, 5s. to 7s. 6d. per cwt.; Watercress, 7d. per dozen bunches; Tomatos, 2s. to 2s. 6d. per box; Gooseberries, 4s. 6d. to 5s. per sieve; Cucumbers, 2s. to 5s. per dozen; Lettuce, 1s. to 1s. 3d. per score; Carrots, 2s. to 4s. 6d. per dozen bunches; Peas, 3s. to 3s. 6d. per bushel; Cherries, 3s. 6d. to 5s. 6d. per basket; Strawberries, 5s. to 6s. per dozen punnets; Asparagus, 1s. 6d. to 1s. 9d. per bundle; Mint, 3s. per dozen bunches; Beetroot, 10d. to 1s. per dozen.

POTATOS.

BOROUGH AND SPITALFIELDS: *June* 17.—Quotations:—Old: Scotch Regents, 35s. to 45s.; Magnums, blackland, 35s. to 40s.; Lincolns, 45s. to 50s.; York, 55s. to 80s.; Kent and Essex, 50s. to 55s.; Scotch, 55s. to 110s.; Imperators, 40s. to 60s. per ton; New: Malta and Canary Islands, £6 to £8; Jersey, £7 to £8 10s; Lisbon, £5 per ton.

SPITALFIELDS: *June* 18.—Quotations:—New: Lisbon rounds, 4s. to 4s. 6d.; St. Malo rounds, 5s. to 6s.; do. kidneys, 6s. to 6s 6d.; Cherbourg rounds, 5s. to 6s.; do. kidneys, 5s. to 6s. 6d.; do. flukes, 6s. to 7s.; Jersey rounds, 5s. 6d. to 6s. 6d.; do. kidneys, 6s. to 6s. 6d.; do. flukes, 7s. to 7s. 6d. per cwt. Magnums, 35s. to 70s. per ton.

STRATFORD: *June* 18.—Quotations:—New: Jersey kidneys, 6s. 6d. to 7s.; do. flukes, 7s. to 8s.; Cherbourg rounds, 5s. 6d. to 6s.; do. flukes, 6s. to 6s. 6d. per cwt.

HAY.

Averages.—The following are the averages of the prices obtained at the various metropolitan markets during the past week:—Clover, prime, 75s. to 92s.; inferior do., 46s. to 75s.; hay, best, 60s. to 87s.; inferior do., 26s. to 50s.; and straw, 20s. to 38s. per load.

NOTICES TO CORRESPONDENTS.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are solicited.

NEWSPAPERS. — *Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

BLIND NARCISSUS: *J. S.* Do not know; wish we did.

BOOKS.—TABLE DECORATION: *R. T. Floral Decorations for Dwelling-houses*, by Annie Hassard: Macmillan & Co., London.—LANDSCAPE GARDENING: *J. W. B. How to Lay Out a Garden*, by W. Kemp. Published by Messrs. Bradbury, Agnew & Co. (Limited), Bouverie Street, Fleet Street, E.C. There is no monthly or weekly serial treating of the subject.

BROCCOLI: *J. L.* Excellent when cooked, and devoid of all strong flavour.

BRUGMANSIA: *G. A.* The leaves appear as if they have been syringed, and then a bright sun has shone on them, causing the watery globules to act like burning-glasses.

CORRECTION.—In our report of the Royal Botanic Society last week, Xerophyllum asphodeloides, shown by Mr. Howe, Merton Hall—one plant had six spikes and the other three, instead of two plants bearing three spikes, as reported.

GARDENER IN AMERICA: *X. Y. Z.* We cannot advise otherwise than to go there at once, get work in a nursery for a time, and look about you.

INDIA-RUBBER IMPORTS: *Amazon.* We do not possess the information. Apply at the Board of Trade office for the particulars you may require; or to the Queen's printer for a report on the subject.

INSECTS: *G. Harris.* The soil is swarming with all sorts of insects, weevil, grubs, and wireworm among them. Dress the soil heavily with gas-lime.

LILY: *W. H.* The Lily disease, due to a fungus similar to that producing the Potato disease. Burn the plants. See also p. 763.

LABOUR AND FUEL FOR FIVE ACRES OF GARDEN; FIFTEEN ACRES OF WOOD, PLANTED UNDERNEATH THE TREES WITH LAURELS KEPT LOW; TWO VINERIES, PEACH-HOUSE, SHOW-HOUSE, STOVE, ORANGERY, FIG, MELON, AND CUCUMBER-PITS, COLD-PITS: *J. H.* Houses, frames, and pits, two men and a boy; kitchen garden, one wall-tree man and two assistants, if much is required: if not, then one assistant would do; flower garden, one grass-mowing machine man, and one other man; two handy labourers for walk-weeding, for the plantation, and to assist with digging anywhere, and carrying coals to, and refuse from, the mansion, &c. Fuel for six months' forcing: 5 chaldrons of coke per month; orangery fuel, if separately burnt, say, 100 frosty days at 3 bushels of coke per day = 8½ chaldrons. If near gasworks, the cost of fuel for all the houses need not exceed £24 per annum—that is, if not more than two boilers are employed. It is impossible to fix the amount of assistance actually required; that can only be arrived at after a time, so much depending on the style in which the grounds are kept, the nature of the floral display, hardy flowering plants needing less attention than tender things. It materially lessens the labour if the water supply is a good one, and water is conducted by means of pipes all over the place. The nature of the soil, if heavy or light, must be taken account of, the former requiring more working, and consequently being more costly than light soil.

LATHYRUS SIBTHORPI: *C. W. D.* There is no final "e" in Sibthorp's name.

MELON LEAVES, &c.: *P.* We have now been able to see what is attacking your Melon leaves; white thrips were plentiful. The appearances of other leaves point to the same cause, or to red spider.

NAMES OF PLANTS: *G. P.* 1, Syringa emodi; 2, appears to be Cornus capitata (Benthamia fragifera); 3, Philadelphus mexicanus; 4, Saxifraga pentadactylis.—*J. M.* Chrysanthemum coronopifolium; Scilla peruviana.—*W. J. H.* Your specimen is insufficient to name from.—*C. G. M.* Asphodeline lutea.—*B. T.* Saxifraga trifurca.—*W. A. F.* 1, 2, 3, 4, Scilla nutans; 5, Papaver orientale; 6, Saxifraga decipiens.—*James B.* 1, Ægopodium podagraria; 2, Libertia formosa; 3, Claytonia perfoliata.—*E. R.* 1, Silene alpestris; 2, Tamarix gallica; 3, Sisymbrium officinale; 4, Nepeta glechoma; 5, Chærophyllum temulum; 6, Euphorbia amygdaloides.—*G. P. D.* should address the Editor, not the Publisher. The tree is Fraxinus ornus.—*J. B.* Magnolia Soulangeana; Astrantia major.—*B. T., Cardiff.* 1, Retinospora pisifera; 2, R. filifera; 3, R. dubia; 4, R. pisifera aurea; 5, R. squarrosa.—*W. F. T.* The labels were all detached, and the box smashed. We find remains of Orchis maculata, three forms; Lepidium Draba, n. 4; Polystichum Lonchitis, a Fern; and Venus' Looking-glass (Campanula speculum).—*R. S.* Asplenium Trichomanes.—*Southampton* should send better specimens. 1, Myoporum sp.; 2, Spiræa; 3, Pyrus salicifolia.—*J. M. G.* Heuchera sanguinea.—*Nemo.* 1, Ranunculus (?), a mass of pulp; 2, not recognised; 3, Lychnis Flos Jovis; 4, Rhus cotinus; 5, Deutzia scabra; 6, Colutea arborescens: next time send better specimens, properly packed.—*F. B.* 1, probably Kalmia latifolia; 2 and 3, Rhododendron hirsutum; 4, a form of R. ponticum; 5, a form of R. ferrugineum; 6, Kalmia; 7, Kalmia latifolia; 8, Rhododendron ferrugineum; 9, form of R. ferrugineum; 10, a seedling form of Rhododendron ferrugineum; 11, Coronilla Emerus: next time do not send more than six specimens. Some nurseryman, who makes a specialty of American plants, would be able to name the seedling Rhododendrons.—*J. F. B.* 1, Phyllocactus crenatus Mauve Queen; 2, Erysimum ochroleucum; 3, Limnanthes Douglasii.—*F. A. E. B.* A Thalictrum, probably T.

minus. A hardy perennial which will grow in any border without any special care.—*D. J.* Hydrangea stellata, fl.-pl.—*E. de J.* Buddleia globosa.—*H. M.* 1, Kalmia latifolia; 2, Weigela rosea; 3, Tormentilla erecta; 4, Syringa Josikæa; 5, Cratægus Pyracantha; 6 and 7, not sent; 8, Zenobia speciosa. — *D. H.*, should address such questions to the Editor, not to the Publisher. 1, Ferula, sp.; 2, Astrantia major; 3, Tradescantia virginica; 4, Magnolia purpurea. The Peach is not recognised, the fruit was imperfect.—*J. B.* No numbers — Aërides Fieldingii, the rose-coloured; Aërides odoratum, Cattleya Mendelii. —*G. R. T.* Lycaste Deppei, Miltonia vexillaria, both ordinary; Iris graminea.—*Tin box, no name.* 1, Aspasia lunata, so far as we can judge by the bad specimen sent; 2, Doodia lunulata; 3, Adiantum formosum; 4, Blechnum cartilagineum.—*Orchid.* Cattleya labiata var.—*G. W.* Dendrobium Dalhouseanum.—*J. K. E.* 1, Polypodium subauriculatum; 2, Lygodium scandens; 3, Adiantum formosum; 4, Davallia polyantha; 5, Aspidium quinquangulare; 6, Nephrolepis pectinata; 7, Aspidium molle; 8, Lomaria gibba intermedia; 9, Adiantum Mariesii.—*E. C.* Next week.—*Vesuvius.* Onosma taurica. Impure air probably causes the leaves of the Pelargoniums to turn yellow.—*F. F.* We cannot undertake to name varieties of Coleus.—*W. D.* 1, Forsythia suspensa; 2, Sedum spurium; 3, Weigela rosea; 4, Vitis sp.—*H. May.* 1, Corydalis lutea; 2, Dendrobium, suavissimum; 3, Aërides japonicum, a very fine specimen of it.—*A. B.* 1, Cyrtanthus angustifolius; 2, Ophrys apifera, Bee Orchis; 3, Cephalanthera grandiflora; 4, Orchis conopsea; 5, Sainfoin; 6, Orchis conopsea, the white form; 7, Anchusa italica.—*Camjee.* Dendrobium clavatum, D. transparens, and Aspidium molle.—*Adolescens.* 1, Iris xiphium; 2, I. ochroleuca.—*R. T.* 1, Polygala Dalmaisiana; 2, Aristolochia, next week; 3, Cistus creticus; 4, Scolopendrium vulgare crispum; 5, Pteris hastata; 6, Anthericum lineare variegata.—*E. P. D.* Kerria japonica. — *Yellow Orchid.* Maxillaria aromatica.

PEACH LEAVES: *W. F.* Have you been using too strong a dose of an insecticide? The address you want is St. Albans, Herts.

PEACH TREES: *H. W. D.* "Blister," arising from the presence of a fungus often figured in *Gardeners' Chronicle.* Pick off the leaves, and burn them.

POTATO AND POTATOES: *W. D.* The word is of hybrid foreign origin altogether, and hence is scarcely amenable to ordinary rules. When the question was first raised, we consulted an eminent philologist, the late Dr. Latham, who gave his sanction to the omission of the *e*, stating that the modern tendency was in that direction, and that we were simply in the advance guard, as the *Chronicle* always likes to be. We shall not alter our practice now. If you spell the word with an *e* in the singular, you must use it also in the plural. We conform more nearly to the Spanish original, and spell the word potato.

TOMATOS: *W. R.* We will closely examine the plants sent, and report next week.—*J. C.* It is very likely that some disease has attacked your plants—Peronospora lycospersici, or other. If that should prove to be the case the plants must be rooted out and the soil charred before re-commencing, indeed it would be a risky undertaking to plant Tomatos for a year to come.

TOMATO AND VEGETABLE GROWING FOR SALE: *J. W. E.* Before going into partnership, you would do better to go through a course of training in some good market establishment; and then, when you had acquired some knowledge of cultivation, you could go more safely into business, with or without a partner. Advertise in our columns.

TUBEROSE: *H. R.* A fungus, try steeping the bulbs in a solution of sulphate of copper, ¼ oz. to 1 gallon of water. Use it carefully. We may refer to it again.

WORDS: *S. R.* "And weed expels the flower."

COMMUNICATIONS RECEIVED.—C. Moore, Sydney (best thanks).—H. E., Vichy.—Professor Goebel, Marburg.—Professor de Vries, Amsterdam.—Lord R.—The Earl of A.—C. W. D.—J. D. S., Boston, U.S.—W. D.—F. N. W.—Percy Myles.—R. B. B.—E. B.—J. M. M.—Dr. Focke, Bremen.—Herr Max L.—W. S., Queensland (best thanks).—Vicomte de St. Leger, Rio.—J. G. Lemmon, Oakland, California.—J. Fox, Neudeck, Silesia.—J. S.—E. B.—H. E.—A. B.—W. D.—A. Mackie.—W. C.—D. A.—Dr. Dilling.—J. Sykora (next week).

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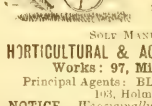
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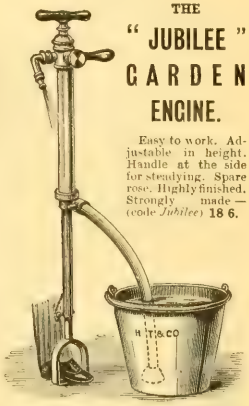
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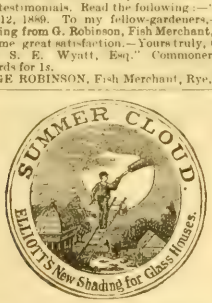
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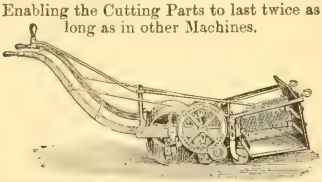


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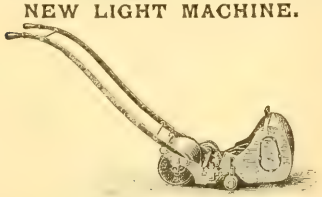
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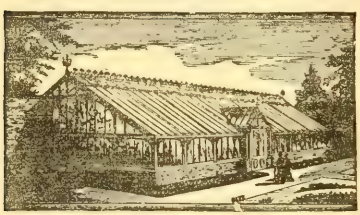


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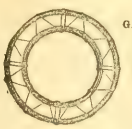
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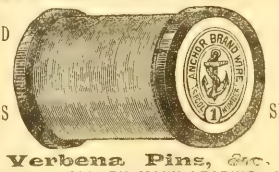


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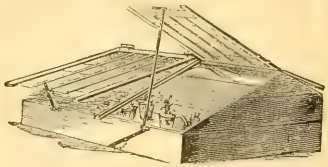
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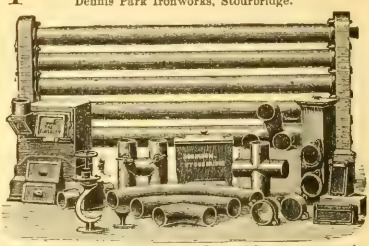
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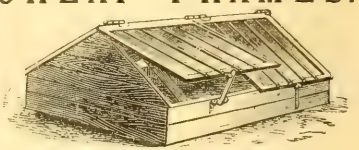
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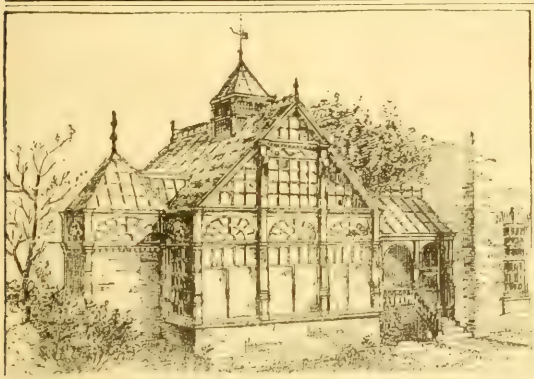
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8	,, ,,	200	,, ,, ...	0	12	0
16	,, ,,	400	,, ,, ...	1	2	0
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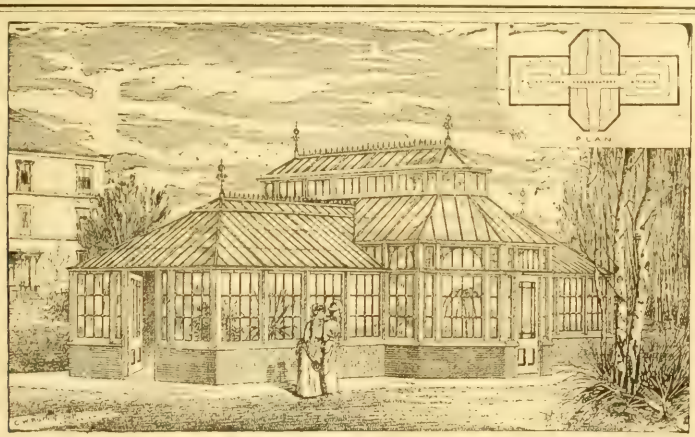
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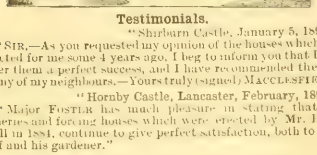
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No Cost for Motive Power, which is obtained from the Stream of Water passing through the Ram.

NO OILING OR PACKING REQUIRED.

MADE IN SIZES TO RAISE FROM 300 TO 200,000 GALLONS PER DAY. WILL FORCE TO A HEIGHT OF 1500 FEET.
SPECIAL RAMS for HIGH FALLS to send up to Two Gallons out of every Five Gallons passing through them.



Fig. A.
This Ram raises a portion of the same water that works it.



This View represents Fig. A Ram forcing up a part of the same water that works it, which is supplied from a spring. Special Rams of A make can be supplied to force to a height of 800 feet.



Fig. B.
This Ram, whilst worked by a stream of impure water, will pump clean water from a well or spring.

TESTIMONIALS.

From Mr. THOMAS VARLEY, Agent to the Trustees of the late William Roundell, Esq., Gledstone Estate, West Marton, Skipton, August 11, 1887.

"DEAR SIR,—The Patent Hydraulic Ram you fixed five years ago on the estate is still working as well as it did on the day it started. It is driven by spring water carried along the hillside in 950 yards of iron pipe, and forces up an abundant supply to an underground tank on the hill at a distance of two miles from, and at an elevation of 280 feet above the Ram. The water is then gravitated through several pipes and branches, having a total length of about four miles, for the supply of the mansion, gardens, stables, estate workshop, and steam boiler, the village of West Marton, and several farms. There are five fire-plugs inside the mansion, and seven outside; and as the underground reservoir is 70 feet above the mansion, seven jets of water can be thrown over the house in case of fire. As there is still a considerable overflow from the underground reservoir running to waste, I intend to form a second reservoir at a lower level, and utilize the water for other farms. I have much pleasure in being able to report as above."

From C. PAGE WOOD, Esq., Wakes Hall, Wakes Colne, Essex, January 11, 1889.

"SIR,—In reply to your inquiry, the Hydraulic Ram you put down for me in 1881 has cost me only sixpence in repairs (for a new stud my blacksmith made); the second Ram you put down to supply an off-hand farm, has been running three years, and has cost not a penny for repairs; the third and largest Ram you put down two months ago, which is for the supply of water to my neighbours, is running satisfactorily. All three Rams throw up more water than you guaranteed. From inquiries I have made from friends who have Rams of other makers, I am convinced of the superiority of yours, and my third order is a proof of my good opinion. My abundant water supply is the greatest possible comfort to me. "Yours faithfully,
"C. PAGE WOOD."

From MATTHIAS SMITH, Esq., Hill Top Hall, Pannal, near Leeds, January 14, 1889.

"DEAR SIR,—I have great pleasure in bearing testimony to the marvellous efficiency of the Ram you fixed here in January, 1888. It is worked by spring water of irregular volume, the dry-weather flow being 6 pints per minute, with which quantity you promised to work the Ram, forcing through 330 yards of delivery pipe to an elevation of fully 144 feet, but out of 5½ pints per minute, 166 gallons per day are sent up; and out of 2 gallons per minute now flowing through the Ram, 540 gallons per day are delivered at the same height. Considering the extremely small quantity of driving water, I certainly did not expect so grand a result. With every wish that you may get the reward you deserve,—I am, dear Sir, yours faithfully,
"MATTHIAS SMITH."

From Mr. HENRY ROBINSON, Engineer to the Stockport District Waterworks Company, September 8, 1883.

"DEAR SIR, I can now report well of the two Hydraulic Rams we have fixed to your instructions for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 65 feet, but on testing them I am convinced that 50,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equal to half the capacity of the 6 inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found."

From J. A. RUTHERFORD, Agent to C. F. H. Bolckow, Esq., Estate Office, Marton Hall, Middlesbrough, September 26, 1883.

"DEAR SIR,—I am glad to say that the Rams you put down on the Hambledon Estate for Mr. C. F. H. Bolckow are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a day, and with enough water to work the Rams at full power, 2000 gallons a day. With a supply of 11¼ gallons per minute they are lifting 2200 gallons, and when working full power 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start, and have gone well since." (The delivery pipe in the above case is 9000 feet in length.)

From CAPTAIN TOWNSEND, Wineham, February 10, 1877.

"In answer to your inquiry I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long, at the rate of 80,000 gallons per day, although you only promised 50,000."

JOHN BLAKE, HYDRAULIC ENGINEER, ACCRINGTON, LANCASHIRE.

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THE GARDENERS' CHRONICLE IN AMERICA.

The Subscription to America, including Postage, in $4.30 for Twelve Months.

Agent for America:—E. H. LIBBY, Manager, "The American Garden," 10, Spruce Street, New York, to whom American Orders may be sent.

ROYAL BOTANIC SOCIETY (Gardens, Regent's Park, N.W.

EVENING FÊTE, WEDNESDAY NEXT, July 2. Evening Fête and Special Exhibition of Table Decorations, &c. Gates open at 8 o'Clock. The Gardens will be illuminated from 8 to 12. Four Military Bands will be in attendance. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 10s. each; or on the Day or Evening of the Fête, 15s. each.

TWICKENHAM HORTICULTURAL and COTTAGE GARDEN SOCIETY.

The ANNUAL SUMMER SHOW will be held on WEDNESDAY, July 2, in the Grounds of Orleans House (by kind permission of W. Cunard, Esq.). Entries must be forwarded not later than Friday, June 27, to the Hon. Sec., of whom all particulars may be had on application.

JAMES J. G. PUGH, Hon. Sec.

2, Heath Road, Twickenham.

TRENTHAM HORTICULTURAL SOCIETY.

GREAT FRUIT and ROSE SHOW will be held in Trentham Gardens on JULY 3 instead of July 10, as previously arranged. Upwards of EIGHTY POUNDS is given in PRIZES for Cut Roses. Collections of Fruit, nine varieties, 1st £8, and special value £5; 2nd, £6; 3rd, £3. Six varieties, £4, £2, and £1. PRIZES amounting to nearly TWO HUNDRED AND FIFTY POUNDS will be given. Schedules now ready, post-free, on application to—

JOHN TAYLOR, Hon. Sec., Trentham.

NUNEATON HORTICULTURAL SOCIETY'S ANNUAL EXHIBITION, MONDAY, July 21, 1890. Open Classes for Roses. For Schedules, apply, W. C. LORD, Nuneaton.

INTERNATIONAL EXHIBITION at LEEDS.

CUT FLOWER and FRUIT SHOW, JULY 22, 23, and 24, 1890. Schedules of Prizes are now ready, and may be had on application to—

Mr. J. H. CLARK, 31, Albion Street, Leeds.

For Present Sowing.

CABBAGE.—CARTERS' HEARTWELL MARROW, acknowledged to be the finest early Cabbage in cultivation, price 1s. 6d. per oz., 6d. and 1s. per packet, post-free.

CARTERS' MAMMOTH BEEFHEART, the best main crop Cabbage, price 1s. 6d. per oz., 6d. and 1s. per packet, post-free.

For Present Sowing.

LETTUCE.—CARTERS' GIANT WHITE COS, price 2s. 6d. per oz., 1s. per packet, post-free.

DUNNETT'S GIANT WINTER COS, price 2s. 6d. per oz., 1s. per packet, post-free.

ALL THE YEAR ROUND, price 1s. 3d. per oz., 6d. per packet, post-free.

For Present Sowing.

ONION.—CARTERS' GOLDEN GLOBE TRIPOLI, price 1s. and 2s. 6d. per packet, post-free.

CARTERS' GIANT WHITE TRIPOLI, price 1s. per oz., 6d. per packet, post free.

CARTERS' WHITE EMPEROR, price 1s. and 2s. 6d. per packet, post free.

CARTERS, Royal Seedsmen by Sealed Warrants, 237 and 238, HIGH HOLBORN, LONDON.

JULIUS HANSEN, Pinneberg (Germany), recommends his LILY OF THE VALLEY, very strong pipes, 25s. per 1000 pipes; by taking 50,000, 24s. Large Silver Medal, Berlin, 1890; Bronze Medal, Hamburg, 1889.

PRIMULAS—PRIMULAS—PRIMULAS.—Twenty-first year of distribution. Williams' Superb Strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, same price; also double white PRIMULAS, 6d. each. Carriage free for cash with order.—JOHN STEVENS, The Nurseries, Coventry.

BEGONIAS.—Laing's Gold Medal and Cup Collection is now coming into flower. Many Seedlings and Novelties of great merit in the Single and Double Varieties are represented. Inspection invited.

CATALOGUES post-free.

JOHN LAING AND SONS, Nurseries, Forest Hill, S.E.

To the Trade.

FERNS!—FERNS!!—FERNS!!!—In twenty most saleable kinds—Adiantums, Polypodiums, Cyrtomiums, Pteris, &c. Adiantum cuneatum, large stuff, ready to pot at once in 5-inch pots, 18s. and 20s. per 100; Pteris cretica cristata, and a few other kinds, from stores, 6s. per 100, 50s. per 1000.—J. SMITH, London Fern Nurseries, Loughborough Road, Brixton, S.W.

HENRY SQUELCH, North Row, Covent Garden, FRUIT SALESMAN and COMMISSION AGENT, Importer of Bananas, and all kinds of Madeira and Canary Island Produce.

H. SQUELCH is open to RECEIVE CONSIGNMENTS of CHOICE BLACK GRAPES, MUSCATS, TOMATOS, CUCUMBERS, PEACHES, and all kinds of Hothouse Produce.

H. SQUELCH'S connection is amongst the best business houses in the United Kingdom, and he gives personal attention to all consignments. Account of Sales forwarded day of Sale. Cheques weekly, or as desired. Empties and Labels supplied. Bankers, London and County Bank. Warehouses and Banana House, James Street, Covent Garden, W.C.

JOHN JAMES, 7, Flower Market, Covent Garden, W.C., receives on Commission, GRAPES, TOMATOS, and other choice FRUITS and FLOWERS. Reference: London and County Bank. Highest Market Prices. Account Sales daily. Cheques weekly. Baskets, Boxes, and Labels found. Warehouse: 19, Russell Court, W.C.

CHOICE FLOWERS—CHOICE FRUIT.—Highest Market Prices guaranteed. Prompt cash. HENRY RIDES, Covent Garden, W.C.

J. W. BARNHAM Receives on Commission, GRAPES, TOMATOS, and other Choice FRUITS; also FLOWERS. His personal attention securing highest Market Prices. Account Sales daily, and cheques at option. Baskets and labels found.

Long Market, Covent Garden, W.C.

WANTED, a few good strong well-furnished COCOS WEDDELLIANA, from 2½ to 4 feet. Price and description to—

E. P. DIXON AND SONS, Hull.

Sow in July.

SUTTON'S PRIZE BEGONIAS.—Saved from the richest and most varied flowers grown in our own immense Collection. All shades of colour are included, from the deepest crimson to the lightest pink, as well as orange, yellow, and white. The plants are compact in habit, and possess a robust constitution. Mr. Jno. Price, Gardener to Mrs. Hall, writes:—"The finest Begonias I ever saw." Price of seed 2s. 6d. and 5s. per packet, post-free. SUTTON'S SEEDS Genuine only Direct from SUTTON AND SONS, The Queen's Seedsmen, Reading. No agents.

ED. PYNAERT, NURSERYMAN, Ghent, Belgium, is now sending out his beautiful HYBRID ROCHEAS, described and figured in the *Gardeners' Chronicle*, February 22, 1890. Price 15s. the set of five distinguished varieties. Package and freight to all parts of Great Britain for cash with order.

BULBS FOR AUTUMN-FLOWERING.—Summer Planting LIST, now ready, of rare Crocus species, for autumn and spring-flowering, beautiful and rare Colchicums, Sternbergia (Lily of the Field), Zephyranthes (Flowers of the West Wind), Pyrethrums for autumn planting, &c. LIST free on application.

BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.

SUPERB ORCHIDS, CHEAP.—Thousands to select from. Write for List, free.—P. MCARTHUR, The London Nursery, 4, Maida Vale, London, W.

Many Acres of Lilies of the Valley!

T. JANNOCH, Largest Grower of LILIES OF THE VALLEY in the Kingdom, offers 3-yr. old flowering Crowns for forcing, and 2- and 1-yr. old Crowns for planting out, of unsurpassed quality. Hundreds of testimonials. Time of sending out, November 1 to May 1. Prices and terms on application.

T. JANNOCH (Lily of the Valley Grower by special appointment to H.R.H. the Prince of Wales), Dersingham, King's Lynn, Norfolk.

50,000 GREEN EUONYMUS, all good shape, 8 inches to 3 feet high, 15s. to £10 per 100, free on rail.

J. J. CLARK, Goldstone Farm, Brighton.

SAMUEL SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire, begs to offer the following, of which he has made a specialty for the last twenty-six years:—

PRIMULAS! PRIMULAS! and CINERARIAS, finest possible strains, the latest new colours and improved forms as sold in Covent Garden. Good Plants for next autumn and winter blooming, 1s. 6d. per dozen, 10s. per 100; extra strong selected, 2s. per dozen, 12s. per 100.

CYCLAMENS, CYCLAMENS!—Lamb's celebrated Giganteum strain, good plants, 2s. per dozen; extra selected, 2s. 6d. per dozen; all carriage free.

S. SHEPPERSON, Florist, Belper.

"Irradiating the Present—Restoring the Past."

HARTLAND'S DAFFODILS. New Series Edition.

Illustrated by GERTRUDE HARTLAND.

This publication is limited to 1000 copies. It is purely a Drawing-room Book, and work of art among garden flowers; exclusive of trade altogether. A key to same, descriptive and priced, can be had in July. More than probable, in 100 years, this edition, from the artistic point, will be scarce and valuable as a remnant of the "Daffodil mania" of this age, and particularly as it emanates from such a small place as Cork.

WM. BAYLOR HARTLAND, F.R.H.S., Seedsman and Florist, 24, Patrick Street, Cork.

TRADE CIRCULAR of Best Market Sorts, Post-free.

TURNIP SEED for SALE.—White Globe Turnip Seed, 1890 Growth, for Sale Cheap, in large or small quantities.—Apply to Mr. E. P. NEWMAN, Home, Pole Hill, and Hayes End Farms, Hayes, Middlesex.

WRIGHT'S PRIZE CELERIES.—200,000 extra strong Plants of Grove Red, Grove Pink (syn. Clayworth Prize), Giant White, Grove White, and Standard Bearer. Free on rails. 4s. per 1000.

C. R. CLARK, late Wright, Nurseryman, Retford.

THOMSON'S IMPROVED VINE and PLANT MANURE.—This valuable Manure is made only by us. Every bag and tin has our name on it. To be had of all Nursery and Seedsmen, and direct from us. 1 cwt. and over carriage paid. London Agent—Mr. GEORGE, 10, Victoria Road, Putney.

WM. THOMSON AND SONS, Clovenfords, Galashiels, N.B.

SALES BY AUCTION.

Merton Abbey.

ABSOLUTE SALE. WITHOUT RESERVE.

Important to Florists, Market Growers, Furniture Dealers, and Others.

Short Notice.—Sale MONDAY NEXT.

MESSRS. PROTHEROE AND MORRIS (in conjunction with Mr. John Hawes) will SELL by AUCTION, on the Premises, The Merton Abbey Nursery, Merton Abbey, three minutes' walk from the Station, on MONDAY NEXT, June 30, at 1 o'Clock, the whole of the well-grown stock of PALMS and FERNS, including 7800 Pteris cretica, 1100 Lomaria gibba, 1800 Cocos Weddelliana, 2000 Latania borbonica, and Seaforthia elegans; several boxes of Palm seeds; 4500 Golden Euonymus in pots; 1000 Chrysanthemums; also a quantity of Utensils in Trade, and Sundries; 200 casts of Flower Pots; erection of Office; several items of Household Furniture; Dining-room Suite, &c.

May be viewed on Saturday prior to and morning of Sale. Catalogues had on the Premises; of Messrs. SMITH AND RYDON, Solicitors, 52, Lincoln's-inn-Fields; and of Mr. W. H. HAWES, Auctioneer, Railway Station.

Tuesday Next.

IMPORTED and ESTABLISHED ORCHIDS.

150 CATTLEYA GIGAS, Established Plants.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, July 1, at half-past 12 o'Clock, IMPORTED ORCHIDS, comprising 100 Dendrobium Jamesianum, 100 D. infundibulum, 100 Sacco-labium ampullaceum, Moulmeinense, &c.; also a quantity of ESTABLISHED ORCHIDS, including 20 Phalænopsis Lowii, 5 Dendrobium sessile, 150 Cattleya gigas, all unflowered; 50 Anguloa Clowesii, Cattleya aurea, Cattleya Mossiæ, a beautiful variety, &c.

On view morning of Sale, and Catalogues had.

Wilmington, near Dartford.

Two miles from Dartford, and 1¼ mile from Swanley Junction.

Practically without reserve. FREEHOLD MARKET GARDEN GROUND. Important to Nurserymen and Market Gardeners. Possession will be given on payment of small deposit, and balance by instalments.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Bull Hotel, Dartford, on THURSDAY EVENING NEXT, July 3, at 7 o'Clock, 115 Plots of FREEHOLD BUILDING LAND, a large HOTEL SITE, two LEASEHOLD HOUSES, and 20 Acres of FREEHOLD LAND, suitable for Market Gardening, Nurserymen, Fruit Growers, &c.

Plans and Particulars of J. MERRICK HEAD, Esq., Solicitor, Reigate; and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Friday Next.

CATTLEYA GASKELLIANA.

An extensive importation, some of the plants being marked as "white" flowers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Gordon, to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, July 4, at half-past 12 o'Clock, a magnificent importation of CATTLEYA GASKELLIANA, just received in finest possible condition, with plump leaves, sound and dormant eyes, and including some of the best plants of this very free flowering and lovely Cattleya ever imported into this country.

Several of the plants so marked are guaranteed white, having been gathered in flower by the collector.

On view morning of Sale, and Catalogues had.

Friday Next, July 4.

A further portion of the COLLECTION of ESTABLISHED ORCHIDS formed by J. Larkin, Esq.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, July 4, at half-past 12 o'Clock.

On view morning of Sale, and Catalogues had.

Friday, July 18.

IMPORTED and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, July 18, very fine and valuable importations, consisting of CATTLEYA MENDELII, in large masses and most excellent condition; they have been collected in quite a new district, and the collector, who saw many in flower, describes them as being exceptionally rich in colour, and of fine compact form. ODONTOGLOSSUM PESCATOREI, in fine order—bulbs plump and sound. ODONTOGLOSSUM TRIUMPHANS, and O. HASTILABIUM. These are by far the best importations seen for years. Oncidium cucullatum, a few but exceptional Oncidium armulum, Ada aurantiaca, and a very fine batch of Cypripedium concolor.

On view morning of Sale, and Catalogues had.

East Dulwich. Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Seeger & Tropp to SELL by AUCTION, at their Orchid Nurseries, East Dulwich, on WEDNESDAY, July 23, commencing at half-past 12 o'Clock precisely, the contents of two private Collections, recently purchased by them, supplemented by additions from their own stock, making a large and very varied selection of rare and valuable ORCHIDS, the whole affording a splendid opportunity to buyers, such as seldom occurs, and which will be sold absolutely without reserve.

The plants will be on view the day prior and morning of Sale. Catalogues had on the premises, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Second Portion.

The CELEBRATED STUDLEY HOUSE COLLECTION of ESTABLISHED ORCHIDS.

Absolutely without reserve.

HIGHLY IMPORTANT SALE of the SECOND PORTION of this renowned COLLECTION, the whole being remarkable for splendid culture and condition, and including a great proportion of plants matchless in point of rarity, by order of F. G. Tautz, Esq., who is compelled to relinquish their cultivation in consequence of a change of residence.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, July 8 and 9, at half-past 12 o'Clock precisely each day, the SECOND PORTION of this SUPERB COLLECTION. Amongst the many fine things included in this Sale, the following may be specially mentioned:—

Cypripedium Boxallii atratum
" Carrierei
" Fairieanum
" Germinyanum
" Harrisianum "Vivicans"
" Hornianum
" insigne "Tautzianum"
" Io
" io grandis
" Lawrencianum stenocemium
" leucorrhodum
" macropterum
" Morganiæ Burfordiense
" Mrs. C. Canham
" œnanthum superbum
" Peetersianum
" Sallieri Hyeanum
" selligerum majus
" villosum albo-marginatum
Lælia anceps alba
" " Dawsoni
" callistoglossa
" purpurata "Sunset"
Cattleya exoniensis
" Gaskelliana albens
" " Delliense
" gigas Normani
" Mendeli Garnettii
" Mossiæ Studleyana
" Porphyroglossa
Cattleya Schroderæ alba
" Skinneri alba
" Trianæ alba
" " Aperta
" " Backhouseana
" " Dodgsonii
" " eboracensis
" " "Enchantress"
" " splendens
" " Studleyana
Odontoglossum egregium
" Blepharicanthum
" crispum guttatum
" cuspidatum xanthoglossum
" elegans
" Rickerianum splendens
" vexillarium purpureum
" " splendens
" " variegatum
Dendrobium Falconeri giganteum
" macrophyllum var. Richardi
" Schroderi
" Wardianum album
Aerides expansum Leoniæ
Angræcum Chaillwanum
Epidendrum Randii purpureum
Masdevallia Harryana, Thomson's Scarlet

N.B.—The whole of the Plants will be submitted to the hammer, and in no case will any plant be sold privately. Catalogues will be forwarded on application to the Auctioneers, 67 and 68, Cheapside, London, E.C.

Thursday Next.

A fine COLLECTION of ORCHIDS, mostly in Flower.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, July 3, at half-past 12 o'Clock precisely, a fine COLLECTION of ORCHIDS, mostly in Flower, comprising some fine forms of Cattleyas, Odontoglossum Alexandræ, Citrosmum, Pescatorei, &c. Also rare Masdevallias, Cypripediums, Oncidiums, &c.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower and Bud.

MR. J. C. STEVENS begs to announce that his NEXT SPECIAL SALE of ORCHIDS in FLOWER and BUD will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 17, and he will be glad if Gentlemen desirous of ENTERING PLANTS FOR THIS SALE will please SEND LISTS AS SOON AS POSSIBLE.

Cut Flowers, Plants, and Bulbs.

We hold Sales, several each week. Reference to senders of years standing. Particulars on application.

MESSRS. POPE AND SONS, Sale Rooms, 6, Phillip Street, adjoining Market Hall, Birmingham.

WANTED, a NURSERY, consisting of about 9 to 12 Houses, in the neighbourhood of London. Moderate rent.

Address, A. A., Walderton, Emsworth, Hants.

WANTED TO RENT, a Small NURSERY, Glass preferred, near Market Town.

Rent and particulars to W. K. HOTHAM, Brough, East Yorks.

NURSERY, FLORIST, and SEEDSMAN'S BUSINESS, Small. Main road, next to cemetery. Nice House, and Glass House, joining in main road; 5 Houses, and good jobbing connection. TO BE SOLD through death. Any Gardener looking for a business in this line, will take it directly. Thoroughly genuine.

Apply, J. ADAMS, 5, Belvedere Road, Upper Norwood, S.E.

East Retford, Notts.

FOR SALE, by Private Treaty, a Freehold NURSERY, in consequence of the death of the proprietor. It comprises 9 Span and Lean-to Houses, in full working order. For full particulars and to view, apply, Mr. HODSON, 8, Market Place, Retford.

FOR SALE, a SEEDSMAN'S and CORN-DEALER'S BUSINESS, Surrey, 11 miles from city, under management. Manager will stay; owner retiring into country; all counter trade; all ready money; no bad debts; Will be sacrificed for £300 (plant, &c. cost this). Stock at valuation. Owner wishes to retire at once. Pleasant and profitable business, and easily learnt. Owner will assist buyer in every possible way.

FLORA, Box 851, Willing's Advertising Offices, 125, Strand, W.C.

TO BE DISPOSED of, an old-established FLORIST BUSINESS, with Residence and Conservatory, near Maida Vale. Moderate Rent. Possession at June Quarter. Small sum required for Fixtures and Stock-in-Trade.

For Cards to View, and further particulars, apply to Mr. S. BARNETT, Estate Agent and Valuer, 83, High Road, Kilburn, N.W.

TO BE LET, or SOLD, five span-roofed HOUSES, one 100, and four 65 feet long, and two pits, 65 feet, all heated with hot water. The houses are now stocked with Cucumbers.

Apply to A. ROFE, Crowborough, Sussex.

West of England.

TO BE LET or SOLD, on exceptionally favourable terms, a very old-established general NURSERY BUSINESS, which has only changed hands three times during the last 150 years. Area about 28 Acres, all in a ring fence, of which 18 are Leasehold, numerous Glasshouses, Dwelling House, Cottage Residence, Manager's House, Labourer's Cottage, Stables, and all necessary offices.

The Land is in a high state of cultivation, and there is a large assortment of general Nursery Stock, including an extensive Collection of Fruit Trees.

A Lease will be granted at a moderate rental, and the vendors will be open to consider any reasonable proposal with regard to the Stock.

Fuller particulars may be had of Messrs. PROTHEROE AND MORRIS, Auctioneers, 67 and 68, Cheapside, London, E.C.

London, N.W.

TO BE LET, on Lease, an old-established NURSERY, occupying good position in a most fashionable Residential District. There are 12 Greenhouses, with several Pits, large Show-house, and 3 acres of Land. Vendor will grant Lease for 21 years. Stock at a valuation.

Full particulars of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

Fruit and Poultry Farm.

TO LET, at Michaelmas, a SMALL HOLDING of 6 acres, with RESIDENCE.

Three acres planted with young Fruit Trees by landlord. Easy terms to Rent and Purchase.

Close to Barnham Junction Station, between London and Portsmouth on the South Coast.

For terms and particulars, apply, MARSHALL BROS. AND CO., Barnham. (Post town, Bognor).

N.B.—More Land can be obtained if required.

TO LET, a well-established NURSERY, about 12 acres in extent, well stocked and in fine condition, situated near a large city.—Full particulars on application to A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

ORCHIDS.

THE LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN, Limited),

Have just received large and fine Importations of Orchids from India, Mexico, Brazil, Columbia and other countries, and will be glad to send full particulars to anyone favouring them with name and address.

The Company also have an immense stock of Established Orchids, descriptive-priced Catalogue on application to the Company, The Vineyard and Nurseries, Garston, near Liverpool.

Special Cheap Offer of Bedding Plants.

GEO. ASHENDEN AND SONS can offer the following GERANIUMS, &c., in good strong healthy stuff, from single pots, which cannot fail to give satisfaction, subject to being unsold on receipt of order:—

FROM 3-INCH POTS.

	Per 100—s.		Per 100—s.
Vesuvius	10	Mrs. Leaver	10
West Brighton Gem ...	10	Flower of Spring, silver ...	10
F. V. Raspail	10	Mrs. Parker, finest do. ...	12
Bonfire, fine crimson ...	10	Crystal Palace Gem ...	12
H. Jacoby	12	Candidissima alba plena, finest double white ...	12
Surprise, finest salmon ...	12	Maréchal McMahon, bronze	13
Madame Vaucher	10	Black Douglas, do.... ...	13
Queen of the Belgians, improved	12	Ivy-leaf Geraniums, a splendid collection, to name...	14
White Vesuvius	10	Centaurea candidissima...	10
Madame Thibaut, fine pink	10		
Master Christine	10		

FROM 4-INCH POTS.

	Per 100.—s.		Per 100.—s.
Vesuvius	14	Candidissima alba plena, finest double white ...	16
West Brighton Gem ...	14	Mrs. W. Paul, pink ...	14
F. V. Raspail	14	Madame Thibaut, fine pink	14
Bonfire	14	Master Christine	14
H. Jacoby	16	Mrs. Leaver...	14
Surprise, finest salmon ...	16	Maréchal McMahon, bronze	18
Madame Vaucher	14	Black Douglas	18
Duchesse de Cars, fine white	14	Happy Thought	15
White Vesuvius	14	Calceolaria Golden Gem, very fine stuff, in flower	8
Queen of the Belgians, improved...	16		

Note.—Twenty-five at 100 rate.

Boxes and packing free. Terms, strictly cash with order at these prices.

The Nurseries, Wrotham Road, Gravesend.

LILIUM AURATUM.

The end of next week we shall have about 10,000 in bloom, 3 to 4 feet high, with from 6 to 12 blooms on each, with green leaves from the ground. These are from our own saved seed, from best varieties. Inspection invited.

I. DAVIES & SON,
NURSERYMEN, ORMSKIRK.

CHOICE FLOWER SEEDS

FOR PRESENT AND LATER SOWING.

Saved from choicest strains.

PRIMULA, CALCEOLARIA, CINERARIA, GLOXINIA, AURICULA, POLYANTHUS, PRIMROSE, CARNATION, HOLLYHOCK, PANSY, SWEET WILLIAM, WALLFLOWER, SILENE, &c.

Priced Catalogue, post-free. All Seeds delivered free.

DICKSONS Seed Warehouse, CHESTER.

WILMSLOW and ALDERLEY HORTICULTURAL SOCIETY.—The above Society will hold its SECOND ANNUAL SHOW in Hawthorn Hall Field, Wilmslow, on FRIDAY and SATURDAY, July 25 and 26 next. Schedule of Prizes (£140) on application.
T. W. MARKLAND, } Hon. Secs.
C. E. H. HOBSON, }

SHREWSBURY GREAT FLORAL FÊTE, AUGUST 20 and 21, 1890.—For 20 PLANTS, £25, £20, £15. Collection of FRUIT, £10, £8, £3. For GRAPES, £60. Valuable SPECIAL PRIZES given by Messrs. Webb & Sons, Messrs. Sutton & Sons, Messrs. Carter & Co., Messrs. Wm. Wood & Son, and Mr. H. Deverill. Schedules now ready, post-free on application to
Messrs. ADNITT AND NAUNTON, Hon. Secs.
The Square, Shrewsbury.

THE WELLS CHRYSANTHEMUM FRUIT and FLOWER SHOW will be held on WEDNESDAY and THURSDAY, November 5 and 6, 1890. FIFTY POUNDS in PRIZES offered, and the Centenary Medal of the National Chrysanthemum Society. For Schedules, apply.
HON. SECRETARY, Wells, Somerset.

LEICESTER and MIDLAND CHRYSANTHEMUM SOCIETY.
FOURTH ANNUAL EXHIBITION, Temperance Hall, Leicester, NOVEMBER 14 and 15, 1890. A Silver Cup, value £10, and £10 in cash, will be given as First Prize in the Open Class for 18 Blooms. Also other Valuable Prizes in the Open Classes.
See Schedules, now ready and post-free on application to Mr. F. H. ANTHONY, Church Road, South Knighton, Leicester, Hon. Sec.; or Mr. E. E. WAITE, 12, Dysworth Street, Melbourne Road, Leicester, Secretary.

BOROUGH of SUNDERLAND.
TO ARCHITECTS.
The CORPORATION invite DESIGNS for the ERECTION of PERMANENT BUILDINGS upon the Lower Promenade at Roker, to be used as Cafés, Restaurants, &c.
A premium are offered, but the successful competitor is to be entrusted with the carrying out of the work, subject to the conditions. A Copy of which, with Lithograph Plan of the site, may be had on application to the Borough Surveyor, East Cross Street, Sunderland.
Designs to be delivered on or before second day of August next.
By order, FRAS. M. BOWEY, Town Clerk.
June 20, 1890.

ALFRED BROOKES.—Pursuant to an Order of the Chancery Division of the High Court of Justice made in an action "*Re* Thomas Godwin's Estate, Purser *v.* Brookes (1889 G 2262)," ALFRED BROOKES, formerly of Bromsberrow, in the County of Gloucester, son of James and Ann Brookes, of the same place, is by his Solicitor, on or before the 14th day of July, 1890, to come into the Chambers of Mr. Justice Stirling, at the Royal Courts of Justice, London, and PROVE his CLAIM to a SHARE of the RESIDUARY ESTATE of the said THOMAS GODWIN, or in default thereof, he will be peremptorily excluded from the benefit of the said Order.
The said Alfred Brookes was a Gardener in the employ of Mr. Brooke Hunt, of Boughton Hall, near Gloucester, and subsequently employed at the Nurseries of Messrs. R. S. Williams & Co., Florists, Upper Holloway, in the County of Middlesex, and is stated to have afterwards entered the employ of the Rosherville Public Gardens Company, Rosherville, in the County of Kent. TUESDAY, the 22nd day of July, 1890, at 12 o'Clock, noon, at the said Chambers, is appointed for hearing and adjudicating upon the said claim. Dated the 16th day of June, 1890.
H. F. CHURCH, Chief Clerk.
SMILES, BINYON AND OLLARD, 15, Bedford Row, London, W.C.

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Receiving Office at Holborn Viaduct Station.

STEPHANOTIS FLORIBUNDA, the true Elvaston variety. I have plants now in 4 inch pots in bloom. For truthful illustration, see Catalogue. Strong growing plants, 1s. 6d. and 2s. 6d.
PRIMULA FLORIBUNDA.—This is a gem; pure yellow. 2s. 6d. per doz.
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HYBRID ROCHEAS.—Charming new winter-flowering plants. The five splendid varieties described in this paper February 22 last. The set, 15s. Most valuable addition to the list of winter-flowering plants.
HYDRANGEA STELLATA FIMBRIATA.—Pure white, fimbriated edges, crimson spot in centre. 1s. 6d. each.
CROTONS.—Twelve good sorts, 9s. and 12s.
SARRACENIAS.—All the best varieties, at low prices. See Catalogue Essay on their successful cultivation.
ADIANTUM CAPILLUS-VENERIS LA GRANDE.—A splendid stock of this fine new Fern. Very fine plants, 1s. each.
NEW FUCHSIA MOLESWORTH.—The largest Fuchsia in existence. 5s. per doz.
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Send for my NEW ILLUSTRATED CATALOGUE.
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WANTED TO DISPOSE OF, from Ten to Twenty Thousand ASPIDRIA LURIDA, and VARIEGATED, from 5 guineas to 15 guineas nett per 100.
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LILY OF THE VALLEY CROWNS

strong, and very capable to blow; of the best kind for forcing (true Berlin, being grown in sandy soil), at

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Free Railway Station, Neusalz. Wholesale Price on application. Freight to London, 1s. 3d. per 1000. Term of payment, March 1, 1891, by reference of a banking house. The ground I have planted with Lilies measures more than 9 acres.

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SILESIA, GERMANY.—*Established* 1870.

LOVELY CLIMBERS FOR GREENHOUSES.

Every Amateur should possess one at least of the following list:—

Passiflora violacea. A beautiful Passion flower, lovely violet maroon, lilac, and purple. A gem for all lovers of Passion flowers. 1s. 6d. & 2s. 6d. each.

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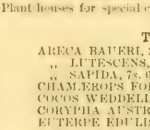
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Plant houses for special cultivation of SEEDLING PALMS in store pots.

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PLANT FUMIGATOR, combining Meat or Fish Smoker, Disinfector, or Domestic Safe, 4 feet 6 in. high, 27s. 6d.; 6 feet, 35s.
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Quality, THE BEST in the Market. (All sacks included.)
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is cheaper, more effectual, perfectly safe, and unquestionably the coming Fumigating Insecticide. Numerous testimonials to this effect.
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100 cubic ft.,	500 cubic ft.,	1000 cubic ft.,	2000 cubic ft.,
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GENUINE GARDEN REQUISITES, as supplied to the Royal Gardens.
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A combination of Hydrocarbon Oils, made soluble in Water, for destroying ALL INSECTS & PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage.

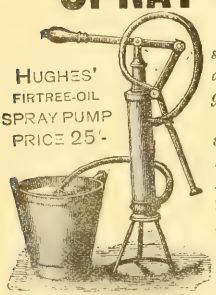
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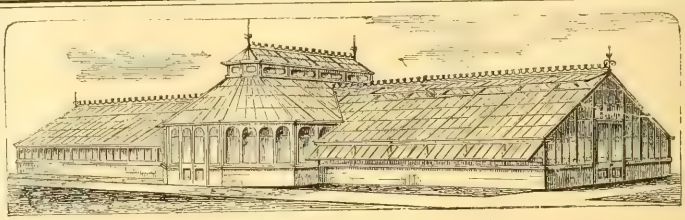
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HIGHLY CONCENTRATED—MIXES INSTANTLY WITH WATER. For use in the **Conservatory, Greenhouse,** and **Vinery; Flower** and **Kitchen Garden,** the **Hop-yard,** and the **Orchard.**

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4 Gallons, sufficient for 100 gallons of water...			£0	6	6
8	,,	200	,,	0	12	0
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5 *per Cent. discount for cash with order on amounts of* £1 *and upwards. To Ireland, Scotland, and Channel Islands, carriage only paid on 12 gallons and over.*

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(Linden), Brussels, Belgium.

NEW ORCHID,

ANNOUNCED FOR THE FIRST TIME,

CATTLEYA WAROCQUEANA

(LINDEN).

See R. A. ROLFE'S description in *Gardeners' Chronicle*, June 14, page 735.

The discoverer of this Cattleya, M. BUNGEROTH, of Catasetum fame, one of the collectors of the Company, writes about this grand introduction :

"This is a most beautiful Cattleya. Never during my travels in Columbia or Venezuela have I seen Cattleya Mendelii, Triange, or Mossiæ, to be compared with it. The flowers are of enormous size and exquisitely rich colour. I have seen a number of plants in bloom; one seemed still more beautiful than others. I am assured that there are also some pure white forms among them. This species is very free flowering, bearing from five to six flowers on a scape."

The plants arrived in Europe on April 18 last, in splendid condition, with healthy dormant eyes, and well leaved. On arrival, several plants were found in bud; on the opening of the flowers, they fully verified the statement above.

This Cattleya is of very robust habit, with large thick leathery leaves. In culture this species seems especially easy; since their arrival, the plants have without special care or treatment produced an abundance of roots.

We recommend Orchid lovers the acquisition of this grand Cattleya; the plants offered are all unflowered. We are certain that some magnificent varieties will turn up among them.

We have spent a large sum of money in the researches of this magnificent Cattleya, and offer the same at the lowest possible terms.

We offer good semi-established plants in excellent condition, rooting freely, at the following low terms, cash :—

One good plant	£1 1 0
Three good plants	2 17 6
Six good plants	5 5 0
Twelve good plants	8 17 6
One strong plant, 6 to 8 bulbs	1 12 6
Three strong plants, 6 to 8 bulbs	4 12 6
Six strong plants, 6 to 8 bulbs	8 8 0
Twelve strong plants, 6 to 8 bulbs	14 14 0
One extra large specimen	1 4 0
Three extra large specimens	11 11 0
Six extra large specimens	20 12 6

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HIGH-CLASS FLOWER SEEDS

For Present Sowing,

POST-FREE AT PRICES QUOTED.

	Per packet—s. d.	s. d.
Auricula, choicest Alpine, mixed		1 0
Calceolaria, tigred and spotted, from a grand strain	1 6 and	2 6
Carnation and **Picotee**, very choice, from finest named flowers ...	1 6 and	2 6
Cineraria, hybrida, new, dwarf, large-flowered	1 6 and	2 6
,, ,, very choice mixed, the older type, splendid strain	1 6 and	2 6
Hollyhock, Chater's Prize Double, very fine mixed	1 6 and	2 6
Pansy, Daniel's Prize Blotched magnificent varieties	1 6 and	2 6
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Polyanthus, Gold-laced, very fine ...		1 6
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INDISPENSABLE GREENHOUSE PLANTS.

PRIMULA SINENSIS and CINERARIA, superb strains, seedlings from stores 1s. 6d. per dozen, 10s. per 100; BOUVARDIAS, the finest and freest flowering kinds, small plants for growing on to bloom this winter, 4s. per dozen; single BEGONIAS coming into bloom or bud, lovely flowers, 1s. 6d. each, 10s. per dozen; FERNS in variety, distinct and beautiful sorts in small pots, twelve in twelve distinct species, 4s. TEA ROSES in the most lovely kinds, 1s. 6d. and 2s. 6d. each.

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Establishment for New and Rare Plants,

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EXPIRATION of LEASE.—A Large Quantity of ORNAMENTAL TREES and SHRUBS to be SOLD CHEAP, owing to the above cause.

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CREEPERS for Walls. N.B.—By planting what is suitable, an ugly object may easily be made beautiful. LIST and advice free.

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DOUBLE, PURE WHITE.
Splendid, well rooted young stuff, from single pots.
6s. per dozen, 6 for 3s. 6d., or 45s. per 100.
Carriage free for cash with order.

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THE

Gardeners' Chronicle.

SATURDAY, JUNE 28, 1890.

DROPMORE.

HOW beautiful this year have been the Azaleas and the Rhododendrons which Philip Frost planted years ago, and prattled so prosily about long after. A cursory look through this fine demesne reveals only, as it were, the superficial beauties of the shrubs and trees. One must explore the grass rides and gravel walks in all directions to see all, if it be possible, where there is so much. Although a vast pleasure garden in one sense, yet Dropmore is far more truly a wood or common, with all the natural charms remaining, yet beautified by the art of the gardener, so that it presents at any time, but especially in the Rhododendron season, a sort of terrestrial paradise, so free it is from all external cares or worries; so natural, and yet so abundant, are its beauties. There the Rhododendrons and Azaleas do not seem as if they ever were planted. It would rather look as if seeds or plants had dropped naturally, and had been left to grow without reference to man or to art whatever. In places, from the foreground the big masses of bloom of numerous lovely shades ascend in receding heights and volumes until a huge and lofty bank is formed, of such exceeding loveliness as to defy word picturing. If there are few of those intensely glaring reds and crimsons in the Rhododendrons, found in the named hybrids, there is a wealth of soft shades. In one spot, planted without knowledge, several shades of purplish-lilac ascended from pale to deeper, with the utmost regularity, and yet when planted, probably, the shrubs had never bloomed; but with Azaleas and Rhododendrons, fine plants, presenting wonderful masses of bloom, fall in as objects of special interest at the end of vistas, or present special beauties not otherwise noticeable. It seems as if the planter had thought of the ultimate effect, and yet had put in his shrubs

promiscuously without consideration, only planting where space was available. The Azaleas certainly excel the Rhododendrons in the wondrous profusion of shades of colour found in them, which have such softness, and yet warmth. Bushes here and there literally clothed in golden-brown, or in pink, or peach, or apricot, or some of those lovely tints which would make the modern costumier writhe with envy, meet the eye on every hand. Some of the plants have in their semi-uncultivated condition become almost stunted, but they bloom all the same in wonderful profusion. They like the natural soil of Dropmore, which enables all the tribe to grow like weeds, just as it enables all the Coniferæ family to thrive, too, so that the specimens there have secured world-wide reputation. How far old Frost may have planted of his own initiative, or how far he mechanically obeyed the instructions of his employers, we may never know fully. The old man in his later years had become so garrulous, that his praise was too often more of himself than of others; all the same, whether planted at his own option, or by the orders of others, Dropmore must for many years remain a lovely monument of the old gardener's untiring energy and zeal, for everywhere there are reminders of the fact in tree and shrub that Frost planted here.

It is well that the management of these gardens has fallen into the hands of Mr. Herrin, who so thoroughly enters into the spirit which thus animated his old predecessor. There is no anxiety to make improvements which are not in accord with the general surroundings, but Mr. Herrin is adding here and there more bits of colour, opening out the handsomer groups and splendid trees as they develop; planting as opportunity offers, to maintain the reputation of Dropmore for beautiful trees to a remote date; and generally doing the very best that can be done in gardening with comparatively ancient surroundings. Such is the gardening policy at Dropmore to-day, and it is the best for the place. If the snowstorm of a few winters back robbed the grand old Douglas Fir of its former fine proportions, it is still a remarkable tree; whilst the Giant Araucaria, its upper part full of small cones, is as grand a specimen as ever.

In some parts of the ground there are specimen Conifers, which, if not for dimensions, at least for elegance and beauty, especially as seen with the spring growth upon them, that could hardly be excelled; what a remarkable group would the various examples of Tsuga Albertii, Abies grandis, Cedrus atlantica, Picea Smithiana, Cupressus Nordmanniana, and Abies pinsapo, make, were they all brought together. As it is, however, each of these, with many others, come as revelations of beauty and form in diverse places, and with unexpected pleasure.

Frost's fine old Fuchsias, of which he was so proud, are still carefully preserved and planted out in a spot amidst lofty, overhanging trees, held almost sacred to these flowers. They have been severely headed back with good results; indeed, it is almost remarkable to find how the old gnarled Fuchsia stems, many years old, have responded to the severe handling, and have broken with greater strength than ever. Here, secure from strong winds with cool, shady surroundings, Fuchsias thrive luxuriantly, and long may they continue to form a pleasing feature in what still remains one of the most beautiful, and yet most natural of gardens.

There are immense quantities of the lovely blue Iris Florentina at Dropmore, and these were the other day singularly effective. Probably in most other gardens they would have been cleared out to make room for other things, but here old friends are carefully nurtured. Somehow the abundance of hardy garden plants here always seems to give something in bloom, whilst tender bedding or foliage plants are not overlooked for the production of brilliant displays of colour during the season that Dropmore is visited by the owning family. A very odd method of dealing with some late ripening bulbs was seen in the case of beds of Jonquils. In order that the soil might be prepared for summer bedding-plants, the bulbs had after blooming been lifted, the weaker ones pricked out; then the clusters of the finest roots were kept in place by tying the "grass" into knots, and being replanted would be found strongly rooted, and making rapid growth, when the tender bedders are pulled off in the autumn. There is in one of the more recently-erected span-houses, a Tomato, the product of a cross between Ham Green Favourite and Perfection, which bids fair to be one of the most prolific seen. The flower racemes seem to excel the leafage in profusion. It is a wonderful setter, and the fruits are as large as those of Perfection. Near by, that beautiful green-fleshed Melon, La Favourite, raised by Mr. Herrin, at Chalfont Park, is fruiting admirably. It is one of the best flavoured of the green section. *A. D.*

IMPNEY HALL.

Impney is the residence of John Corbett, Esq., M.P., for Droitwich. In the gardens very extensive work, of much horticultural interest are being carried out, and a few notes which I took on the occasion of a recent visit made to the place, may afford some useful hints to readers of the *Gardeners' Chronicle*.

The mansion, in the French style, is situated on an eminence overlooking the River Salwarpe, which, hereabouts, has been widened out so as to form large lakes and waterfalls, the work being done in the most natural manner. A second terrace, with wings on the east and west sides, and of an area of 7 acres, extends right down to a lake. This is an addition to the existing terrace, and is approached from them by two fine flights of steps, which are thrown well forward so as to break up the too severe lines of the balustrade; the plans were furnished by Mr. W. Goldring. The shape of the new extension is that of an easy semicircle, divided into a central panel and two side panels—the central panel having an elaborate fountain and basin, towards which large beds converge, formal partly in outline and planted with hardy, flowering, and other shrubs of an ornamental character, viz., white and yellow variegated Hollies, Berberis Darwinii, Osmanthus ilicifolius, Skimmia japonica (oblata), Veronica Traversii, Elæagnus aureo marginata, Cupressus Lawsoniana lutea, Retinosporas, Vincas, &c., with a few standard specimens of good varieties of Rhododendrons, Cedrus atlantica, and C. deodara, Golden Queen and Silver Hollies, Golden Yews, Cupressus Lawsoniana erecta viridis, &c. The terraces at the ends, or wings as I prefer to call them, are planted with many hundreds of the choicest Rhododendrons, and specimens of the same, 7 feet in height, are dotted about. The whole of this part of the design is surrounded by posts 3 feet high, standing at 9 feet apart, with a chain passing from one to the other, which is covered with Ivy, Clematis, &c., to form festoons. Outside these terraces, and sloping right down to the water's edge, the planting is in a free style, and serpentine walks lead to points where some pleasing object or an enjoyable vista are visible. The Malvern Hills form the sky line on the spectator's left, and the Abberly and Shropshire hills on the right hand. Some effective shrub beds in this part consist of Prunus Pissardi planted 3 to 4 feet apart. These beds are edged with three rows of Acer negundo variegata. Specimens of standard Rhododendrons, Cedars, Piceas, Hollies, and Yews being introduced with good effect. The lake banks are made irregular with masses of rock, and are planted with Alpines and Bog plants, and form a very pleasing and artistic whole, and exhibit the fine taste possessed by Mr. Corbett, and the skill and knowledge of his gardener, Mr. Parker. In a dell near the mansion and surrounded by trees, a fernery, an octagon in shape, 120 feet by 60 feet, and 30 feet high, was being erected. It will be filled chiefly with plants of Dicksonia, Alsophila, and Cyathea, in very large specimens. Rockwork on which smaller-growing species will eventually be planted, and dripping caves for Trichomanes and Todeas are also being constructed, and all is to be heated by means of hot water.

In the forcing houses, excellent crops of Grapes, Peaches, Nectarines, Pines, Melons, and Figs were observed. Flowering plants are well, but not extensively grown under glass; a few Orchids are amongst them. Chrysanthemums are grown to the number of 600. The flower garden receives great attention, carpet bedding especially. Fruit trees on walls, as pyramids, Roses, herbaceous plants, Strawberries, and vegetables, all show skilful management. These beautiful grounds with their undulating surface, the lovely surrounding landscape, flourishing crops, and the neat appearance of everything, form a most pleasing picture of a wealthy gentleman's residence. *W. Crump, Madresfield Court.*

THE BULB GARDEN.

GLADIOLUS COLVILLEI ALBA.

The soil best suited for this useful and pretty species is a friable loam, well decayed, with the addition of a slight sprinkling of pulverised manure or some kind of mild fertiliser. The size of the pots employed is of some importance. Some growers recommend small pots, but I have always had the best results from pots 9 to 10 inches in diameter; the pots of this size, when planted rather thickly with the Gladiolus corms, present a much better effect than smaller pots, the height and width of the mass bearing a better proportion to each other.

After flowering, the plant should be well supplied with water until such time as the leaves ripen, when water should be entirely withheld, and the pots laid on their sides in a sunny position out-of-doors; there they should remain until the end of the month of August, when repotting is usually performed, and at that time no fresh roots should have been made.

After potting, if the fresh soil was sufficiently moist, it should not be watered for some time afterwards. A good plan then is to plunge the pots in coal-ashes, there to remain until the autumn is well advanced, and the young growth begins to peep through the soil, when, if there is much plunging material over them, it should be removed. Frequently it happens that the winter is well advanced before growth appears, but all that is actually necessary is protection from frost after growth is made; and much forcing is not desirable, as it robs the flowers of substance, but plenty of sunshine. Plants may be raised from seed, which, if well managed, will flower the second year, but they do not always come true. *F. R.*

LESCHENAULTIAS.

This beautiful old plant was shown in quantity at the recent show of the Royal Horticultural Society at the Temple gardens. The plants which were shown by Messrs. Balchin, Hassock's Gate, were small, but their flowers, of a lovely blue colour, were very universally admired, and at times quite a crowd gathering around the group. It is a plant worthy of extended cultivation, and at one time it was quite common to see some of it in most collections of greenhouse plants; but of late years it has been neglected. It is not a plant that is easily grown, and on that account it is the more likely to get neglected by gardeners; but amongst growers of plants the difficulty should disappear. Many other plants were at one time fought shy of, which are now grown in quantity. I believe its greatest drawback is its liability to damp-off and contract mildew, but Messrs. Balchin seem to find little difficulty in this respect; and they would doubtless have experienced some greater difficulty had the plants been large. I have observed that when the plants are grown near the light in a well-ventilated house, there is less danger of damp mouldy tops than

in a close, ill-ventilated house. There is no more telling plant in a collection of greenhouse plants than this old favourite. It is amenable to the same kind of treatment as that afforded soft-wooded Heaths, employing good fibrous peat, coarse silver-sand, and ample drainage in the pots, and, after blooming, a light sunny position under glass to thoroughly ripen the wood. When repotting is performed, great care is necessary with the waterpot, which points to the evils that will follow overpotting, the plants soon dying off if too much water be used. I do not advise the removal outside of these plants till the new growth is complete.

I believe that many plants are lost by their being placed in unsuitable places before growth is finished, thus becoming a prey to mildew. If possible, only rain-water should be used. Repotting should be done as soon as flowering is past, and the plants kept rather close for a time, a sharp watch being kept for mildew. Cuttings of the new growth when about half matured strike under a bell in a warm greenhouse, using very sandy peat, and placing them round the sides of a 60-pot. L. biloba major and L. formosa are the best two kinds for greenhouse decoration. *G. Wythes, Syon House.*

FOREIGN CORRESPONDENCE.

MEXICAN AND COLUMBIAN ORCHIDS.

In the number of your esteemed journal for March 22, which has just come to hand, I see a note of M. L. Linden about Mexican and Columbian Orchids, to which allow me to make a few observations, which may interest some of your readers.

The reason why Mexican Orchids are of easier introduction than Columbian, I think is partly a much quicker transit in Mexico by railroads, &c., and also that according to collector friends, a great many of the Mexican Orchids grow more exposed to the sun, and therefore are more hardy and better capable of resisting hardships in transit. On the other hand, the Columbian Orchids are a much longer time on the way to the coast, eight to ten days on mule back, and seven to ten days by river steamer. During the first part of the journey, they are exposed to all the inclemencies of the weather, rain or scorching heat, according to the season. At the same time most of these Orchids grow in situations more or less shaded, and in a humid atmosphere, as Odontoglossum Pescatorei, O. triumphans, O. tripudians, O. crispum, O. luteo-purpureum, O. vexillarium, and others, much more so Odontoglossum blandum. The exemptions are Cattleyas, Odontoglossums, Phalænopsis, Hastilabiums, &c. In addition, I may mention that I have never succeeded in the culture of Mexican Orchids here, viz., with Lælia albida, anceps, autumnalis, Odontoglossums citrosmum, Insleayi, Rossii, etc.; nor with Cattleya Trianæ and C. Schroderii in the stove, nor with the Odontoglossums crispum and luteo-purpureum, Pilumna nobilis out in the open air. The latter three species grow with me luxuriantly under very little shading, close to groups of Roses, Fuchsias, Ericas, and such like. *G. Kalbreyer, La Flora Bogota, May* 18, 1890.

VEGETABLES.

LETTUCES ON NORTH BORDER.

If a border on the north side of a wall or fence is available, good plantings of both Cos and Cabbage Lettuces may be made at this season, the heads being crisper and solider than from sunny quarters of the garden. In July and August the temperature of the soil of such border, and the amount of moisture contained in it, are more uniform than elsewhere, and the plants grow without check, and attain a large size, with little tendency to run to seed, so frequently the case with plants grown in the full sun. *H. W. W.*

TOMATO CULTURE.

The chief points in successful Tomato culture, either in or out-of-doors, are keeping the shoots and leaves well thinned out, and shortened back, and the leading ones securely fastened to the wall, or to sticks. During hot weather, copious supplies of water should be afforded the roots, especially in narrow, confined borders, and a mulching of short dung should be laid on the soil over roots, to keep them uniformly moist during hot weather, and increase the weight of the crop of fruit. *H. W. Ward.*

EARLY NANTES HORN CARROT.

Young Carrots being very much in demand by the cook, a good sowing should be made forthwith on a warm, if not a southerly border; and if the soil be light, it would be rather an advantage. The seed drills should be about 1 inch deep and 1 foot apart, and the soil should be returned to the drills with the feet after sowing the seeds, after treading the ground all over and raking it smooth. In order to check injury to the roots by wireworms or grubs, a little fresh soot should be strewn over the ground before the drills are drawn. *H. W. W.*

ROSETTE COLEWORT.

I like to sow a bed of the Rosette Colewort at the present time to raise plants for late autumn and early winter supply. When the plants are large enough, set them out in rows at 15 inches apart each way. *H. W. W.*

ROCK PLANTS ON WALLS.

The late M. Edmond Boissier, in his excellent botanic garden of Valleyres, near Rances, in the Canton de Vaud, conceived a method of cultivating rock plants which has always taken my fancy, and which I have endeavoured to reproduce elsewhere. Imagine a large supporting wall bearing a terrace, the sides of which are completely covered by exotic plants, and which, during the greater part of the year, afford a veritable carpet of variously coloured flowers. Imagine buttresses of the walls open to the north and the west, protecting all the treasures of the east, of the Spanish Sierras, of the Pyrenees, and of the Caucasus. Then conceive the constructions formed on this by loose blocks of tufa, forming, as it were, an elongated pyramid. All this is specially intended for the rock-loving flora—the most interesting and beautiful of all. These plants were among those most loved by the great botanist, and one cannot but confess, justly so.

My friend, Mr. G. F. Wilson, one day told me that he experienced great difficulties in the cultivation of rock plants at Oakwood, because of the absence of stones in that part of Surrey. This is much to be regretted, because of the floral beauty of which people who are so situated are deprived; but can they not introduce rockeries of artificial stone, not cemented together, but placed one over the other?

Such a structure offers the great advantage of allowing the development of a large number of plants on the same surface at but little cost, and, what is a great consideration, especially in England, where the climate is too damp for rock plants, the avoidance of rot, and the dangers of too much moisture. One cannot form an idea of the number of pretty and interesting species which prosper under these conditions, and in an absolutely vertical position. These walls of M. Boissier contain a superb collection of plants, and I must say that some are even as well acclimatised at Valleyres as they are on the walls and rocks of the neighbourhood.

The natural rocks are many of them porous, and act the part of a sponge, becoming saturated with moisture during the period of heavy rains, and giving it up again to the air, as that becomes dry; limestone rock is more porous than granite, and it is for that reason preferable in many cases (excepting, of course, for purely granite-loving species). Rock plants are, much more than others, dependent on cool conditions and moisture by which they are surrounded. The roots of this class of plants are always more developed than those of other terrestrial plants, and are more deeply buried among the rocks, and the deepest fissures are constantly moist along their sides. This water is communicated to the roots, and it also escapes as vapour from the outer face of the chink, where the leaves are placed. That is why we find so large a number of Ferns among rock plants, although those plants are known to seek above all things a cool and moist air; but this moisture must not be stagnant, and it must also be balanced—constant, but not too much. That is why the wall and the vertical rock are such advantageous situations for a large number of alpine plants.

In the open air, and in the hottest countries, rock plants and even some others may be grown on walls. One of my friends, to whom I had shown M. Boissier's system, has established at Clarens, on a wall exposed to the full sun, alpine plants of great beauty. Linaria alpina, Antirrhinum azarina, Campanula Vanneri flower freely in this position in the full sun, and alternate in a manner more peculiar than pretty, with the flowers, leaves, and fruits of Peaches which clothe the wall. On a large wall of tufa, over 200 metres in length, Mr. Isaac Demole, of Veytaux, on the borders of Lake Geneva, has introduced the most charming and the rarest of alpine and rock plants. There they flower and grow in an astonishing manner. The various Corydalis (lutea, ochroleuca, and rosea) mingle their flowers with those of the Silenes, Dianthus, Opuntias, Helianthemums, Iberis, Arabis, Sedums, Sempervivums, Saxifrages, Campanulas, &c., and each multiplies and grows on in so vigorous a fashion that the wall will soon be covered by them.

With M. Boissier the wall has long ago disappeared beneath the verdure of the plants. In this vertical position, Saxifraga longifolia becomes enormous, and attains a size which it never reaches in Nature; Campanula Vanneri, C. Garganica, C. Portenschlagiana, and others besides grow grandly, and interlace their flowers with those of Mathiola Valesiaca, Phyteuma comosum, Silene Elizabethæ, the Tyrolese Primulas, Androsaces, and Saxifrages. These walls at Valleyres are among the most beautiful objects I have ever seen, and I feel that all who are able will follow the example of M. Boissier. Old walls, even if they have no particle of soil between their stones, are most suitable for plants, as the roots insert themselves into the smallest chinks, and find in the stones themselves, which they dissolve and disorganise, all the elements necessary for the development of the plant. The perpendicular position suits certain species which do not bear stagnant water or moisture around the tuft, and of which I shall speak another time. *H. Correvon, Director of the Alpine Garden, Geneva.*

EPHEDRA ALTISSIMA.

Generally speaking, the species of Ephedra are relegated to the botanist pure and, less or more, simple. To him they are of very great interest, as a link between the Conifers, and through them with the Lycopods. Their near alliance to the extraordinary Welwitschia also gives them additional interest. To the lover of rock plants they present themselves as curiosities, not unlike the Horse-tails (Equisetum), but it is rare, indeed, in this country that they present themselves in any more attractive guise. Thanks, however, to Mr. Hanbury, of La Mortola, we are enabled to give an illustration of the plant in fruit. The brilliant scarlet pulpy berries (we hope the botanist will forgive the popular term) are singularly attractive, so much so, that we may hope, now that attention is called to them, that we may succeed in this country, at least under glass, in producing them; certainly we have rarely experienced a greater "sensation" than that which occurred when Mr. Hanbury's box was opened. The genus comprises about forty species, which lately have been carefully monographed by Dr. Stapf.

NEW OR NOTEWORTHY PLANTS.

DENDROCALAMUS SIKKIMENSIS.*

FOR the opportunity of figuring this fine Bamboo (fig. 130, p. 793) we are indebted to the Earl of Annesley, by whom it was sent for naming. It was, we believe, collected by his lordship in Sikkim, where, according to Mr. Gamble, it is known to the Lepchas under the name of Pugriang, and where it grows at elevations of from 4000 to 6000 feet, and is the tallest Bamboo of that country, which is tantamount to saying that it is a giant. Mr. C. B. Clarke, F.R.S., to whom we are indebted for the identification, and who knew the plant in Sikkim, adds that it may possibly be hardy in Ireland or the South-west of England. The general appearance of the foliage is sufficiently shown in our illustration, which is reduced one-fourth. The flower-heads are in globular masses, 1½ inch across.

Mr. T. Ryan, the gardener at the Earl of Annesley's place, Castlewellan, says, in reference to these plants:—"I have been much interested in Mr. Burbidge's note on Bamboos in the *Gardeners Chronicle* of May 24, p. 641. Here we have several varieties planted about in the grounds which have grown very well, and have attained a good size; but where the plants are exposed to the east wind, which we get occasionally for weeks at a time, they get badly damaged, and the precaution should always be taken to have them planted in sheltered situations. Bamboos, Dracæna australis, Pampas-grass, Phormium tenax, and its varieties create an agreeable change in ornamental grounds, when they are planted among masses of formal Conifers and shrubs of any kind." The large-leaved variety, which we figure under the above name, is, we are told by Mr. Ryan, grown in an intermediate temperature, and was sent from India a couple of years ago by Lord Annesley, when travelling in that country. The original plant is about 12 feet in height; the leaves are 18 inches long by nearly 4 inches wide.

CYPRIPEDIUM AYLINGI×, *Castle.*

This very beautiful hybrid, which was awarded a First-class Certificate by the Royal Horticultural Society on June 10 last, and a Botanical Certificate by the Royal Botanic Society on the following day, is figured and described in the *Journal of Horticulture*, June 12, p. 480, fig. 74, by Mr. L. Castle, and at p. 797, fig. 131, of the present issue. It was raised by Mr. Ayling, gardener to A. J. Hollington, Esq., Forty Hill, Enfield, from Cypripedium niveum, fertilised with the pollen of C. ciliolare, the cross having been effected about six years ago. A little doubt has been expressed with respect to the pollen parent, some having thought it must have been C. lævigatum, though I do not share that opinion. Mr. Ayling having kindly brought the plant down to Kew, I have been able to compare it with the two parents, and do not see any very obvious discrepancies, though the characters of the mother plant certainly largely preponderate. But Mr. Ayling tells me that, at the time he made the cross, he had only three species, the two in question and C. Lawrenceanum, and that he is certain no mistake has been made. And now, most fortunately, a seedling from C. niveum and C. lævigatum has actually flowered, and which is quite distinct from C. Aylingi, as will be seen from the following note. The question of parentage may, therefore, be considered settled. The figure above-named is good, except that the lobe of the lip is too short. It is certainly the best hybrids that has yet been raised. The flower is pure white, and the segments have the same ground-colour, with numerous small purple dots, which are arranged in transverse lines. There are also a few purple dots on the lip and on the side-lobes. The lip is little convex and hairy, with green veins. The leaves are much like those of C. niveum, 2½ to 3 inches long, by 1 inch broad, bright green, with numerous nerves and transverse veinlets of dark green, which are somewhat obscured by a dense layer of water-bearing cells. *R. A. Rolfe.*

CYPRIPEDIUM VIPANI×, *n. hyb.*

This is another most lovely novelty, worthy to stand side by side with the preceding one, though quite distinct from it. It was raised in the collection of Captain Vipan, Stibbington Hall, Wansford, from C. philippinense (better known in gardens under its later name of C. lævigatum), fertilised with the pollen of C. niveum. A flower has been kindly sent through Messrs. F. Sander and Co., of St. Albans, and we may hope for a leaf by-and-bye when the plant gets stronger. The lip is pure white, except a few minute purple dots on the side-lobes, and a faint trace of yellow on the nerves. The sepals and petals are also white, with a trace of yellow-green at extreme base, but the upper sepal has eleven, and the petals each nine longitudinal stripes of bright purple. The lower sepals are but faintly striped. As to shape: the upper sepal is exactly ovate, subobtuse, 1⅜ inch long, by 1⅛ inch broad; the petals linear-oblong, a little narrower upwards, and subobtuse, 2¼ inches long, by ⅝ inch broad; the lip laterally compressed, as in the mother-plant, otherwise strongly stamped with the character of C. niveum; the staminode broadly obcordate, convex, hairy, especially at the sides, and yellowish-white, with light green reticulated nerves. It is remarkably like C. × Aylingi in colour, except that the purple is in clear stripes, not rows of dots, a character clearly derived from the mother-plant, as is also the markedly compressed lip. It is a some-

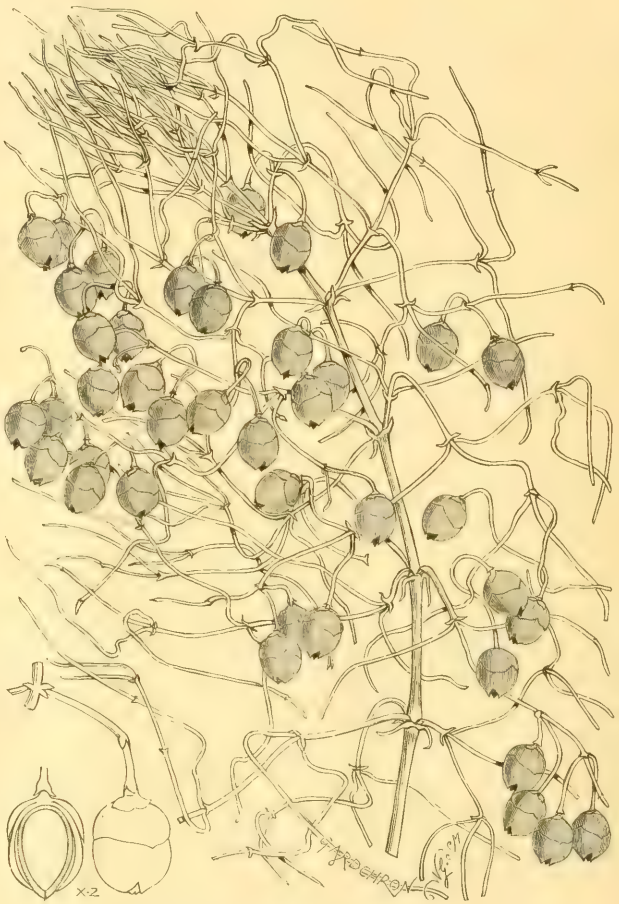


FIG. 129.—EPHEDRA ALTISSIMA, BERRIES SCARLET-CRIMSON (SEE P. 791.)

what singular fact that, in all the fine hybrids derived from C. niveum, namely C. × Tautzianum, C. × microcheilum, C. × Aprodite, C. × Aylingi, and the present one, the characters of C. niveum largely preponderate. All are very charming little plants. *R. A. Rolfe.*

SPANISH ONIONS.—The exportation of Onions from Spain to the Spanish colonies of Havanna, Porto Rica, and Manilla continues to increase. In 1888, 2390 tons, valued at £7170; and in 1889, 3040 tons, valued at £9120, were sent from Corunna to the above ports.

* MSS. Gamble in Hook. *Ic. Plant.*

GROWTH OF LEGUMINOUS CROPS.

The most recent issue from Rothamsted is a pamphlet on the results of experiments on the growth of leguminous crops for many years in succession on the same land, being (with additions) a lecture delivered in November last at the Royal Agricultural College, Cirencester, by Dr. J. H. Gilbert, F.R.S., Sipthorpian Professor of Rural Economy in the University of Oxford, and Honorary Professor of the College. We may confidently say there is no agricultural treatise bearing upon this subject in which so much valuable and practical matter has been condensed in such very small space, and we need scarcely add that the most experienced will find much to learn by the perusal of the sixty pages of which the work consists. Our space will only allow of a very brief outline of the general considerations of this vast and important subject.

The author first calls attention to the difference in the amounts of nitrogen assimilated over a given area by different crops, when each is grown for many years in succession on the same land, without any nitrogenous manure, or when grown in alternation one with another, also without nitrogenous manure—that is to say, under conditions in which the soil is to a great extent exhausted of accumulations of nitrogen due to recent supplies by manure, and when, therefore, the plants have to rely largely on what may be called the natural resources of the soil, and on those of the atmosphere. The author next shows the effects of artificial supplies of nitrogen on the growth of the different descriptions of plant, on the amount of nitrogen they assimilate, and on the amount and character of their products. Lastly is adduced evidence of quite other kinds as to the sources of the nitrogen, more especially of the Leguminosæ; a question which has been the subject of experimental inquiry, and at times of active controversy, for about half a century; which has in recent years assumed a somewhat new aspect, but which cannot even yet be said to be conclusively settled.

Thus the various modes of explanation of the observed gains of nitrogen by plants are:—That combined nitrogen has been absorbed from the air, either by the soil or by the plant; that there has been fixation of free nitrogen within the soil, by the agency of porous and alkaline bodies; that there has been fixation by the plant itself; that there has been fixation within the soil (or by the plant), by the agency of electricity; and, finally, that there has been fixation under the influence of lower organisms, either within the soil itself, or in symbiotic growth with the higher plant.

The balance of the evidence recorded is undoubtedly much in favour of the last mentioned mode of explanation. The results of the Rothamsted experiments show conclusively that, by the addition to a poor sandy soil of a small quantity of the watery extract of a soil containing the appropriate organisms, there was greatly increased growth, and considerable gain of nitrogen; and there was, coincidently, a considerable development of the so-called leguminous nodules on the roots of the plants. The conclusion being, not that the leguminous plant had directly utilised free nitrogen, but that the gain was due to the fixation of nitrogen in the growth of the lower organisms in the root-nodules, the nitrogenous compounds so produced being taken up and utilised by the leguminous plant. It would seem, therefore, that in the growth of leguminous crops, such as Clover, Vetches, Peas, Beans, Lucerne, &c., at any rate some of the large amount of nitrogen which they contain, and of the large amount which they frequently leave as nitrogenous residue in the soil for future crops, may be due to atmospheric nitrogen so derived. It has yet to be ascertained, however, under what conditions a greater or less proportion of the total nitrogen of the crop will be



Fig. 130.—A Sikkim Bamboo (Dendrocalamus sikkimensis): reduced one-fourth. (see p. 792.)

derived, on the one hand, from nitrogen compounds within the soil, and on the other from such fixation. The probability seems to be that the proportion due to fixation will be less in the richer soils, and the greater in soils that are poor in combined nitrogen, and which are open and porous.

CONCLUSIONS.

Whether, therefore, we consider, says the author, the facts of agriculture generally, or confine attention to special cases under known experimental conditions, the evidence does not favour the supposition that a balance of fertility is maintained to the soil by the restoration of nitrogen from the large store of it existing in the free state in the atmosphere.

Further, our original soil-supplies of nitrogen are, as a rule, due to the accumulations by natural vegetation, with little or no removal, over long periods of time. Or, as in the case of many deep subsoils, the nitrogen is partly due to animal remains intermixed with the mineral deposits. The agricultural production of the present age is, in fact, so far as its nitrogen is concerned, largely dependent on previous accumulations; and, as in the case of the use of coal for fuel, there is not coincident and corresponding restoration, so in that of the use or waste of the combined nitrogen of the soil, there is not evidence of coincident and corresponding restoration of nitrogen from the free to the combined state.

In the case of agricultural production for sale, without restoration by manure from external sources, a very important condition of the maintenance of the amount of nitrogen in the surface soil, or of the diminished exhaustion of it, is the growth of plants of various range and character of roots, and especially of leguminous crops. Such plants, by their crop-residue, enrich the surface soil in nitrogen. It is, as a rule, those of the most powerful root development that take up the most nitrogen from somewhere; and this fact points to a subsoil source. But, independently of this, which obviously may be held to be only evidence of the necessity of obtaining water and mineral matters from below in amount commensurate with the capacity of acquiring nitrogen, direct experimental evidence can leave no doubt that such plants do obtain, at any rate, much of their nitrogen from the subsoil.

The question arises, Whether or not the whole of the nitrogen of our crops comes from combined nitrogen in the soil and subsoil, in manure, and in rain, &c., or whether part of it is in some way derived from the free nitrogen of the atmosphere? Cumulative evidence points to the conclusion that, in the case of our gramineous, our cruciferous, our chenopodiaceous, and our solaneous crops, free nitrogen is not the source. Recently-acquired evidence indicates, however, that it may indirectly be the source of at any rate some of the nitrogen of Leguminosæ.

It would seem that the development of the organisms capable of bringing free nitrogen into combination, if not an essential coincident of the growth of some leguminous plants, is at any rate favoured by such growth. *J. J. Willis, Harpenden.*

INDIA.

MADRAS FOREST DEPARTMENT:—According to the report for the year 1888–1889, a copy of which has just reached us, most favourable results have been obtained with the introduction and culture of the Date Palm. It has been conclusively proved that the Eucalyptus cannot be grown in the plains except perhaps at an expenditure which is prohibitive. The Mahogany did well in Chingleput and North and South Arcot, and at the foot of Nilgiris, but in the Wynaad the results were disappointing, and the district forest-officer of Trichinopoly fears that the district is not suited to it. The experiments with giant Bamboos were most encouraging.

Coniferæ.—The Nilgiri planting experiments show conclusively that the best species for cultivation on the hills are—Pinus longifolia, Himalaya; P. maritima, S. Europe; P. insignis, California; Frenela rhomboidea, Australia; Cryptomeria japonica, Japan; Cupressus macrocarpa, California; C. torulosa, Himalaya.

The Conservator, Mr. Gamble, proposes also to try the Californian red-wood (Sequoia sempervirens) and the European Pinus laricio, as likely to succeed. Seed of Podocarpus elongatus, which were received in 1885 from Mr. Hutchins at the Cape, has also done fairly well; so, too, has the Assam Pinus kasya. The collector of Vizagapatam has tried to grow Cryptomeria on the Pálkonda hills, and there are about forty healthy plants. It is doubtful, however, if they can stand the hot weather.

Casuarina suberosa has been very successfully grown on the Nilgiris, and can be planted there as easily and cheaply as Casuarina equisetifolia in the vicinity of Madras or Bangalore. The Sikkim Bucklandia populnea is also a success in Nilgiris, and more seed must be procured, as it is a useful timber, as well as being a very beautiful tree. The Darjeeling Maples, Acer Campbellii, lævigatum, and Hookeri still grow, but cannot withstand the frost without protection. The same is the result with Grevillea robusta. Acrocarpus fraxinifolius has been found to grow wonderfully quick at Anantapur, and on Horsleykonda, in Cuddapah, which is an interesting thing.

Although the superior staff was undoubtedly inadequate for the charge of so large an extent of forests, yet the area under control was increased by over 800 square miles, and a larger proportion of it was put under special protection, while the out-turn of both timber and minor produce made a considerable advance, and the sales yielded a larger surplus revenue than has ever yet been obtained.

The financial results of the year's working are very satisfactory, the surplus revenue being nearly three lakhs of rupees.

CLIMATE OF MADRAS.

The hottest day in the year 1889–90, in the shade, was May 21, when the thermometer reached 108°.1; the coldest night was December 1, when it fell to 61°.9. The mean maximum temperature in the shade was 90°.7, and the mean minimum 74°.6. There was a rainfall of 43·39 inches, distributed over eighty-four days. The rainfall was deficient, and failed worst at the second half of the north-east monsoon. The deficiency was in a great measure made up, however, by the effect of two distant cyclones, about December 18 and 26, which together gave nearly 12 inches of rain. No cyclone visited Madras during the year.

PLANTS AND THEIR CULTURE.

THE COOL CONSERVATORY.—At this date the conservatory will require a thorough rearrangement, and many plants may be placed in it to advantage which could not bear the low temperature at other seasons. Such plants furnish useful specimens, which are better admired than when standing in the stoves. Many of the usual occupants of the house may be placed in the open, if the roots get some kind of protection from the sun, and the plants are well attended to with water. Many species of Palms and other fine-foliaged plants in the stove will have made their growth, and the hardier species may be placed for the next two months in the conservatory. Ferns may also be included among such plants, if shade can be afforded them. Before commencing, the creepers should be regulated, and any cleansing of plants or walls should be finished. If the creepers are infested with insects, the plants beneath them must be removed and cleaned with an insecticide.

The Lapageria is liable to thrips, and should be syringed with tobacco-water to which a little soft-soap has been added, and care taken to thoroughly wet all parts. Tacsonias are lovely climbers for the conservatory, but are so subject to scale that constant attention is required if they are to be kept clean. If at all dirty, no time should be lost in overhauling these plants, and in many cases removing a large portion of the foliage if it be in a bad state, so as to avoid infesting the fresh inmates. Coleus are good decorative plants, and if propagated as advised some three months ago, will now have made good growth. They should be grown of different sizes, and get a very light position. Successions should be grown. Franco racemosa is also a useful plant, the long graceful spikes of pale pink and white being effective, and they last a long time; and if the plants get some stimulus, they throw up a second lot of bloom. Campanulas are telling plants, and last a long time in good condition, and may be grown with but little trouble, requiring no heat after raising the seedlings, but simply a cold frame through the winter, and when seed is sown early in the previous spring, they make nice specimens in 8-inch pots. The most useful are C. calycanthema, the Canterbury Bell, and C. pyramidalis, blue and white-flowered. If these are kept well watered and liberally manured, dead blooms being removed, they will endure for a long time.

Nicotiana affinis is a charming plant, and one that is readily raised from seed. Successions should be raised by making several sowings, the first being made in March. The different varieties of Begonias remain a long time in bloom; Marguerites are pretty when intermixed with dark foliage or flowers; and these if grown in two or three lots, pinching the later lots, are very valuable throughout the summer. Rhodanthes look well in small pots on the fronts of stages. Celosias last a long time if kept clean and free from red-spider, as also Schizanthus in variety when sown in the autumn, and during winter just kept out of the reach of frost. Many others might be mentioned were more space at my disposal. *G. Wythes, Syon House, Brentford. W.*

THE ORCHID HOUSES.

THE EAST INDIA-HOUSE.—Cleanliness should be now well attended to, for should thrips once get a footing they will be difficult to get rid of before winter arrives. The plants most likely to be affected are Phaius tuberculosus, Epidendrum dichromum and species of Phalænopsis. These plants should be examined daily, especially the under sides of the leaves of Phalænopsis. The presence of thrips is indicated by a honey-like liquid on the leaves, which are dotted over with black spots, and when these marks are observed, sponging should be at once done with soft-soap water.

Cypripedium Morganianum now in flower, undoubtedly one of the finest of the genus, is also the freest grower. I have been asked several times if this is not a shy flowerer; this is not my experience of the plant.

Angræcum Scottianum is a beautiful subject, well worth the attention of the cultivator. Grown in the East India-house, it does well whether placed on bare rafts or in baskets with potsherds and sphagnum moss, doing equally well in either way. Vanda Denisoniana, a plant now coming in flower, is distinct in colour from any other Vanda, and grows very freely in this house, but it should be afforded a long season of rest, keeping it comparatively dry at the root. The resting season is from November to April. Odontoglossum Londesboroughianum is now growing rapidly; and I would warn growers of this plant to be careful not to allow water to settle in the centre of the young growths, this being in most cases fatal to them.

The earliest flowering plants of Dendrobiums such as D. heterocarpum, nobile, and Wardianum, should now be finishing up their growths, and although I deprecate the early removal of these plants from the quarters in which they have made their growth, they should not be left there to break again into growth from the base of this year's pseudobulbs. In removing the plants to a drier and better ventilated house, the plants should not be allowed to become dry; and no better place can be found for the ripening of them than a vinery which has been early forced. Mormodes pardinum and its varieties are now growing fast, and if these plants were potted in fibrous peat and sphagnum moss they will be all the better for some weak diluted liquid manure once a week—guano or cow manure is perfectly safe to use.

Calanthes are now growing very fast, but I would not advise anyone to give liquid manure to these plants yet. The fuller the pots of these plants get with roots, the oftener will they require water, but I do not believe in the application of manure too soon; as a rule, before giving manure water it should be perfectly safe to seize the plant by the foliage and swing it around without injuring it in any way. A buoyant atmosphere must be kept up by admitting air at bottom and top, and any house in which the air feels oppressive is not conducive to healthy plant life. The temperature may range from 75° at night as the minimum, and should reach at least 15°

higher after closing it in the afternoon. *A. G. Catt, Parkfield, Hallow.*

The Flower Garden.

Carnations and Pinks.—Carnations should have their flower stalks tied neatly to small stakes, and flowers required for exhibition purposes should have the buds thinned out. To have good young plants for flowering next year, layering should be done as soon as the first good blooms are past. Carnations struck from cuttings involve less labour, and if well attended to produce good plants, which will, like layers, flower next year. For striking cuttings of Carnations and Pinks, a slight hot-bed should be made use of; a disused Melon bed of manure and leaves is a good one for the purpose. The old materials of loam, &c., should be taken away, and 4 inches in depth of very sandy soil consisting of half leaf mould, loam and sand, be put in its place. Insert the cuttings of Pinks 3 inches and Carnations 4 inches apart, keeping the hand glasses which are used to cover the cuttings close, and after the first watering, only a moderate amount of moisture should be afforded them and but little shading until rooting takes place. Harden off the plants by degrees, and plant out in the autumn in beds properly prepared.

Herbaceous Borders, now gay with Pæonies, Pyrethrums, Delphiniums, Aquilegias, &c., must be kept clear of weeds, the plants put into a trim condition with supports and ties, and the vacancies filled up with annuals or other plants.

Perennials.—There should be no delay in getting seed of hardy perennials sown; and this is the best and cheapest way in which to raise a stock of herbaceous plants.

American Plants.—Most of the Rhododendrons, Kalmias, and Azaleas are past their flowering season, and the seed-pods should be removed so as to assist growth. Most plants which grow in peat and light soils make roots near the surface of the soil, hence the importance of not forking it deeply; in fact, they do better if the weeds are hoed off and the beds kept clean in that manner, and in the dry season mulched with leaf-mould or Mushroom bed manure.

Bedding Plants.—In dry weather the beds, and especially those consisting of annuals recently transplanted, should be copiously watered, and some kind of light mulching made use of forthwith. It is not always that this can be done, in that case frequent stirring of the surface with a Dutch hoe will be the next best thing to do.

Roses.—The buds of Roses in this garden have this season been much damaged by the Rose worm. Unremitting attention had to be given to the bushes, picking off with the hands, &c. Roses whose first bloom is over should have the shoots shortened, the roots mulched, and be kept moist in order to assist the development of wood for autumn blooming. Strong and vigorous growths should also be shortened, which will tend to equalise the flow of sap. *D. C. Powell, Powderham, Devon.*

Fruits Under Glass.

Pine-apples.—The early Queens now ripe or ripening should still have the bottom-heat maintained at 80°, or the fruit stems will shrivel, and the fruit ripen prematurely, and possess but a small amount of juice or flavour. Upon the first signs of colour showing, cease to apply stimulants, and give water sparingly. As soon as the fruit is cut, shorten back hard all the old leaves upon selected plants, with a view to giving space for stocky suckers to develop, one sucker on each, unless the stock of any particular variety is scarce, when two may be left. Do not take off any sucker until it has reached a good size and put forth a dozen or more of sturdy leaves, as suckers make the best progress on the parent plant, and it is a mistake to pot small suckers at any time, and whatever pains may be taken with suckers, will assuredly be repaid in fine plants and big fruits. It is a good plan to arrange the shortened back stools in a bottom-heated pit, close to the glass, and provided with ventilation, to prevent the suckers becoming drawn. Any suckers which may have become ready may be potted up; and make sure of getting a good number prepared for taking off in the month of August. These will become established before the short days arrive, and go safely through the winter; and some of them will have ripe fruit in the autumn and winter of 1891 and 1892—that is, from 12 to 16 months from the date of taking the suckers.

Suckers put in at odd times are often useful in providing successional fruits, but they require to be watched carefully, so as to repot them the moment they are ready. Strong fibrous loam, with a little fresh bone-dust and some sharp grit, or finely-sifted old mortar rubble, to keep the compost porous, after the decay of the fibre in the loam, will produce good weighty fruits. This should be firmly rammed into the pots. The pot system has advantages over planting in beds, where ripe Pines are required the whole year round. Pineries having a south aspect, with a roof at an acute angle, will need "hexagon netting," or some other light movable shading put over them for a few hours daily in bright sunshine. During sunshine ventilate freely by the side ventilators, and reduce size of the openings at the top in order to preserve the humidity of the air; and endeavour to secure a gentle circulation by admitting the fresh air through a number of small apertures at the side, in preference to a few large ones, for the latter, whether at the top or the bottom, are certain to cause aridity and hurtful draughts. Reduce the fire-heat to a minimum, except for bottom-heat requirements, or in dull or damp weather, and whenever the sun causes a high temperature by day, the night temperature may be safely allowed to fall as low as 60°. The plants should be dewed gently overhead with a fine syringe just before the sun leaves the house, first reducing the amount of air and closing immediately after syringing. At the same time damp down the beds, walls, paths, and dry surfaces with water charged with ammonia. Put on a little fresh air at twilight, for it is equally necessary to retain a slight circulation of fresh air during the night as during the day. A damp, stagnant atmosphere should always be guarded against, as being extremely injurious. Afford strong successions and fruiters growing vigorously, with pots full of roots, liberal supplies alternately of farmyard liquid manure, guano and soot-water, and always give it in a clear state and properly diluted. Smooth Cayennes require more water at the roots when in active growth than most of the other varieties, and enjoy a higher temperature, generally speaking; whilst for winter use the first named and Black Jamaica are unsurpassed. Now is a good time to give a short rest to strong plants of these varieties, so as to enable them to mature their growth, in preparation for harder forcing. When thus treated the plants will almost immediately show, good deep fruit ripening in succession from October onwards.

It is a mistake to expect that the largest plants will give the best fruit, results often proving the contrary, but short, broad-leaved plants always finish well. *W. Crump, Madresfield Court, Malvern.*

The Hardy Fruit Garden.

Orchard Trees.—Grafts should now have the binding taken off, and, in the case of strong shoots, be re-bound with soft matting. Now that grafts are in active growth, the shoots below the graft should be reduced in number, and those remaining should be cut back to three or four leaves. Fruit in orchards is very partial in this locality, and, I fear, generally. Trees which carry light crops, or none at all, usually make strong growth, but this must be regulated by stopping the shoots and thinning them where crowded, so as to allow them to mature.

Apple trees which have been infested with caterpillar should be encouraged to grow by manurial stimulants, and then, if we have a fine ripening autumn, they will finish up well. There are hundreds of Apple trees hereabouts, which look as if there had been a fire beneath them.

Trees on light soils require to be watered in a dry time, otherwise growth will be poor, and mildew may appear. The best remedy against mildew is flowers-of-sulphur dusted on the affected plants.

Fig trees trained on walls should have the young bearing shoots stopped at five or six joints from the base, weakly shoots being cut away, and the fruit where crowded should be thinned out. Where the roots are confined in narrow borders, frequent waterings with liquid manure at this season will be very beneficial.

There appears to be a larger demand for Quinces and Medlars than formerly prevailed; and any trees carrying good crops should be aided by manuring and watering them in dry weather.

Dessert Cherries.—These fruits are just beginning to colour in this garden, and must now be protected from the birds, and syringing of the trees discontinued. If the black aphis has established itself ever so little, it should, nevertheless, be cleared out from amongst the fruits, or it will render them dirty and uneatable. There is no better remedy for this than to crush the aphides with the finger and thumb, and when they are abundant on unfruitful shoots, some tobacco-powder puffed on to them when damp will clear them out.

Strawberries that were Forced.—No time should be lost in getting all of these that are required, planted. The ground selected for the crop should be in good heart, and well tilled, and after making it quite level and smooth, put out the Strawberry plants in clumps of three, or in rows of single plants, varying the distance they stand apart a few inches, according as the variety is a strong grower or otherwise. Layering may commence as soon as runners are procurable. My method is to plant in the autumn a few rows of each variety I intend to force, and keep the blooms picked off them, and from these plants the runners for forcing are taken. The runners, in consequence of the deprivation of flowers, soon appear, and the best of these are layered into 3-inch and potted afterwards into 5-inch pots for fruiting. Later batches are layered into their fruiting pots of 32's, which is certainly time-saving. *A. Evans, Lythe Hill, Haslemere.*

The Kitchen Garden.

Watering Crops.—In order to keep up a supply of firm, crisp vegetables in the absence of rain, abundance of water, liquid-manure, and mulching with rich manure should be afforded them. Peas are the first to suffer from short supplies of any of these, and should be well mulched and repeatedly drenched with water, especially on light or shallow soils. Scarlet Runner and French Beans will also benefit by having mulchings applied to the soil over the roots, and when dung is scarce, grass mowings may be used instead, and with fairly good results. Lettuce, Onions, and Cauliflower, if large heads are required, should receive timely attention as regards manurial aids to growth. Break the leaves, or tie them over the heads of Cauliflower turning in; and cutting the heads early in the morning.

Broccoli.—As the ground becomes cleared, get the main crop planted before the plants get drawn, and the firmer the soil is made for this crop, the better will they resist frost. An open position is the best for Broccoli, and do not plant too close together, planting in drills of moderate depth, and watering well after planting. Snow's, Adams', Knight's Self-protecting, Goshen, Ledsham, Model, and Gilbert's Victoria, are all good Broccolis, and may be fully depended on for succession until late in the season.

Endive, during the summer months, when Lettuces are plentiful, Endive is but little required, but for winter use it should be grown in plenty. The moss-curled does not keep so well as the Digswell Prize, Green Curled, or Batavian. For the first supply, a sowing should now be made, repeating the sowing at intervals till the first or second week in August. Sow thinly in shallow drills, 6 inches apart, on prepared beds, made moderately firm; in dry weather, cover the beds with mats till the seedlings appear, and when large enough, plant out on rich ground in an open aspect. The later crops do best on a slightly sloping border, sheltered from the north.

Capsicums in pots should be well supplied with weak manure-water, and in cold districts afforded the aid of a frame. Syringe the plants slightly overhead on bright afternoons. They do well planted out in southern parts of the country, if previously well established in pots. See that the mass of soil in the pots is well moistened before being put into the earth. *H. Markham, Mereworth Castle, Maidstone.*

New Peas.—Amongst several very promising cross-bred Peas at Messrs. Carter's trial-grounds, there is one to be called "Carter's Phonograph," which is said to bid fair to prove as novel and valuable in the vegetable world as the remarkable instrument from which it takes its name is in the world of mechanics.

EDITORIAL NOTICE.

Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETING.

WEDNESDAY, JULY 2 { Royal Botanic Society: Evening Fête.

SHOWS.

TUESDAY, JULY 1 { Canterbury. Hereford. Sutton.

WEDNESDAY JULY 2 { Hitchin. Croydon. Dursley. Brockham. Lee and Blackheath. Twickenham.

THURSDAY, JULY 3 { Bath. Farningham. Norwich. Trentham. Royal Horticultural of Ireland.

SATURDAY, JULY 5 { National Rose Society at the Crystal Palace.

SALES.

MONDAY, [JUNE 30] { Clearance at the Merton Abbey Nursery, by Protheroe & Morris.

TUESDAY, JULY 1 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

THURSDAY, JULY 3 { Established Orchids, chiefly in flower and bud at Stevens' Rooms.

FRIDAY, JULY 4 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

CORRECTED AVERAGE TEMPERATURE FOR THE ENSUING WEEK, DEDUCED FROM THE OBSERVATIONS OF FORTY-THREE YEARS, AT CHISWICK.—62°.8.

Herbaceous Plants.

MR. WOLLEY DOD'S lecture on the culture of these plants at the meeting of the Royal Horticultural Society on Tuesday last was, as might have been anticipated, full of sound practical hints and valuable counsel. Mr. DOD did not say in so many words, that to succeed with herbaceous plants the cultivator must love them, and, consequently apply all the intelligence he can command to their cultivation; but this truth was sufficiently obvious, without express pronouncement. With bedding plants, all that the "lover of a gay garden" need do, is to go to the nearest florist, buy as many as he wants, and hire a man to put them in for him. If he has no real fancy for plants as plants, but only as objects of display, this process will satisfy him, and he will ignore blissfully, at any rate carelessly, the far greater and more varied pleasure to be had from the cultivation of, and, as we may say, friendship with herbaceous plants.

We are not all alike in our tastes and preferences. Gardening offers charms to all classes, and adapts itself to an infinite variety of circumstances. There is no need, therefore, to scoff at people whose ideas and predilections differ from our own, only, for their greater comfort, it is as well to warn those who are not botanically inclined, that they will derive more satisfaction from the bedding out system than they will from the culture of herbaceous plants. Devoid of knowledge, and wanting in sympathy, their herbaceous borders are likely to become wildernesses, where the fierce struggle for existence, and the fiercer competition of rivals, will result in a condition of affairs which is not without its interest for the philosopher, but which is by no means pleasing to the eye of the amateur—still less satisfactory to the gardener. But if the amateur is possessed of the sacred fire even to a small extent, then by all means let him undertake the culture of herbaceous and rock plants in suitable situations, and amid appropriate surroundings. He need not, unless he choose, entirely discard flower-beds, and other artificial devices. These were at one time grossly abused, but, under restrictions and in certain circumstances, they are appropriate enough.

The Royal Gardens at Kew, where we may fairly look for illustrations of all styles, have, for the last few years offered many excellent examples of successful flower-bedding at once satisfactory to the artistic eye, and to the intelligence of the plant lover. Indeed, we cannot do better than advise those who are concerned in the matter, to visit the Royal Gardens, and note the varied manners in which herbaceous plants and ornamental shrubs are disposed, from the severe, gridiron arrangement, which is supposed, erroneously, as we think, to be the best suitable for purely botanical purposes, to the flower-beds, the very beautiful beds of variegated shrubs, the wild bank, and the ever-charming rock garden. Of course, with the resources of Kew, much can be accomplished at all seasons; but he must be a very inapt pupil who cannot learn from what is done on a large scale at Kew, much that will be of service to him on a small scale elsewhere. By visiting Kew or Glasnevin, Edinburgh or Cambridge, or any good private gardens, at various seasons, the amateur will speedily make his choice what style he will adopt, and then he will appreciate the value of the advice given by Mr. WOLLEY DOD, and which we presume will shortly be made public in the *Journal* of the Society.

It must suffice to say, that the paper dealt with the general principles of cultivation in their special application to herbaceous plants. The necessity for draining certain soils was insisted on, and an excellent test given whereby the cultivator might determine the necessity for drainage. If Gentianellas, Hepaticas, or Christmas Roses, keep their leaves well, then the soil may be considered sufficiently drained. The means of dealing with heavy or light soils were detailed, digging deprecated, division and replanting advised at the proper time. The proper arrangement of the plants came also under review, and here the truth of the statement that the successful cultivator must love his plants received illustration, it being shown that the "habit" and requirement of each individual plant, must be studied as well as the situation wherein it is grown, and the purpose for which it is cultivated. Adaptation to circumstances, rather than slavish imitation of Nature, was counselled by Mr. DOD, who had in view a memorable discussion in these columns a short time ago. Various modes of propagation were explained, and warnings given as to the most obnoxious vermin. Labels and names came in for consideration, and the treatment of such details as tying up will show how thoroughly the matter was treated. Every practical gardener knows that Mr. DOD is master of his subject. If proof were wanting, it would be found in the admirably comprehensive yet concise and lucid manner in which he conveyed his information. The Royal Horticultural Society now happily comprises many new Fellows and amateurs, who will appreciate Mr. DOD's paper when it comes before them in print in the *Journal* of the Society.

"KEW BULLETIN."—An appendix to the volume for 1890 contains a list of all the new introductions recorded during 1889 in the principal horticultural journals. Such a list is very valuable. There is a diversity of practice, however, in the spelling of some of the names, which is confusing; thus we have on the same page Anthurium Allendorffi×, Grusoni×, Ortgiesii×, Wittmackii×, in which the second name is spelt with a capital initial letter, while A. andreanum and A. chantinianum×, A. houlletianum×, hardyanum×, and scherzerianum are spelt with a small letter. Similarly in succeeding paragraphs we find Aster Herveyi and Aster lindleyanus. The discrepancy exists throughout the list. Desirable as it is to have all these names, good, bad, and indifferent, recorded in one publication of easy access, the authorities at Kew would do excellent service by annually, or at fixed periods, revising the nomenclature so far as circumstances permit, and certainly by changing, if not excluding, all misleading names, such as those Latin ones applied to garden varieties often, botanically speaking, of the most trifling character, but which are so constructed as to convey the impression that the plants are species duly registered, described or figured by some responsible botanist.

A NEW ORCHID JOURNAL.—The Viscount DE SAINT LEGER informs us that he is about to publish monthly a journal devoted to Orchids and their culture. It will be published at Rio Janeiro in Latin and in Portuguese, and each number will contain two coloured plates. M. DE SAINT LEGER is well known for his discoveries of Orchids, including the very handsome Cyrtopodium Legerianum and others, so that we look forward with interest to his new venture.

WARE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—The monthly meeting of the above Society was held on the 17th inst. at 8 P.M. in the schoolroom, the Rev. A. E. W. LOFTS presiding, the attendance being good. Some fine examples of decorative Pelargoniums, Roses, Peas, Lettuces and Cabbages were staged by Messrs. FULFORD, RIDING, and OSBORNE; and an interesting paper was read on the cultivation of vegetables in June by Mr. W. PAVEY, followed by a discussion.

NEW VEGETABLES.—Messrs. PAILLEUX & BOIS describe, under the name of Mandera Cucumber (Cucumis Sacleuxii), what M. NAUDIN considers a new species. It was introduced from Zanzibar, and promises to be useful for pickling.

Red Turnips.—Messrs. PAILLEUX & BOIS also bring under notice a Turnip of top-like form, red colour, and strong flavour. It is adapted for garnish and for stews. It is known as Gongoulon du Kashmir.

Amphicarpæa monoica.—This is a plant which matures its pod underground, and which would supply a fresh vegetable throughout the winter. The seeds also may be used like Haricots.

Mitsuba.—The culture of this Umbellifer (Cryptotænia canadensis) is recommended as a salad when blanched, or, in the natural condition, cooked as Spinach.

Olombe.—A species of Solanum (S. Pierreanum) from the Gaboon, with scarlet berries of an ornamental character, and which may prove useful. *Abstract from the "Revue des Sciences Naturelles Appliquées."*

CHINESE DYES.—The British Consul at Newchwang, China, in a recent report says:—"It is worthy of remark that no aniline dyes were imported in Newchwang last year. It is said that the Chinese have come to dislike these dyes, and to find that those which they make themselves are more serviceable and cheaper in the end. So they are returning to the use of Sappan wood, and their own dye stuffs." This item of information will be hailed with satisfaction by admirers of Chinese art.

MR. GLEESON.—We hear that this well-known gardener has left Clumber, Nottinghamshire, and is now seeking another situation as gardener.

"Botanical Magazine."—The June number contains coloured illustrations of the following plants:—

Carludovica caput medusæ, t. 7118.—A striking-looking Pandanad, with a tuft of stalked, palmate, and deeply cleft leaves. The inflorescence consists of a globose head of flowers, densely packed upon a short, stout bracteate stalk. It flowered at Kew in 1887, but whence it came is not known.

Rosa multiflora, t. 7118.—The single form of the beautiful Rose, often called polyantha in gardens, and which has several *aliases*. See also *Gardeners' Chronicle*, 1876, vol. vi., 137; and 1887, vol. ii., p. 659.

Hemiorchis burmannica, t. 7120.—A Scitamineous plant that flowered at Kew last year. It has oblong plicate leaves, springing from a creeping rhizome, and spikes of reddish-brown flowers, very Orchid-like in appearance.

Tillandsia amethystina, t. 7121.—One of the Vriesea section, native of South Brazil. The flowers are yellow, in loose spikes, proceeding from a tuft of reflexed strap-shaped, entire, purplish leaves.

Allamanda violacea, t. 7122.—A species with tomentose shoots, verticillate, sessile, oblong leaves, downy beneath, and with flowers in cymes. The sepals are lanceolate, downy, the corollas about 3 inches long, with a narrow, cylindrical tube, expanding suddenly, about the middle, into a broadly funnel-shaped portion, twice the length of the limb, which latter consists of fine rounded, spreading or reflexed violet segments. Kew.

Horticultural Club.—The usual monthly dinner was held at the Hotel Windsor, Victoria Street, S.W., on Tuesday evening last, when there was a good attendance of members and friends, including several leading rosarians. The Very Rev. Dean Hole presided, and, on behalf of his brother rosarians, presented the Rev. H. H. D'Ombrain with a gold watch (suitably engraved), as a mark of their esteem for the great services he has rendered to the popularisation and the cultivation of the queen of flowers. It will be remembered that Mr. D'Ombrain unfortunately lost his watch at the National Rose Society's exhibition last year.

Name this Child!—The following reaches us from the Cape:—"It seems to me injudicious to name children after plants, unless their names have been long consecrated by poetry or romance. Rose and Lily will do passing well, and Daisy has a sort of shepherdess air. Fuchsia has been used in some Yankee novel for an unconventional heroine. Buttercup will not do—it suggests Sullivan and comic opera. Fragaria would not be bad, nor perhaps Fritillaria. But I can promise those parents who simply want some very out-of-the-way name for their offspring a perfect embarrassment of choice if they will only go a little further than these common plants. I suggest some as a beginning:—Ilicksbeachia, Czackia, Tchihatchewia, Pokornia, Schyckowskya, Schwackea, Ulloa, Grimmia, and guarantee them all correct and known to science, with lots more, as fearfully and wonderfully made, in Durand's *Index*. I make no charge for this first instalment."

A Rose Fair at Croydon.—The Hon. local Secretary of the Gardeners' Orphan Fund at Carshalton, Mr. G. W. Cummins, wishes us to announce the holding of a Rose fair in aid of the Fund on the occasion of the Croydon Horticultural Society's Show, on Wednesday, July 2, at Brickwood House, Addiscombe Road, Croydon. Contributions of any cut flowers for sale purposes will be gladly received, and should be addressed: "'Rose Fair Tent,' Croydon Horticultural Society, Brickwood House, Addiscombe Road, Croydon."

Loughborough Horticultural Society.—The thirty-third annual exhibition of the above Society, fixed for Wednesday, July 23, promises to be one of the best held in the Midlands, exhibits for competition, and otherwise, having been liberally promised by many of the gentry and gardeners of the neighbourhood.

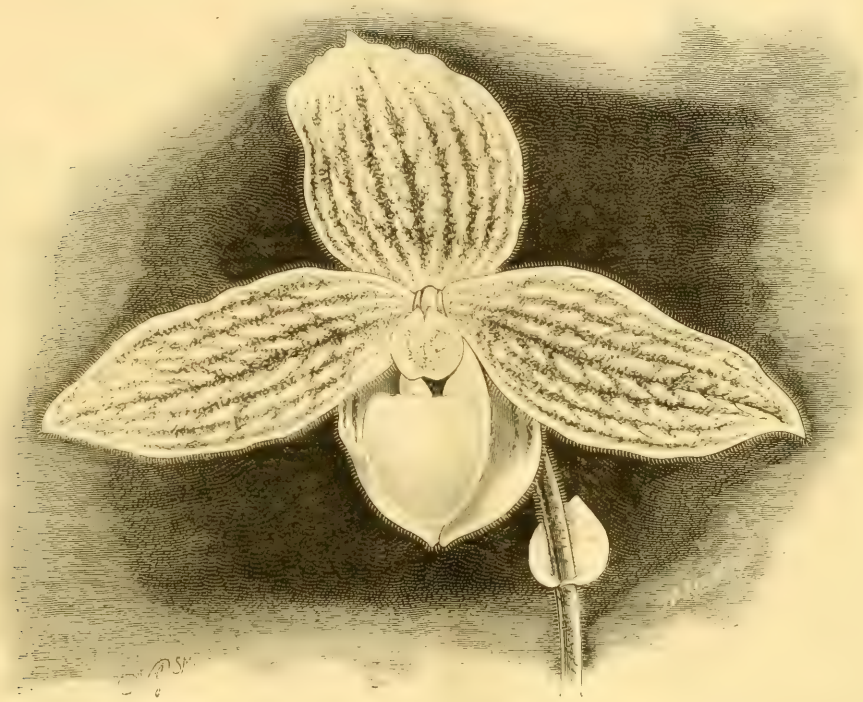


Fig. 131.—Cypripedium Aylingii. Lip white; segments also white, with crimson spots and blackish bars. (see p. 792.)

W. H. Baxter.—We greatly regret to have to chronicle the death of Mr. W. H. Baxter, the ex-Curator of the Oxford Botanic Garden. Mr. Baxter was in his seventy-fifth year, and died on the 19th inst. He was the son of William Baxter, a botanist of great repute in his day, and one to whom many undergraduates and dons owed their initiation into the mysteries of botanical science. William Baxter was Curator under the reign of Dr. Williams, a scholar and an estimable man, but one whose knowledge of the subject he had to teach was reputed to be by no means equal to that possessed by the Curator. Dr. Williams was succeeded, in 1834, by Dr. Daubeny, who was Professor alike of Chemistry, of Botany, and of Rural Economy—a valiant and persevering advocate for the introduction of natural science into academic teaching, at a time when its claims were far less widely admitted than now, and

a man who by his talent, his broad sympathies and his generosity, must always be held in high respect. In his time the garden was re-organised and laid out by W. H. BAXTER, in a manner at once consonant with the requirements of science and of landscape gardening, and its maintenance was, moreover, greatly facilitated by the munificence of Professor DAUBENY. W. H. BAXTER, in the early part of his career, was an assistant to LOUDON, and took part in the compilation of several of those useful books to which LOUDON attached his name, and for which he became famous. BAXTER afterwards became Superintendent of the public gardens at Bath, but when the health of his father gave way, he took charge of the Oxford garden, and retained it for several years, having latterly the charge of the "Parks" also. A few years ago, owing to failing health, he retired upon a small pension. W. H. BAXTER was a man of taste in matters of landscape gardening, adopting the picturesque rather than the formal style; many gardens in the vicinity of Oxford were, we believe, laid out by him. His knowledge of plants was very extensive; his abilities as a cultivator were of a high order. Personally, he was modest, amiable, and obliging, so that he secured the high esteem of all whose pleasure it was to know him; and his retirement from the Botanic Garden, so long under the charge of his father and himself, was felt by those who knew the garden to be a painful severance of old ties, and the break up of many associations.

HOME CORRESPONDENCE.

JUSTICE *v.* INJUSTICE.—In the Lambeth County Court recently, a case came on for hearing, in which a gardener sued his late employer (a nurseryman), for a week's wages in lieu of notice. The facts of the case were these:—Plaintiff was employed by defendant at a certain wage per week as propagator and grower of soft-wooded plants, and in that capacity he remained for a period of two years. About the end of the month of April of this year a man, who was working under plaintiff's orders, refused to obey instructions; plaintiff, therefore, reported his conduct to his employer, who treated the matter with absolute indifference, and this rather annoying plaintiff, he gave a week's notice to leave. This notice, however, his employer refused to accept, but requested him to leave the premises at once, absolutely and entirely, without giving him any reasons for such a proceeding, and at the same time refusing to pay him a week's wages in lieu of notice. Plaintiff, therefore, sued defendant in the county court, but was nonsuited through not being able to prove that it was the custom of the trade to give or receive a week's notice. The defendant and a witness swore that it was not the custom of the trade, the judge also ruling that unless a compact was made for a week's notice on either side at the time plaintiff entered defendant's service, defendant was justified in discharging plaintiff at a moment's notice. Now, I should like to hear the opinion of others in the trade on this subject. I, myself, can scarcely believe that the decision of the judge can be a correct version of the law. If this really is the state of the law, I think that at least ninety per cent. of the readers of this paper will agree with me that it is a decidedly unjust law, and ought to be amended. Supposing now this to be the law: If a man holding a responsible position were to go to his employer and demand his money up to date, telling him he was going to leave at once, what could that man expect but a refusal, when applying to him for a reference? yet, on the other hand, according to the judge's decision in this case, a master can turn a man off his premises at a moment's notice without giving any reasons for so doing. Of course, we all know that a jobbing gardener is employed by the day, and therefore only expects a day's notice; but a man employed under glass, I have always understood to be a weekly servant. *One who wants to know.* [We should like to hear what the other side may have to say before making any comments on the above. ED.]

TOMATOS FOR AN EARLY CROP.—I am growing this year some varieties of Tomatos to test earliness. Horsefield's Prelude has proved itself to be the best, it setting freely without artificial fertilisation, indeed it sets too freely, for if all the fruits are allowed to grow they would be very small. If the fruits of this variety could be got of a larger size, it would be still more useful. Ham Green, which is larger, does not set so early, and makes a succession to it. I think the new cross, viz., Chiswick hybrid, or Conference, will be a very useful one with the freedom to set off Prelude and larger fruits. We have been gathering Prelude in quantity for the last month from plants raised in the first week of January. Wherever grown, thinning the fruit must be practised if fair-sized fruits are desired. Small fruits are sometimes useful for garnishing, and in salads; but the larger ones are more generally useful. Prelude grows well in small pots, and makes less wood than others—an 8-inch pot is large enough. After the first set, I find Thomson's Vine Manure a good stimulus to growth in pot-plants. I have employed it and several other manures this season; but Thomson's is the best, the foliage not being produced at the expense of the fruit. *G. Wythes, Syon House.*

WATERLOO STRAWBERRY.—We have grown fifty plants of this new variety of Strawberry in pots this year, with a view to test its merits as a late fruit. It was allowed to slowly progress, and ripened its fruits in the beginning of the month of June. The fruits set well, and swelled to a very large size, and were handsome, and of a dark vermilion colour, the flesh firm, and of a rich appearance. It is not so prolific as President, although many more fruits are produced than are wanted for a crop. All this is most satisfactory, but when we come to speak of flavour, we are obliged to class it as a second-rate variety. Out-of-doors this variety was satisfactory last year, and it promises to be as good this year. Like Loxford Hall Seedling, it is rather tender, its foliage becoming crippled by frosts; this, however, does not appear to affect the crop in the least, and the plants quickly recover the check when growth recommences. I think it is a mistake to force many varieties of the Strawberry, for good results are obtained by growing two or three sorts. In vegetable growing also, in this respect, we may with advantage take a leaf out of the market gardener's book. *Thos. Coomber.*

GILBERT'S LATE VICTORIA BROCCOLI.—I should like to add a word in praise of this vegetable for late supply, for it helps to fill up the vacancy often existing between the end of the Broccoli and the beginning of the Cauliflower season, which has proved to be the case with me this year. It is a hardy variety, excellent in every way. *G. Abbey, Avery Hill, Eltham.*

SULPHATE OF COPPER—A CAUTION.—Having a very bad and persistent case of mildew, I thought of experimenting with the above—on a very small scale to begin with—but circumstances, which I now relate, delayed the operation. I, according to the receipt of a correspondent, a few weeks since, mixed 1½ lb. of quicklime in one can, and in another 3 lb. of sulphate of copper to 2 gallons of water. As it was to be left two hours to dissolve, I mixed the same at night, intending to further dilute and use it in the morning, but when morning came I found the sulphate had eaten away the sides of a new galvanised can and escaped. Evidently this chemical requires using with great caution. *C. H.* [It should not be allowed to come in contact with iron. ED.]

FROSTS IN JUNE IN THE WEST.—The thermometer at a place two miles distant from the town of Bath, registered on June 7th, 7°; 10th, 3°; and 21st, 4°; and several plots of Potatos, Runner Beans, Marrows, &c., have been cut down by the low temperature. If I remember rightly, it was June 27, 1866, when I was residing at Herriard Park, Hampshire, that the thermometer registered 14° of frost, which cut off all kinds of plants out-of-doors. *W. L., Bath.*

SEQUOIA.—In regard to the origin of the name Sequoia, it is current among us Americans that Professor Endlicher so named our red-wood in honour of Sequoyah, a half-breed Cherokee, who had invented an alphabet for his tribe; but as long ago as 1878 Dr. Gray assured me that such a reference was unfounded—was an after-thought, and that Endlicher certainly meant by Sequoia that our giant tree was a sequence, a follower, as it truly is the rear-guard of a past procession of prodigious trees. Now, did Endlicher leave any statement of his reason for Sequoia? Another question. I contemplate adopting Dr. Lindley's view regarding the distinctness of Wellingtonia, despite the almost identical characters of the fruit. The vegetative characters of our two species of red-wood are certainly most marked; in the one case sempervirens resembling those of the Yew, in the other gigantea, the Cypress genus. Now if systematists without a qualm consent to separate Chamæcyparis from Cupressus, and Tsuga from Picea, I cannot see why reasonably they hesitate to give Wellingtonia generic rank. All paleontological research seems to strengthen this opinion, for the vestiges of a score or more of fossil Taxodieæ fall decidedly into two classes—of Cypress-like and Taxus-like characters, indicating two marked lines of development, of which our two giants are respectively the descendants, so why not recognise the separate generic types, as in other similar cases. *J. G. L., California.*

FRUIT PROSPECTS ABOUT CORK.—Fruit prospects are not by any means so assuring as the splendid show of flower promised. We had severe hailstorms during the time when Apples were in flower, and the month of May was exceptionally wet, cold and sunless. Vegetables of sorts are growing splendidly. Potatos—early varieties—are said to show signs of disease. *Munster.*

LATE BROCCOLI, METHVEN'S JUNE.—This Broccoli well merits its name, it being of good size and whiteness. With us it has proved of great use, the last few heads being cut on June 13 from seed sown on March 26, 1889. *J. Mayne, Stowford Lodge, Ivy Bridge.*

THE PROPOSED HARDY FRUIT SHOW IN THE CITY.—Some time since I remember sending to the *Gardeners' Chronicle* a paper on the above subject, and it must have been quite two and a half years ago. It was the result of some correspondence with Mr. McKinlay, then of the Common Council. It is odd to find how suggestions, after the lapse of time, are taken up, and produced as novelties. My proposal was, that the Fruiterers' Company should promote the show. I cannot now recall the date, but I feel certain the article in question was reported in the *Gardeners' Chronicle. A. Dean.*

THE STRAWBERRY LEAF DISEASE.

OCCASIONALLY we receive inquiries concerning the Strawberry leaf blight, its cause and its remedy. According to a late bulletin of Cornell University, the scientific name is Sphaerella Fragariæ, or the Sphaerella of the Strawberry. It has been spoken of as spot disease, sun scald, Strawberry rust, but Professor Dudley thinks the name "leaf blight" most applicable. This blight first appears on the new leaves about the time of the setting of the fruit, and if the weather of the succeeding months be dry and hot, it causes serious injury to the vitality of the plantation.

Our readers will recognise this disease from the illustration (fig. 132), and also when we describe the spot as at first brownish or red-purple, and when fully matured, it has a circular centre, dead white, from one-eight to one-quarter of an inch in diameter.

The red-purple colour is the result of the growth of filaments of the vegetative portion (mycelium) of this fungus, pushing their way between the cells of the interior of the leaf, disorganising their contents, and absorbing their fluids. Air spaces are thus formed in the centre of the spot, giving rise to the dead white appearance which results. The conidia are oblong, and very minute, and when they fall on a fresh leaf-surface, where there is a little moisture, soon germinate, bore their way through the epidermis, and give rise to fresh spots.

In addition to this mode of propagation by conidia, which are summer spores, and are short-lived, there are winter spores, grown in sacs, called asci. Each ascus, or sac, contains eight ascospores, and these are preserved in the dead leaves through the winter, and mature in early spring.

The remedy for this fungus is twofold (1), to use fungicides in summer, and (2), destruction of the old leaves in spring by burning over the Strawberry patch. As a fungicide, Professor Scribner recommends "3 oz. of carbonate of copper dissolved in 1 quart of water, which should be diluted to 20 gal."

This should be spread on the plantation after the crop is gathered, every two weeks until September.

The Manchester and the Wilson are especially liable to this disease, while the Sharpless, for instance, is less troubled with it, as a general rule. *From the "Canadian Horticulturist."*

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, *June* 24.—The Drill Hall, James Street, Westminster, was, on the above occasion of the last fortnightly meeting, gay with the bright colours of Pæonies, Delphiniums, Roses, and many another hardy flower. The visitors were more numerous than we are accustomed to find at these meetings, and generally they were content to listen restfully whilst the Rev. C. W. Dod discoursed most practically about herbaceous plants, soils, drainage, aspects, composts, species, and varieties.

A few Orchids were there, but Roses, as befits the season, were the flowers of the day, and they were good in form, substance, and colour, for so early a date, albeit late frosts, rain, and wind, have left tangible marks on the outer petals of many light flowers, or those thin of petal.

THE ROSES.

The National Rose Society's exhibition of Tea and Noisette Roses claims first notice at our hands. The largest class, for amateurs, was for twenty-four single Tea or Noisette Roses, the 1st prize falling to F. W. Flight, Esq., Cornstiles, Hants; the blooms were of medium size, and not all good, but yet nicely varied as regards colour, which was not the case with those taking a lower place. His best blooms were Madame Willermoz, Ethel Brownlow, Catherine Mermet—the last-named is a variety which has done well so far, and was in almost every stand in good condition. Mr. A. H. Gray, Beaulieu, Newbridge Hill, Bath, was 2nd, many of his blooms excelling those in the first lot, but the prevalent tints were yellow and white. 3rd, Mr. R. L. Knight, Bobbing Place, Sittingbourne; Souvenir d'Elise Vardon was an excellent Rose in this lot. Nine lots were shown in the above competition.

For twelve blooms, in not less than six varieties, Rev. H. A. Berners, Harkstead, Ipswich, was 1st; his Madame Watteville, Amazon (a nice yellow Rose), Devoniensis, C. Mermet, Jean Ducher, Prince of Wales, Marie Van Houtte, being good specimens; 2nd, Mr. O. G. Orpin, West Bergholt, Colchester, whose finest were Caroline Kuster, Souvenir d'un Ami, and Maréchal Niel. The Rev. Foster Melliar, Sproughton, Ipswich, took the 3rd prize; Souvenir d'Elise, Maréchal Niel, Annie Olivier, M. Van Houtte were good here. There were ten competitors in this class.

The prize-winners in the six Teas or Noisettes competition were—Mr. Ed. Mawley, Berkhampsted, 1st, and Mr. C. Cuthell, 2nd; and the best blooms were, in the 1st box, Souvenir d'un Ami, Jean Ducher, and Annie Olivier; and in the 2nd, Jean Ducher and Marie Van Houtte.

The Rev. F. R. Burnside, Birch Vicarage, Hereford, was the winner with six single Teas, including a very fine Maréchal Niel. Mr. A. H. Gray, of Beaulieu was 2nd; in his collection there was a most symmetrical, small Comtesse de Nadaillac. Rev. Foster Melliar was 3rd; a nice bloom of his Marie Van Houtte was fresh and perfect. The competition was rather keen, and of varieties, Annie Olivier, Madame Cusin, besides those already specified, were well shown.

For six trebles, Teas or Noisettes, Mr. A. H. Gray was 1st, the box containing Caroline Kuster, C. Mermet, Souvenir d'un Ami, and Maréchal Niel—a fairly good boxful; Rev. P. Roberts, Scole, Norfolk, was 2nd; and 3rd, Mr. J. J. Bradley, gr. to S. P. Budd, 8, Gay Street, Bath.

A few nurserymen showed well in the classes set apart for them, notably Mr. B. F. Cant, of Colchester, who took the 1st prize for twenty-four Teas and Noisettes, and who had, besides the flowers found generally of good quality in other collections, Madame Hoste, The Bride, Niphetos (not often shown), Princess Beatrice, and Rubens; Mr. G. Prince, of Oxford, was 2nd, and showed good blooms of The Bride, Alba Rosea, Amazon, Adrien Christophle, Innocente Pirola, Madame Welch, &c.; Mr. F. Cant, of Colchester, took the 3rd prize, with large blooms, or, rather, blooms which were cut too late.

For the best twelve Teas, Messrs. Prior & Son, Myland's Nursery, Colchester, were the winners of the 1st prize; and the best blooms noticed were those we had previously observed in other boxes. Mr. G. Prince took 2nd, with nice blooms, full of substance, as the Oxford Roses usually are. The last-named nurseryman was 1st in Moss Roses, twelve varieties, shown in bunches; Messrs. Paul & Son, Old Nurseries, Cheshunt, being 2nd.

Mr. G. Cooling, Bath, showed Moss Roses and Buttonhole Roses, some old varieties not often seen being amongst them.

In a class for twelve blooms, in not less than eight varieties, Mr. Brown, gr. to Mrs. Waterlow, Great Doods, Reigate, was 1st, the blooms of Madame Pereire, Marquese de Castellane, Mrs. Baker, a fine crimson Rose; Marie Contet, and Mdlle. Gabriel Luizet, being excellent; Mr. J. J. Bradley, Bath, was 2nd, with a nice box of dark-coloured varieties; 3rd, Mr. R. E. West, Reigate, also with dark Roses. The Silver Banksian Medal of the Royal Horticultural Society was awarded to a bloom of the Earl of Dafferin, which was in the last named stand.

Several boxfuls of his novelty in Tea Roses, Souvenir de S. A. Prince, were shown by Mr. G. Prince, the blooms coming up pretty well to the exhibitor's standard of excellence.

The best basket of Roses, tastefully arranged for room decoration, brought only two competitors, the Rev. H. B. Byron, Lyndford Vicarage, who was awarded the 1st prize; and Mr. J. Bloxham, Eltham Court, Kent, who was placed 2nd.

Floral Committee.

Present: W. Marshall, Esq., in the Chair, and Messrs. B. Wynne, H. Herbst, J. Walker, W. C. Leach, H. Turner, R. B. Lowe, H. Cannell, C. Noble, G. Paul, H. H. D'Ombrain, Ed. Mawley, C. T. Druery, W. Goldring, and W. Holmes.



FIG. 132.—STRAWBERRY LEAF FUNGUS.

Messrs. J. Veitch & Sons, Royal Exotic Nurseries, Chelsea, S.W., staged a large collection of Delphiniums and Irises, the former being specially fine; a spike of Archidamus was particularly noticeable by reason of its great size, the variety is semi-double, and the flower is a mixture of purple and blue. True Blue is a showy bright blue single, Beethoven is pale blue with lilac sheen, and Nahomeh rich blue, single; these were the most striking out of about forty or fifty varieties. Among the Irises, Amazon, blue; Courtia, yellow; La prestieuse, brown and purple; Bridesmaid, white; and L'honorable, rich yellow, may be selected. Blooms of their strain of hybrid Aquelegias were shown, and in some of them there were charming combinations of soft colours; other flowers were Hæmerocallis flava, Poppies, Campanula medio calycanthema in variety, Gaillardias, Spiræa aruncus, Lupinus arborens, &c. The same firm also showed a collection of flowering shrubs, &c., having Philadelphus microphyllus, a recently introduced plant, illustrated in our issue for August 6, 1887, p. 156, it produces its white flowers in profusion, and forms a low compact bush; Kalmia latifolia and its variety major splendens, very fine; Robinia hispida, the purple Acacia. Olearia macrodonta with large masses of flower, but the foliage is very handsome, being coarsely-toothed on the margin, and having a silvery lustre; Styrax japonica, laden with its white flowers; Andromeda speciosa, and Erica cinerea coccinea minor forming a pretty, low cushion, sprinkled with flowers of a rich rose colour. There were also hybrid greenhouse Rhododendrons, of which Ajax was a grand variety, the flower being very large and the truss well formed; colour, soft salmon-rose, with a pale throat. A few Gloxinias, Spiræa astilboides, and Adiantum cuneatum Lambertianum, a variety having loosely-disposed and narrow pinnules, completed the group.

From Messrs. Paul & Son, Old Nurseries, Cheshunt, came a few Roses in fine samples, among them being Mrs. Paul (Bourbon), a very full flower, of good substance, white, with rich crimson-shaded suffusion; John D. Pawle (H.P.), another of good form and substance, very brilliant intense crimson-carmine, shaded darker; Dowager Duchess of Marlborough (H.P.), carmine-rose, very pretty.

Messrs. Barr & Son, King Street, Covent Garden, W.C., had a collection of herbaceous flowers, in which Irises of the Xiphion section were well represented; Gillenia trifoliata, Lilium Davuricum, Ixias, and varieties of herbaceous Pæonies were also well shown; and a somewhat similar lot of cut herbaceous plants came from Mr. E. F. Such, Maidenhead, including Campanulas, Poppies, and Valerianas.

Messrs. W. Cutbush & Son, Highgate, sent small flowering plants of Stephanotis floribunda, and a few Ivies, one shown as lucida aurea being a capital golden form.

New Roses were sent by Messrs. W. Paul & Son, Waltham Cross, N. among which were Marchioness of Lorne, a large flat flower of rich purple-crimson, and the foliage also is dark; the recent novelties Duchess of Albany, Zenobia, and Spenser were also exhibited.

Tuberous Begonias were shown by Messrs. H. Cannell & Sons, Swanley, Kent, who had good coloured double varieties in Mrs. Barron, cream, with heavy rose flush, and a Miss Eastwood, a delicate soft rose-pink, and fringed petals. Messrs. J. Laing & Sons, Forest Hill, S.E., sent a single yellow Begonia reputed to be fragrant.

A small collection of Pæonies were shown by Messrs. Paul & Son, Cheshunt, the best being Berlioz, rosy-mauve; Daubenton, light rose, with a purple shade; Modeste, with slit acuminate florets and broad guard petals; Felix Crousse, purplish-rose—a fine subject; Gloire de Douai, semi-double, deep purple, shaded crimson, with a band of yellow anther separating the mass of petals horizontally into two parts. A great quantity of hardy flowers in much variety, including several choice varieties of Potentilla in crimson, and gold and crimson, Ranunculus Gouani, a small yellow Batchelor's Button, pretty and useful; the fine Campanula nobilis alba, with big bells and spikes; also C. Van Houttei, blue; Iceland and Shirley Poppies, Delphiniums, Gaillardia hybrida splendida, &c.

Other exhibits included a collection of show Pelargoniums from Mr. C. Turner, Royal Nursery, Slough, nicely-grown small plants; varieties of white Pinks, from Messrs. Laxton Bros., Bedford, one of which (Stanley) is an improved Mrs. Simkins, having greater substance and breadth of petal. Zonal Pelargoniums came from Messrs. J. R. Pearson & Son, Chilwell, Notts; Sir Percival was a pure white, and Midsummer, soft rich salmon, large flowered, and good truss, was a fine variety. Mr. Lynch, Botanic Gardens, Cambridge, had a collection of Pentstemon species, and specimens of Macleania insignis, with its rich red flowers. Shirley Poppies came from the Rev. W. Wilks, Croydon. Mr. H. G. Jones, The Nurseries, Lewisham, sent a new yellow self Carnation, Pride of Great Britain, the flower of which is very large, and a clear yellow. A good lot of decorative and garden Roses, was sent by Messrs. G. Bunyard & Co., Maidstone, Kent; and Sir Charles W. Strickland, Bart., contributed Crinum crassipes, and a Buphane with dull red flowers, borne on long pedicels.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. De B. Crawshay, S. Courtauld, T. B. Haywood, H. M. Pollett, H. Ballantine, J. Dominy, J. Douglas, E. Hill, F. Sander, L. Castle, J. O'Brien, and Dr. M. T. Masters.

A few good new hybrids were exhibited by Messrs. J. Veitch & Sons, Chelsea. The most noteworthy was the result of crossing Epidendrum radicans with Sophronitis grandiflora, the latter being the seed-bearer; the resulting plant, shown as × Epiphronitis Veitchii partakes very strongly of the pollen parent in general appearance. As shown, the new hybrid was bearing three or four flowers on a scape 9 inches high, leafy at the base, the leaves varying in length from half an inch to nearly 2 inches, light green.

The flowers resemble those of Epidendrum radicans, but are broader in all parts, and the colour is richer; the lip has the same yellow area at the throat. Another interesting hybrid is Lælio-Cattleya eximia (Cattleya Warneri × L. purpurata), which is noteworthy as being the first cross of L. purpurata with the C. Warneri series. The petals and sepals are lilac, good size and substance, and the lip very large and expanding, rich purple with a lilac margin—a very handsome flower. In L.-C. Canhamiæ (C. Mossiæ × L. purpurata) we have the reverse of the cross which was named after Mr. Canham; the sepals and petals are pale lilac, almost white, while the lip is mottled with purple; Thunia Veitchiana × (Bensoniæ × Marshalli), was also shown. De B. Crawshay, Esq., Rosefield, Sevenoaks, had a Cattleya gigas, Mrs. de B. Crawshay, with a fine broad flat lip of deep colour. Disa tripetaloides was sent by Sir C. W. Strickland, Bt. S. Courtauld, Esq., Bocking Place, Braintree, showed Masdevallia Courtauldiana (rosea × Shuttleworthii) with one soft rose flower, much like that of M. rosea, and also a white flower of similar appearance, but smaller.

Mr. Cultimore, gr. to M. S. Cooke, Esq., Kingston Hill, Surrey, had a very elegant form of Cattleya Gaskelliana, soft rose-lilac in all its parts, with a central white area on the lip; he also sent Catasetum atratum.

Messrs. F. Sander & Co., St. Albans, showed a basket of Phaius Humblotii and varieties, also Angræcum Chailluanum and Sarcopodium Godseffianum; the flower is borne on a long stalk, and has a ground colour of yellowish-brown; the petals are linear, about an inch long, almost translucent, with a few brown spots and bars; the dorsal sepal is erect, oblong-acute, longer than the petals, and similarly coloured, but with a network of brown lines; the curiously hinged lip is white, with numerous small purple spots. The two lower sepals are bent curiously round forwards and inwards, and are heavily splashed with purple.

A few cut blooms of popular Orchids were sent by Messrs. James Crespin & Sons, Nelson Street, Bath.

Fruit Committee.

Present: Sir C. W. Strickland, Bart., in the Chair; and Messrs. J. Lee, T. F. Rivers, R. D. Blackmore, H. Wier, P. Crowley, J. Cheal, T. J. Saltmarsh, J. Willard, W. Bates, F. Q. Lane, G. Wythes, H. Balderson, J. Hudson, J. Smith, and G. W. Cummins.

A box of very fine fruits of Lord Napier Nectarine was sent by Mr. Hudson, gr. to Messrs. Rothschild, Gunnersbury House, Acton; and Mr. T. H. Crasp, Canford Manor Gardens, Wimborne, had an equally fine dish of the variety Stanwick Elruge.

Messrs. Paul & Son, Cheshunt, had a collection of early Strawberries, among which was Noble, Crescent Seedling, Commander, Pauline, and other favourite varieties.

Melons were sent by Messrs. J. Douglas, Great Gearies Gardens, Ilford; Mr. G. Wythes, Syon Gardens, Brentford; and by Mr. Palmer, Thames Ditton, the last-named having a fruit of what was last year called Thames Ditton Hero, but now to be known as Sutton's Triumph; Mr. Palmer also had a dish of Duke of Albany Pea. Rhubarb, very stout stems, came from Mr. Osman, gardener at the South Metropolitan district Schools, Sutton, Surrey.

Awards were made as follows:—

By the Floral Committee.

First-class Certificates.

To Philadelphus microphyllus, from Messrs. J. Veitch & Sons.

Awards of Merit.

To Campanula persicifolia grandiflora alba, from Messrs. Paul & Son.

To Pæony Mad. Berlioz, from Messrs. Paul & Son.

To Rose Marchioness of Lorne, from Messrs. W. Paul & Son.

Pæony Dauberton, from Messrs. Paul & Son.

Carnation Pride of Great Britain, from Mr. H. J. James.

Rose J. D. Pawle, from Messrs. Paul & Son.

Rose Mrs. Paul, from Messrs. Paul & Son.

Rhododendron Ajax, from Messrs. J. Veitch & Son.

Begonia Miss Eastwood, from Messrs. H. Cannell & Sons.

Pelargonium Midsummer, from Messrs. Pearson & Son.

By the Orchid Committee.

First-class Certificates.

To Cattleya Gaskelliana, Cooke's var., from M. S. Cooke ×, Esq., Kingston Hill.

To Epiphronitis Veitchii ×, from Messrs. J. Veitch & Sons.

To Lælio-Cattleya eximia ×, from Messrs. J. Veitch & Sons.

To Sarcopodium Godseffianum, from Messrs. F. Sander & Co.

Awards of Merit.

To Masdevallia Courtauldiana ×, from S. Courtauld, Esq.

To Lælio-Cattleya Canhamiæ ×, from Messrs. J. Veitch & Sons.

To Disa tripetaloides, from Sir C. W. Strickland.

By the Fruit Committee.

To Strawberry Crescent Seedling, from Messrs. Paul & Son.

Medals.

Silver Gilt Banksian to Messrs. Paul & Son, and Messrs. J. Veitch & Son, for collections of hardy flowers and shrubs.

Silver Banksian to Messrs. Barr & Son, for a collection of hardy flowers.

Bronze Banksian to Messrs. H. Cannell & Sons, for a group of Pæonies.

YORK GALA.

The thirty-second annual exhibition was held on the 18th, 19th, and 20th instant, and the general excellence observed at these meetings was fully maintained, excepting in the competition for sixteen stove and greenhouse plants; there were but two exhibitors, and Mr. Cypher's plants were not up to their usual standard of excellence. Mr. Letts, gr. to the Earl of Zetland, Aske Hall, was 1st, with plants in his usual good style, clean and well-grown and flowered specimens, including superior plants of Aphelexis amabilis and A. macrantha purpurea, Erica coccinea minor, Dipladenia amabilis, Statice profusa, and fine plants of Encephalartos Altensteinii, and Cycas circinalis. Mr. Cypher's best plants were Erica Wilsonii, Aphelexis spectabilis, Stephanotis floribunda, Darwinia fuchsioides, Croton angustifolium, and Latania borbonica.

For six stove and greenhouse plants, 1st, Mr. Letts, with a grandly-flowered plant of Erica depressa, and excellent examples of Ixora Williamsii, Aphelexis macrantha purpurea, Dipladenia amabilis, Aphelexis rosea, and Statice profusa.

J. B. Hodgkin, Esq., was 1st for three stove and greenhouse plants, and Arthur Wilson, Esq., 2nd.

Mr. Letts was 1st for six ornamental plants, including a superb Cycas circinalis, and very fine Crotons Johannis and Mortfontainensis; also for three ornamental plants. Mr. Letts' Crotons Queen Victoria, Thomsonii, angustifolius, and Johannis were fine, and well-coloured.

Dracænas were well represented, and Mr. McIntyre, gr. to Mrs. G. Pease, Darlington, took the 1st prize with a fine lot of plants; J. B. Hodgkin, Esq., being a close 2nd, as well as taking 1st for three admirable Ericas, consisting of E. ventricosa magnifica, E. gunnifera, and E. ampullacea oblata.

Alpine and herbaceous plants, and a large number of exotic and hardy Ferns, were staged. Good prizes were offered for Gloxinias, which brought a large number of plants, but chiefly small ones, not worthy of such good prizes; the same remark will apply to the herbaceous Calceolarias shown.

Roses in pots, for which also some liberal prizes were offered, were not so numerous as we have seen them. it would be a good thing for the Yorkites if one of our Southern growers would another year take down Roses in pots as examples of excellence. It is much needed. The plants come every year to this show, and become very leggy, and run too much on pale colours; besides, the numerous sticks are painfully visible to the beholder.

One large tent was devoted to decorative groups, most of which were meritorious, although differing in style. For the larger group of 250 square feet, five competed: 1st, Mr. McIntyre, gr. to Mrs. G. Pease; 2nd, Mr. Blair, Trentham, whose group had a centre and two wings, filled up with Masdevallias and other Orchids; 3rd, Mr. Simpson, nurseryman, Selby; 4th and 5th prizes were also awarded.

For groups not exceeding 100 square feet, Mr. McIntyre was again 1st with a beautiful arrangement; 2nd, Mr. P. Kendal, gr. to T. M. Weddall, Esq., with a somewhat heavy-looking group.

For ten Orchids, Mr. Cypher was 1st here with fine specimens of Cattleya Sanderiana, Odontoglossum vexillarium, Lælia purpurata, a grand mass of Dendrobium infundibuliforme, Odontoglossum cirrosum, Cattleya Mendelii, C. mossiæ with thirty blooms, Dendrobium thyrsiflorum, D. suavissimum, and Cypripedium barbatum; 2nd, Mr. Blair, Trentham Gardens, who neglected naming several of his exhibits. For six Orchids, 1st, Mr. Blair. Three Orchids, 1st, Mr. Cypher, with Cattleya Mendelii, Odontoglossum cirrosum, and a fine mass of Dendrobium thyrsiflorum. Specimen Orchid, 1st, Mr. Nicholas, gr. to the Earl of Zetland, Upleatham, for Calanthe veratrifolia, with twenty spikes.

Messrs. Charlesworth Shuttleworth & Co., Orchid importers, Bradford, sent a large collection of Orchids arranged amongst Ferns, but these were not in the competitions.

Pelargoniums have always been a strong point at York, and at nowhere else are such fine plants found as there. This time not so many were shown of the "show" section. Mr. Eastwood and Mr. McIntosh may now be fairly regarded as the two champion growers of the north, and usually run each other closely, their plants being wonderful specimens of cultural skill.

For twelve plants, 1st, Mr. Eastwood, gr. to Mrs. Pitley, Leeds; 2nd, Mr. McIntosh, gr. to J. T. Hingston, Esq., York.

For six show Pelargoniums, Mr. McIntosh was 1st, and Mr. Eastwood 2nd; and the same positions were maintained for three Pelargoniums.

The zonals are always remarkable, Mr. Eastwood's 1st prize plants in the classes for twelve, six, and three being as fine as it is possible to grow them, the plants averaging 4 feet in diameter, and well grown and abundantly flowered. In some cases a very unsightly system of tying prevailed, drawing the trusses in from the sides to form a central head of bloom.

Specimen Ivy-leaf Pelargoniums were invited, and large pyramidal specimens were exhibited in response to the invitation. Mr. Henry Pybus' 1st prize plants were large, handsome, and well flowered.

Fuchsias were numerous, and also of good quality. Tuberous Begonias could not be said to be so good as we have seen them before at York; and the dinner-table plants, which were numerous and of much excellence, were made to form a pretty background to the fruit.

The cut blooms of the Roses made a grand display, and some of the blooms were very large and finely developed, especially the Tea-scented varieties. Quite 1500 blooms were staged in the various classes. There were four exhibits, of seventy-two blooms each. Mr. B. R. Cant, Mr. F. Cant, Messrs. Paul & Sons, Cheshunt; and Messrs. Cooling & Son, Bath, won the prizes in the order of their names.

For forty-eight blooms, six exhibits.—1st, 2nd, 3rd, and 4th prizes in the following order:—Mr. B. R. Cant, Mr. F. Cant, Messrs. D. Prior & Son, Messrs. Paul & Son.

For thirty-six blooms, six exhibits.—1st, 2nd, 3rd, and 4th, Mr. George Prince, Mr. B. R. Cant, Mr. F. Cant, and P. Budd, Esq.

For twenty-four blooms, five exhibits.—1st, 2nd, and 3rd to Mr. G. Prince, Mr. B. R. Cant, and Mr. F. Cant.

Five stands of twelve Tea Roses were staged.—1st, Mr. G. Prince; 2nd, B. R. Cant; 3rd, Messrs. D. Prior & Son; and for twelve Teas, one variety (six exhibits).—1st, Mr. G. Prince, with a grand lot of Comtesse de Nadaillac; 2nd, Mr. B. R. Cant, with a fine twelve Souvenir d'an Ami; 3rd, Messrs. Prior & Son. For twelve H P.'s, of one variety, Mr. B. R. Cant, was 1st, with a stand of Ulrich Brunner, superb blooms; and Messrs. Prior & Son, Colchester, 2nd with Lady Mary Fitzwilliam. The Amateurs' classes were also well filled. Amongst H.P.'s throughout, Mrs. John Laing, Viscountess Folkestone, Crown Princess Victoria, Lady Alice, Mary Bennett, Etienne Levet, Ulrich Brunner, were all very fine; and Teas Princess of Wales, Comtesse de Watteville, Comtesse de Nadaillac, and Souvenir d'Elise Vardon, very fine in several stands.

For twelve bunches of stove and greenhouse flowers, and for six bunches also, 1st, Mr. Blair, Trentham, with Orchids. Messrs. Perkins & Son, Coventry, was 1st in both classes for ball and bridal bouquets.

The cut blooms of Pæonies and Pyrethrums made a most effective show, being in large numbers, and of good quality. Mr. Thomas Ware, Tottenham, offered special prizes for twenty-four varieties, of which Messrs. Harness & Son, Bedale,

won the 1st prize, and Mr. Thomas Battensby the 2nd. Messrs. Harkness & Son were also 1st for twelve species of herbaceous plants, and there were several other good lots staged. Messrs. J. Cocker & Sons, Aberdeen, were 1st in each class for twenty-four double and twenty-four single Pyrethrums.

Amongst the miscellaneous exhibits, Messrs. Backhouse & Son, York, had an interesting group of rare and lovely species of herbaceous plants; Messrs. Birkenhead, Sale, had fully 500 Ferns of species and rarer varieties; Messrs. Ryder & Son, Manchester, a collection of Begonia blooms; Messrs. H. Cannell & Sons, cut blooms of double and single-flowered Begonias, regal and zonal Pelargoniums; Messrs. Dickson (Limited), Chester, a fine lot of cut blooms of herbaceous Pæonies; Messrs. Paul & Son, Cheshunt, a large display of cut blooms of herbaceous and other plants; Mr. John Forbes, Hawick, an extensive collection of Pansies; Mr. Andrew Irvine, Kyles of Bute, Pansies, and other exhibitors added to this portion of the exhibition. Some good vegetables formed a not uninteresting part of the display. Fifty thousand persons attended during the three days, and £1579 was taken at the entrance to the exhibition.

Fruit of most kinds was excellent for so early a part of the season, Grapes being well coloured and well finished, and Peaches and Nectarines were large and of high colour. In the class for ten distinct varieties, Mr. McIndoe, Hutton Hall, was 1st with very fine Grosse Mignonne Peaches, Magdala Peach, highly coloured Stanwick Elruge Nectarines, fine Muscat and Black Hamburgh Grapes, Premier and Best of All Melons, two Queen Pines, and some Figs; 2nd, Mr. R. Dawes, gr., Temple Newsam, with very fine dishes of Lord Napier and Elruge Nectarine, Bellegarde and Abec Peaches, three small but well finished bunches of Madresfield Court Grape, a Queen Pine, Temple Newsome hybrid Melon, and other fruits; 3rd, Mr. J. Edmonds, gr. to the Duke of St. Albans, Besthorpe, in whose collection were good Black Hamburgh Grapes, and Peaches and Nectarines. For six varieties of fruit: 1st, Mr. McIndoe, with good Muscat and Black Hamburgh Grapes, and a fine Best of All Melon; 2nd, Mr. Blair, gr., Trentham, who had a good Queen Pine, and Black Grapes, and an unnamed seedling Melon. For four varieties of fruits: 1st, Mr. McIndoe; 2nd, Mr. J. Clayton, gr., Grimston Park.

One Pine-apple: 1st, Mr. McIndoe, 2nd, Mr. Parker. For three bunches of Black Grapes, Mr. McIndoe and Mr. J. Allsop, gr. to Lord Hotham, were placed equal 1st with admirable examples; 2nd, Mr. James Johnson, Boston Spa; 3rd, Mr. W. Wallis, gr., Kirby Hall.

For three bunches of white Grapes, Mr. Allsop was well ahead with some richly coloured medium bunches of Buckland Sweetwater; 2nd, Mr. Wallis; 3rd, Mr. McIndoe.

A good lot of Melons were exhibited in the various classes for them.

For dish of Peaches, nine exhibits were staged. 1st, Mr. W. H. Divers, gr. to J. T. Hopwood, Esq., Ketton Hall, Stamford, with very fine early Alberts; 2nd, Mr. G. Taylor, gr. to Sir J. Ramsden, Bart.

Nectarines (ten exhibits).—1st, Mr. Blair, with very fine Lord Napiers; 2nd, Mr. Dawes.

A few dishes of good Figs were staged, and Mr. Divers carried off the 1st prize for Strawberries with very fine fruit of Auguste Nicaise; and Mr. McIndoe the 2nd prize with Sir Harry, fine fruits, well coloured.

THE WEATHER.

THE PAST WEEK.

The following summary record of the weather for the week ending June 21, is furnished from the Meteorological Office:—

"The *weather* has been very dull, with frequent rain, in Ireland and Scotland, occasional falls of rain over England, and cloudy condition generally.

"The *temperature* has not differed materially from the mean; in the east of Scotland and north-east of England it has been 1° above, and in most other parts of the kingdom 1° below the normal. The highest of the maxima were recorded either on the 15th or 16th, and varied from 63° in 'Scotland, N.,' and 64° in 'Scotland, W.,' to 74° over central, southern, and south-western England, and 75° in 'England, E.' The lowest of the minima, which were recorded on somewhat variable dates, ranged from 36° in the north and east of Scotland and north-east of England, to 48° in Ireland, and to 51° in the 'Channel Islands.'

"The *rainfall* has been more than the mean in the north and west of Scotland, and equal to it in 'England, N.W.' In all other districts, however, the fall has been rather less than the normal.

"*Bright sunshine* has continued very deficient generally, the percentage of the possible duration having ranged from 14 to 17 in Ireland, from 16 to 29 in Scotland, and from 19 to 33 in England. In the 'Channel Islands,' however, as much as 41 per cent. has been recorded."

[By the term "accumulated temperature" is meant a figure representing the aggregate amount, as well as the duration, of the excess or defect of temperature above or below 42° Fahr. for the period named; and this combined result is explained in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

	Districts.	Temperature. Accumulated. Above (+) or below (−) the Mean for the week ending June 21.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since Jan. 1, 1890.	Below 42°, difference from Mean since Jan. 1, 1890.	Rainfall. More (+) or less (−) than Mean for Week.	No. of Rainy Days since Jan. 1, 1890.	Total fall since Jan. 1, 1890.	Bright Sun. Percentage of possible duration for the week.	Percentage of possible duration since Jan. 1, 1890.
			Day-deg	Day-deg.	Day-deg	Day-deg.	10ths Inch.		In.		
1	1	- 0.0	0		+ 155	— 73	4 +	119	22.8	16	26
2	1	+ 0.2	92	0	+ 72	— 58	1 —	101	13.2	29	29
3	1	+ 0.1	109	0	+ 57	— 93	1 —	84	9.6	28	27
4	1	1.1	111	0	+ 20	— 39	3 —	89	9.7	33	36
5	1	1.0	108	0	- 12	— 26	3	81	9.4	27	31
6	1	1.1	111	0	+ 25	— 68	2 —	84	11.5	27	33
7	1	1.0	99	0	+ 70	- 7	1 +	105	22.9	21	31
8	1	1.0	102	0	+ 73	- 81	0 av.	95	14.0	19	29
9	1	- 1.0	104	0	+ 24	+ 12	3 —	99	16.5	25	35
10	0	av. 0.1	101	0	+ 53	— 55	1 —	111	14.3	17	31
11	0	av. 0.1	109	0	+ 57	— 14	2 —	112	20.4	14	33
12	2	- 1.0	104	0	+ 107	— 22	3 —	103	15.2	41	41

The districts indicated by number in the first column are the following:—

Principal Wheat-producing Districts—1, Scotland, N.; 2, Scotland, E.; 3, England, N.E.; 4, England, E.; 5, Midland Counties; 6, England, S.

Principal Grazing &c., Districts—7, Scotland, W.; 8, England, N.W.; 9, England, S.W.; 10, Ireland, N.; 11, Ireland, S.; 12, Channel Islands.

Obituary.

B. S. WILLIAMS.—The announcement of the death of this distinguished horticulturist will come as a great shock to his many friends and acquaintances. Those who knew him intimately, however, have known for the last two years that his condition was hopeless, and he died, after lengthened suffering, on the 24th inst., in his sixty-eighth year. For some years previous to his starting in business at Holloway in 1854 (at first in partnership with Mr. Robert Parker), he was gardener to the late C. B. Warner, Esq., of the Woodlands, Hoddesdon, and it was during this period that he wrote, in 1851, under the encouragement of Dr. Lindley and of Mr. Bellenden Ker, that series of articles on Orchid cultivation, under the title of "Orchids for the Million," in these columns, which were subsequently expanded into the *Orchid Growers' Manual*, which has since passed through six editions. Williams was therefore a pioneer in Orchid culture, and no one possessed a more thorough knowledge of them and of their requirements than he. He provided the manuscript for Warner's *Select Orchidaceous Plants*, and in 1881 commenced the monthly illustrated periodical so well known as the *Orchid Album*, which is still continued.

As an exhibitor of specimen plants, Williams also attained and retained a great reputation; indeed, we do not know where to look for a more thorough gardener than he. He upheld the honour of English horticulture not only at home but abroad, where not only his Orchids but his Cyclamens, his Primulas, his Amaryllis, and many other subjects, proved that he possessed excellent judgment as well as unusual skill. He was a loyal and staunch friend to this journal throughout, and we can hardly adequately acknowledge our sense of the aid he from time to time, particularly in past years, rendered us. When information, such as he possessed was required, we—and others no doubt can say the same—were never disappointed when we applied to "Ben Williams." He was an earnest supporter of the gardening charities, and was indeed a thoroughly representative man, whose loss we shall all regret with no ordinary sorrow. The funeral will take place at the Highgate Cemetery, on Monday, June 30, at 12.30 noon.

MARKETS.

COVENT GARDEN, June 26.

WE are now receiving good supplies of outdoor Strawberries in better condition, and prices have fallen considerably. Peaches reaching us in large quantities, meeting with a slow sale. Business fair. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6-	7 0	Peaches, dozen,	2 0-	0 0
— Tasmanian, case	5 0-	20 0	Pine-apples, St. Michael, each	1 6-	3 0
Grapes, lb.	1 6-	3 0	Strawberries, lb.	0 4-	1 0
Lemons, per case	12 0-	20 0			
Melons, each	1 6-	3 6			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Asparagus, English, per 100	...12 0-	...	Mustard and Cress, punnet	0 4-	...
Beans, French, lb.	2 0-	...	Onions, per bunch	0 5-	...
Beet, red, per dozen	1 0-	2 0	Parsley, per bunch	0 6-	...
Carrots, per bunch	0 6-	...	Rhubarb, per bundle	0 6-	...
Cauliflowers, each	0 3-	...	Seakale, punnet	2 0-	...
Celery, per bundle	1 6-	2 0	Shallots, per lb.	0 6-	...
Cucumbers, each	1 0-	1 6	Spinach, per bushel	6 0-	...
Endive, per dozen	2 0-	...	Sprue, per bundle	1 6-	...
Herbs, per bunch	0 4-	...	Brussel Sprouts, pr lb.	0 3-	...
Leeks, per bunch	0 3-	...	Tomatos, per lb.	1 0-	...
Lettuces, per dozen	1 0-	...	Turnips, per bunch, new	0 4-	...
Mushrooms, punnet	1 6-	...			

POTATOS, NEW.—The market has become much weaker, principal cause, indifferent quality and samples arriving, which have given general dissatisfaction. Jersey Kidneys average 6*s.*/7*s.*; French Kidneys, 6*s.*; Coraish, 7*s.*; Old Potatos may now be considered over. *J. B. Thomas.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6 0-	18 0	Foliage plants, various, each	2 0-	10 0
Arum Lilies, per doz.	8 0-	12 0	Fuchsia, per doz.	4 0-	9 0
Aspidistra, doz.	...18 0-	42 0	Heliotrope, per doz.	5 0-	8 0
— speci. plants, each	7 6-	10 6	Hydrangeas, doz.	...12 0-	18 0
Begonias, per doz.	6 0-	18 0	Ivy Geranium, p. doz.	3 0-	6 0
Cactus, per doz.	...12 0-	24 0	Liliums, various, per dozen	...18 0-	36 0
Calceolaria, p. doz.	6 0-	9 0	Lobelia, per doz.	4 0-	6 0
Cyclamen, per dozen	4 0-	12 0	Marguerites, doz.	6 0-	12 0
Dracæna terminalis, per dozen	...30 0-	60 0	Mignonette, per doz.	4 0-	8 0
— viridis, per doz.	12 0-	24 0	Musk, per dozen	2 0-	4 0
Erica Cavendishii, per dozen	...18 0-	48 0	Nasturtiums, p. doz.	4 0-	6 0
— ventricosa, doz.	15 0-	24 0	Palms in var., each	2 6-	21 0
Eucalyptus in var., per dozen	... 6 0-	18 0	Pelargoniums, scarlet, per dozen	3 0-	6 0
Evergreens, in var., per dozen	... 6 0-	24 0	— per doz.	9 0-	18 0
Ericas, various, doz.	8 0-	24 0	Petunias, per doz.	6 0-	9 0
Ferns, in var., doz	4 0-	18 0	Roses, various, doz.	12 0-	24 0
Ficus elastica, each	1 6-	7 0	— (Fairy), per doz.	6 0-	9 0
			Saxifrages, per doz.	18 0-	24 0

*** Bedding plants in variety in boxes, and also in pots.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilons, 12 bun.	2 0-	4 0	Pinks, various, 12 bn.	2 0-	4 0
Bouvardias, per bun.	0 6-	1 0	Pelargoniums, scarlet, 12 spr.	0 4-	0 6
Callæthophica, 12 bl.	3 0-	5 0	— dozen sprays	0 6-	1 0
Carnations, 12 blms.	1 0-	2 0	Primulas, double, 12 sprays	1 0-	1 6
— 12 bunches	4 0-	6 0	Pyrethrum, per doz.	0 6-	1 0
Cornflower, 12 bun.	2 0-	4 0	Pæonies, 12 bunches	6 0-	18 0
Eschscholtzia, 12 bn.	2 0-	3 0	Pansy, or Heartsease, 12 bunches	1 0-	2 0
Eucharis, per dozen	4 0-	6 0	Poppies, various, doz. bunches	1 6-	6 0
Gardenias, 12 blooms	1 6-	3 0	Ranunculus, 12 bun.	2 0-	4 0
Iris, various, 12 bun.	6 0-	18 0	Spirea, doz. sprays	0 6-	1 0
Ixia, doz. bunches	3 0-	6 0	Stephanotis, 12 spr.	1 6-	3 0
Heliotropes, 12 spr.	0 6-	1 0	Sultan, 12 bunches	4 0-	6 0
Lilac, white, Fr., bun.	4 0-	6 0	Tuberoses, 12 blms.	0 6-	1 0
Lilium, var., 12 bl.	0 6-	4 0			
Maiden Hair Fern, do	4 0-	9 0			
Marguerites, 12 bun.	3 0-	6 0			
Mignonette, 12 bun.	2 0-	4 0			
— French, per bun.	1 6-	2 0			
Myosotis or Forget-me-nots, 12 bun.	2 0-	4 0			
Narcissus, various, doz. bun.	... 1 6-	6 0			

ORCHID-BLOOM in variety.

SEEDS.

LONDON: *June* 25.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, London, report to-day's market barely attended, with almost a complete dearth of business. All varieties of Clover seeds are just now neglected. Retail orders are received for sowing Mustard and Rape seed. Bird seeds sell slowly on lower terms. Choice blue Peas, being very scarce, are firm. New Zealand advices describe Cocksfoot stocks as exhausted. Feeding Linseed is somewhat dearer. Other articles at this quiet season offer no subject for remark.

CORN.

Averages.—Official statement of the average price of British corn, imperial measure, for the week ending June 21:—Wheat, 32*s.* 9*d.*; Barley, 24*s.* 11*d.*; Oats, 19*s.* 11*d.* For the corresponding period last year:—Wheat, 28*s.* 7*d.*; Barley, 24*s.* 8*d.*; Oats, 18*s.* 7*d.*

FRUIT AND VEGETABLES.

SPITALFIELDS: *June* 25.—Good supplies of all kinds of farm and market garden produce; demand good. Moderate quantity of fruit; trade fair. Prices as under:—Fruit: White Cherries, 6*s.* 6*d.* to 7*s.* 6*d.* per half-sieve; Strawberries, 5*s.* to 6*s.* per peck; Gooseberries, 3*s.* 9*d.* to 4*s.* 6*d.* per half-sieve; English Tomatos, 6*s.* to 7*s.* per peck; foreign do., 1*s.* to 1*s.* 3*d.* per box; Rhubarb, 1*s.* 9*d.* to 2*s.* 6*d.* per dozen bundles. Vegetables: Cabbages, 2*s.* to 4*s.* per tally; Spinach, 4*d.* to 9*d.* per bushel; Asparagus, 1*s.* to 1*s.* 6*d.* per bundle of 100 heads; Seakale, 1*s.* to 1*s.* 3*d.* per punnet; Radishes, 2*s.* to 3*s.* per tally; Turnips, 2*s.* 6*d.* to 3*s.* per dozen bunches; Peas, 2*s.* to 3*s.* per bushel; do., 4*s.* 6*d.* to 5*s.* 6*d.* per sack; Carrots, 2*s.* 6*d.* to 3*s.* 6*d.* per dozen bunches; Parsley, 1*s.* to 1*s.* 6*d.* do.; Mint, 1*s.* 6*d.* to 2*s.* per dozen bundles; Beetroots, 8*d.* to 1*s.* per dozen; frame Cucumbers, 1*s.* 6*d.* to 2*s.* do.; Egyptian Onions, 4*s.* 6*d.* to 5*s.* per cwt.; Mustard and Cress, 1*s.* to 1*s.* 6*d.* per dozen baskets; Cos Lettuces, 6*d.* to 9*d.* per score; Endive, 1*s.* to 1*s.* 3*d.* per dozen.

STRATFORD: *June* 25.—The supply has been good during the past week, and a fair trade was done at the undermentioned prices:—Cabbages, 1*s.* 6*d.* to 4*s.* per tally; Greens, 1*s.* to 1*s.* 6*d.* per dozen bunches. Potatos: English light soil Magnums, 40*s.* to 60*s.* per ton; Mangels, 12*s.* to 17*s.* do.; Onions, Egyptian, 6*s.* 6*d.* to 7*s.* 6*d.* per cwt.; Watercress, 7*d.* per dozen bunches; Cucumbers, 2*s.* to 5*s.* per dozen; Carrots, 2*s.* to 4*s.* per dozen bunches; Mint, 2*s.* to 3*s.* do.; Beetroot, 10*d.* to 1*s.* per dozen; Peas, 2*s.* 6*d.* to 3*s.* per sieve; do., 4*s.* to 6*s.* 6*d.* per bag; Cherries, 2*s.* 6*d.* to 5*s.* per basket; Strawberries, 2*s.* 3*d.* to 5*s.* per peck; Apricots, 1*s.* to 1*s.* 6*d.* per box; Gooseberries, 4*s.* to 6*s.* 6*d.* per half sieve.

POTATOS.

BOROUGH AND SPITALFIELDS: *June* 24.—Quotations:—Old: Scotch Regents, 35*s.* to 45*s.*; Magnums, blackland, 35*s.* to 40*s.*; Lincolns, 45*s.* to 50*s.*; Yorks, 55*s.* to 80*s.*; Kent and Essex, 50*s.* to 55*s.*; Scotch, 55*s.* to 60*s.*; Imperators, 40*s.* to 60*s.* per ton. New: Kidneys, £6 to £7 10*s.*; French do., £6 to £7; Rounds, £5 to £5 10*s.* per ton.

STRATFORD: *June* 25.—Quotations:—New: Jersey kidneys, 6*s.* 6*d.*to 7*s.* 6*d.*; do. flukes, 7*s.* 6*d.* to 8*s.*; Cherbourg rounds, 5*s.* 6*d.* to 6*s.*; do. flukes, 6*s.* 6*d.* to 7*s.*; St. Malo flukes, 6*s.* to 7*s.*; do. rounds, 5*s.* to 5*s.* 6*d.* per cwt.

SPITALFIELDS: *June* 25.—Quotations:—New: Jersey rounds, 5*s.* to 5*s.* 6*d.*; do. kidneys, 6*s.* to 6*s.* 3*d.*; do. flukes, 7*s.* to 7*s.* 6*d.*; Cherbourg rounds, 4*s.* 6*d.* to 5*s.*; do. kidneys, 5*s.* to 5*s.* 9*d.*; do. flukes, 5*s.* 6*d.* to 6*s.* 6*d.*; St. Malo rounds, 4*s.* 6*d.* to 4*s.* 9*d.*; do. kidneys, 5*s.* to 5*s.* 6*d.*; Lisbon rounds, 3*s.* to 4*s.* per cwt. Old: Magnums, 35*s.* to 60*s.* per ton.

VARIORUM.

LATE FLOWERING AZALEAS.—Mr. Anthony Waterer sends a fine lot of Azaleas derived from A. occidentalis. They are apparently very free flowering, and in colour range from white and pale pink to deep pink. They are longer in the tube, and larger generally than most hardy Azaleas, fragrant and altogether very desirable novelties.

SAD ACCIDENT AT CHELSEA.—On Thursday evening, June 19, six of the young men employed in Messrs. VEITCH'S Nursery, Chelsea, went on to the Thames for a row, and just as they were returning, their boat was upset by the wash of a passing steamer. Three of the occupants were picked up and saved, but, most unfortunately, the other three were drowned; their names were—W. WILSON, lately of The Dell, Egham; W. CHAPPLE, lately of Hardwicke, Bury St. Edmunds; and F. SMITH, from Gwernyfed Park, Breconshire.

NOTICES TO CORRESPONDENTS.

Photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, &c., are solicited.

All communications intended for publication, as well as specimens and plants for naming, should be addressed to the Editor. Such communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, *and sent as early in the week as possible.*

ANTIRRHINUM: *A. Y.* A form in which the petals are represented by small green leaves. Does the plant produce seed? It is very curious.

ARAUCARIA: *Constant Reader.* For the tree to bear cones here is not a rarity, but plants to be raised from them is a rare occurrence.

BOOKS: *B. Baynes* Burbidge's *Domestic Floriculture.* (W. Blackwood & Sons.)

DISEASED PEAR: *T. B.* 1, Pear blight; 2, Unknown: plenty of guess-work; 3, Remedy, none. Is there a brick-kiln in the neighbourhood, or is it the effect of frost?

GARDEN LABOUR: *Veritas.* Without fuller particulars we cannot answer your query. You must tell us in what manner the place is kept, the mode of planting the flower-beds and borders, and the season at which the floral display is required; number in family of proprietor, and if staying visitors are numerous; if the men are able-bodied, or very aged, or very young; kind of soil to be dealt with, what extra garden work has to be done, and how much is the mowed area, &c.

GRAPES: *A. Barlas.* The heaviest bunch of Black Hamburgh Grape we believe to be one shown at Belfast on August 20, 1874, by Mr. Hunter, it turned the scale at 21 lb. 12 oz. But the heaviest bunch of any variety is one shown by Mr. Curror, at Edinburgh, September 16, 1875, it weighed 26 lb. 4 oz. The variety was Trebbiano.

GREENHOUSE: *J. W. M. Horticultural Buildings,* by F. A. Fawkes. (Swann Sonnenschein, Le Bas, & Lowrey, Paternoster Square).

HOLLY: *J. P.* The insect devouring the leaves and shoots of your Holly is probably Phytomyza ilicis, the leaf-miner of the Holly. Please send specimens, and leaves and shoots. Dust the leaves of the Holly with soot and lime, or sprinkle them with Quassia water.

KEW GARDEN: *Codge.* You should apply to the Director of Kew for information,

MARKET GROWER: *J. W. E.* Begin in autumn or spring, preferably the former. You can only obtain the instruction you stand in need of by advertising for an instructor who will be willing to take you for a few hours daily.

NAMES OF PLANTS: *C. J. E.* 1, We do not know the Rose; 2, Cupressus; 3, Thuia orientalis var.; 4, Leycesteria formosa; 5, Juniperus sinensis; 6, Fitzroya patagonica; 7, Thuia plicata; 8, Cupressus Lawsoniana; 9, Podocarpus chilensis.—*Invicta.* 1, Helichrysum monstrarinifolium; 2, Geranium collinum.—*Munster.* 1, Pernettya angustifolia; 2, P. mucronata; 3, Benthamia fragifera; 4, Dabeocia polifolia; 5, Cephalotaxus Fortunei; 6, Phyllyrea angustifolia.—*L. L.* 1, Phlomis fruticosa; 2, Rumex sanguineus; 3, Camelina sativa; 4, not recognised; 5, Saxifraga Camposii.—*T. Wakeford.* 1, Campanula glomerata; 2, Tradescantia discolor; 3, Abutilon Sellowianum; 4, Mesembryanthemum.—*J. C. K.* Alonzoa Warscewiczii.—*X.* No. 2, Cupressus torulosa *J. Sykora.* 1, Nephrodium Filix Mas. var. abbreviata; 2, Aspidium coriaceum; 3, Lycopodium fontinaloides; 4, Gymnogramma calomelanos, dwarf and sterile; 5, Trichomanes pyxidiferum; 6, Adiantum capellus veneris; 2a, Leptogium hemelloides; 2a, Usnea.—*W. D. C.* Hirneola polytricha (Fries).—*J. Y.* Cratægus tanacetifolia.—*H. W.* 1, Crinum petiolatum; 2, Æschynanthus fulgens; 3, Campylobotrys regalis; 4, Pothos argyræa.—*J. S., Shipley.* Oncidium Schlimi probably.—*J. H.* 1, Diplacus glutinosns; 2, Cestrum corymbosum; 3, impossible to name from such a scrap. The rest we cannot undertake to name.—*Reader.* Not known.—*F. A. E. B.* Cephalanthera grandiflora, a rare native Orchid.—*N. T.* Malcolmia maritima.—*S. S.* 1, Rosmarinus officinalis; 2, Philadelphus grandiflorus; 3, Allium moly.—*A. H. B.* 1, Stanhopea tigrina; 2, Gualtheria Shallon; 3, Pernettya angustifolia; 4, Gnaphalium; 5, Barbarea vulgaris, fl.-pl.; 6, Phyteuma comosum.—*G. S.* 1, Bryonia dioica; 2, Stachys silvatica; 3, Aster alpinus; 4, Ægopodium Podagraria; 5, Epilobium montanum; 6, Campanula rotundifolia; 7, Campanula fragilis.—*G. C.* 1, Pinus Pinaster var.; 2, P. Benthamiana is only a seedling form of ponderosa, which is excessively variable.—*J. H.* must send better specimens.

OKRA—OCHRO—OCHRA: *E. B.* This is the West Indian and Central American plant Abelmoschus esculentus, of which the pods are edible. There are several species. It requires a warm house, but not to be much shaded. The treatment afforded Chile capsicums would probably suit the plant.

POTATO PLANTS ROTTING: *R. Veitch & Son.* It is impossible to assign a reason, from the material sent, for certain plants perishing. As the subterranean parts are in a bad state, the cause of injury should probably be sought for in the ground. We have known wireworms produce a not dissimilar state of things.

PROFITABLE GARDENING IN A WARM GREENHOUSE: *Amazon.* Early Lily of the Valley, Stephanotis floribunda, Trachelospermum jasminoides, Early Roses, Crinums, Eucharis amazonica, E. candida, Early Tuberoses. Palms take too long a time to develope true leaves, and Ferns are being "done" by too many others to be profitable.

RAINFALL: *N. T.* New Zealand, Auckland, 43·8 inches; Napier, 34·8 inches; Wellington, 51·8 inches; Nelson, 61·8 inches; Christchurch, 24·8 inches; and Dunedin, 29 inches. The rains are, as a rule, heavier in the maritime parts, and dew and fog in the mountains; but the latter are not injurious to health, and are immensely beneficial to vegetation. Queensland, Brisbane, 49·6 inches; Rockhampton, 32·2 inches; Mackay, 68·1 inches; and Cooktown, 64·2 inches. We do not know which are the wettest parts—the coast land, or that nearer mountains further inland; but vegetation grows luxuriantly over much of the colony.

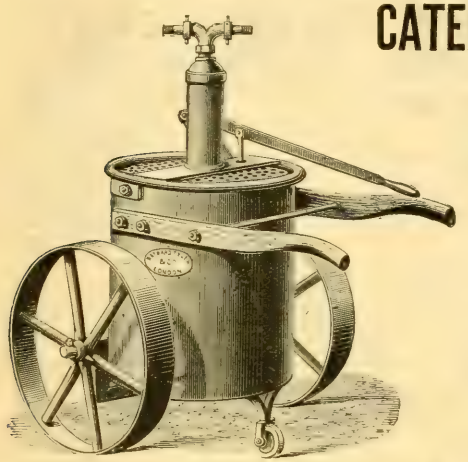
SIMILES: *S. R.* If you read *Plant Life,* Bradbury Agnew & Co., Limited, 10, Bouverie Street, Fleet Street, E.C., you will find plenty of illustrations.

THICKENED ROOTS OF SCILLA: *W. H.* These are commonly met with in Scillas and Crocuses. They seem to act as reserve stores of water or food, but their purpose is not known with certainty.

WOODLICE IN FORCING-PITS: *J. R. D.* Pour boiling-water into all crevices, especially those between the walls and the Cucumber-bed. Keep small pots about filled with hay, which should be examined every mornings, and the insects therein destroyed. Put toads into the house. Try sprinklings of carbolic acid on the floor.

COMMUNICATIONS RECEIVED.—F. V. M., Melbourne.—H. G. (next week).—G. C.—A. Y.—W. E. G.—H. W.—J. A.—E.C.—Messrs. Clibran.—H. E., Vichy (many thanks).—L. C.—H. R., Hartley (many thanks).—Viscount L.—J. A.—J. G. L., California.—F. Sander & Co.—J. R. J.—R. D.—A. D.—W. S.—W. Reid.—W. G. S.—C. A. M. C.—C. W. D., Wakeford.—Messrs. Sutton & Sons.—Ed. Webb & Sons.—T. B. B.—C. C. & Sons.—H. R. L.—J. S.—S. Harding.—E. C.—E. Cording.—R. A. R.—W. G.—J. Douglas (too lengthy for this week).—J. B.—J. G.—J. O'B.—C. T. D.—V. Jones.—E. J.—E. M.—Adolescens.—G. B.

DIED.—Recently, JAMES CLARKE, of Christchurch, Hampshire, at the age of sixty-four years. He was the raiser of Potato Magnum Bonum, Covent Garden Perfection, and some others, all of which were put into commerce by Messrs. Sutton & Sons, Reading.



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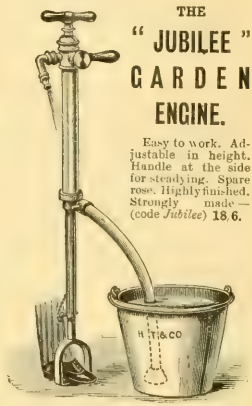
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SOLID HARD CANES, colour of ROSE STOCKS, very heavy, 3 ft., 3s. 6d.; 4 ft., 4s. 6d. per 100.

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2s. per gal., 5 gals. at 1s. 9d., 10 gals. at 1s. 6d. 1 gal. to 25 gals. water will cover 50 sq. yards.

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W. WOOD & SON, F.R.H.S., ESTABLISHED 1850.
WOOD GREEN, LONDON, N.

BENTLEY'S WEED DESTROYER.

Mr. W. IGGULDEN, *Marston Gardens, writes:*—"I have used your Weed Destroyer for several seasons. It is doubtful if anything more effectual will ever be concocted."

Mr. E. MOLYNEUX, *Swanmore Park Gardens, writes:*—"I am much pleased with the Weed Killer. In addition to killing the Weed effectually, the gravel on our paths is rendered particularly bright by its use."

For further testimony, prices, and full particulars, apply to the Sole Maker,

JOSEPH BENTLEY,
CHEMICAL WORKS,
BARROW-ON-HUMBER, HULL.

ORCHID PEAT, best quality; BROWN FIBROUS PEAT for Stove and Greenhouse use. RHODODENDRON and AZALEA PEAT. Samples and Prices to WALKER AND CO., Farnborough, Hants.

S.C. CLAY'S INVIGORATOR

TRADE MARK.

FOR PLANTS.

QUICK. LASTING. ECONOMICAL.

This is a Plant Food of great excellence, carefully prepared with the view of supplying a manure which shall contain all the elements necessary for the Perfection of Plant Life, and at the same time be QUICK IN ACTION, LASTING, AND ECONOMICAL.

The ingredients have been so arranged that, whilst accelerating luxurious growth, permanent benefit is secured by a continuance of nourishment to the plant.

It is safe in use, and suitable for every purpose where a manure is required.

Sold by Seedsmen, Florists, and Nurserymen, in **6d.** *and* **1s.** *Packets, and SEALED BAGS:—*

7 lb.	14 lb.	28 lb.	56 lb.	112 lb.
2s. 6d.	**4s. 6d.**	**7s. 6d.**	**12s. 6d.**	**20s.**

The above Trade Mark is printed on every Packet and Bag, and also impressed on the Lead Seal attached to the mouth of each Bag.

A SAMPLE PACKET will be sent post free, on receipt of 1s. by the MANUFACTURER—

S. C. CLAY,

MARSH ISLAND, STRATFORD NEW TOWN, LONDON, E.

NO CONNECTION WITH ANY OTHER FIRM.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE,

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks, 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton; 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Price LIST.—**H. G. SMYTH,** F.R.H.S., 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

BROWN FIBROUS PEAT for ORCHIDS, 3s. 6d. per Ton, or 126s. per Truck of 4 tons; Bags, 5s. each; 10 Bags, 45s.

BROWN and BLACK FIBROUS PEAT, 25s. per Ton, or £5 per Truck of 4 Tons. Bags, 3d. each; 10 Bags, 2s.

PEAT, for forming Rhododendron, Bog, and American Plant Beds, 21s. per Ton, or £4 4s. per Truck of 4 tons.

THOMAS WALKER, Tekels, Camberley, Surrey.

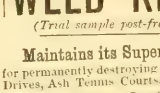
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"PERFECT"
WEED KILLER
TRADE MARK. SWIFT & SURE
(Trial sample post-free.) WITHOUT WHICH NONE IS GENUINE.

Maintains its Superiority over all Rivals
for permanently destroying vegetation on Walks, Carriage Drives, Ash Tennis Courts, Stonework grown green, &c.
Used at Kew Gardens, Royal Horticultural Gardens, &c., &c.

COMPLETE SATISFACTION GUARANTEED
to all using WEED KILLER bearing our Trade Mark, without which none is genuine. *Refuse Imitations.*

PRICE—Gallon, 2/-; 5 gal., 1/9 per gal.; 10 gal. 1/6 per gal.; 40 gal. 1/4 per gal. SPECIAL QUOTATIONS FOR QUANTITIES. *Carriage paid on 10 gals. and upwards.*

DISTRIBUTOR for
"Perfect" Weed Killer.



Holds 40 gallons. Wrought-iron frame-work neatly painted. Galvanized tubes with tap to regulate flow. Gives spray 36 ins. wide. Price £4 net on rail Glasgow.

SOLE MANUFACTURERS: THE
HORTICULTURAL & AGRICULTURAL CHEMICAL COY.
Works: 97, Milton Street, Glasgow.
Principal Agents: BLACKLEY, YOUNG AND CO., 103, Holm Street, Glasgow.
NOTICE.—*We originally had our Works at Tonbridge, Kent, but removed them to* GLASGOW *in January, 1887, since which time our* ONLY ADDRESS *has been* GLASGOW.
SOLD by SEEDSMEN and FLORISTS.

THE "STOTT" INSECTICIDE
KILL RIGHT
PATENT SPRAYER.
M
PATENT SYRINGE
FEED RIGHT
AND
MANURE DISTRIBUTOR.
Price Lists and Testimonials on Application.
THE "STOTT" FERTILIZER, INSECTICIDE DISTRIBUTOR, Co., Ltd.,
BARTON HOUSE, MANCHESTER.

CLAY'S
FERTILISER
OR
PLANT FOOD
Sold in Packets, 6d. and 1s. each, and in
Sealed Bags Only.
7 lb., 2/6; 14 lb., 4/6; 28 lb., 7/6; 56 lb., 12/6; 1 cwt., 20/-
CLAY & LEVESLEY,
TEMPLE MILL LANE, STRATFORD, LONDON, E.

NORMAL FERTILISER
For GREENHOUSE or GARDEN.

Price:—	7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
	2s.	3s. 6d.	5s. 6d.	9s.	14s.

And in 6d. and 1s packets.
To be had of Seedsmen and Florists, or the NORMAL MANURE COMPANY, Ltd., 121, Bishopsgate Street Within, E.C., and Farnham Road, Guildford. Usual Trade Discounts. Wholesale of Messrs. HURST AND SON, 152, Houndsditch, London

THE CELEBRATED "ACME"
WEED KILLER
CHEAPEST & BEST
SAVES MORE THAN TWICE ITS COST IN LABOUR. NO SMELL.
One application will keep the Walks and Drives clear of Weeds for at least Eighteen Months.
Highly commended by the Judges at the Alexandra Palace Rose Show, 1889, after 15 Months' Trial. Awarded a Certificate of Merit by the Scottish Horticultural Association, 1889.
Mr. W. G. HEAD, Crystal Palace, says:—"We were so satisfied with your composition and its price, that we have used it absolutely, and have every confidence in recommending it."
Mr. R. IRWIN LYNCH, Curator, Botanic Gardens, Cambridge, says:—"There can be no question with regard to its efficacy."
Prices:—In 1 and 2-gal. tins, 2s. per gal. (tins included); in 5-gal. drums, 1s. 6d. per gal.; 10 and 15-gal. Drums, 1s. 4d. per gal. Special quotation for larger quantities. Carriage paid on 10 gals. and upwards.
☞ *Used in the proportion of One Gallon to 25 Gallons of Water.*
TO BE HAD OF ALL NURSERYMEN AND SEEDSMEN.
To prevent disappointment, insist upon having the "ACME."
Sole Proprietors and Manufacturers,
THE AGRI-HORTICULTURAL CHEMICAL COMPANY,
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and Carlton Street, Bolton, Lancashire.
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May also be had of Messrs. BARR & SON, 12, King Street, Covent Garden; BARCLAY & SONS (Limited), 95, Farringdon Street; JAS. VEITCH & SON, Royal Exotic Nursery, Chelsea; and others.

MACKEY'S CATERPILLAR EXTERMINATOR and UNIVERSAL INSECTICIDE, as recommended by the Board of Agriculture, for Green and Black Fly, Mealy-bug, Red-spider, Camellia-scale, Blight, &c. No boiling or mixing required. One pound dissolved in 10 gallons will form the Exterminator for Caterpillars, as recommended by the Board of Agriculture. 1 lb. to 30 for Greenfly, Blight, &c. Price, in 1 lb. tins, 1s. 6d.; 5 lbs., 3s.; 10 lbs., 5s.; per cwt., 45s. Sample gratis on application.
MACKEY, MACKEY AND CO., 1 and 2, Bouverie Street, Fleet Street, London, E.C.

EPPS'S SELECTED PEAT.
SPECIAL for Orchids, Choice Plants, Hardwooded and Fern do., and Rhododendrons. Excellent LEAF-MOULD, SAND, Rich LOAM, PEAT-MOULD, CHARCOAL, COCOA FIBRE, SPHAGNUM, and all GARDEN SUNDRIES. PEAT MOSS LITTER.
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BEESON'S MANURE.—The Best and Cheapest Fertiliser for all purposes. Write for Circular containing the Leading Gardeners' and Market Growers' Reports. Sold in Tins, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each, or 1 cwt. Bags, sealed, 13s. By all Seedsmen, or apply direct to W. H. BEESON, Carbrook Bone Mills, Sheffield.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft-water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.
GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

HORTICULTURAL GLASS
STOCK SIZES

Inches.	Inches.
14×12	20×15
16×12	20×16
18×12	22×16
20×12	24×16
16×14	20×18
18×14	22×18
20×14	24×18

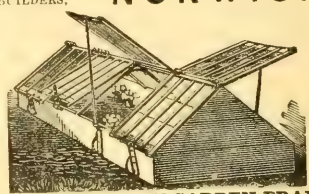
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21-oz. and 15-oz. Foreign, of above sizes, in boxes of 100 feet and 200 feet super.
English Glass, cut to buyers' sizes, at lowest prices, *delivered free and sound* in the country, in quantity.
"HORTICULTURAL PUTTY." Own Special Manufacture.
GEORGE FARMILOE & SONS,
LEAD, GLASS, OIL, and COLOUR MERCHANTS,
34, St. John Street, West Smithfield, London, E.C.
Stock Lists and Prices on application. Please quote *Chronicle.*

THE
"NEW EASY"
LAWN MOWER.
HAS AN OPEN STEEL ROLLER.
A man can work a 24-inch machine without assistance.
The Front Roller, with simple adjustment for regulating height of cut, enables the machine to cut close to the ground, and to do fine work, besides adapting it for verge cutting.
There is no easier working, no better finished, no stronger, no more durable mower in the market.



CUTS 24 INCH EASY.
To be obtained through all the leading Ironmongers and Seedsmen, or from the Sole Licensees,
SELIG, SONNENTHAL & CO.,
85, Queen Victoria Street, London, E.C.

BOULTON & PAUL,
HORTICULTURAL BUILDERS, NORWICH.

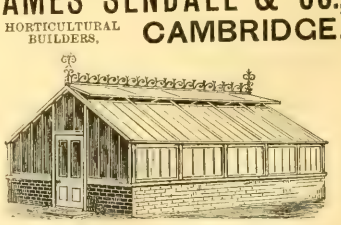


No. 73.—SPAN-ROOF GARDEN FRAME.
This is a very strong and handy Frame. The Lights turn quite over, are fitted with set-opes and stays, and are Glazed with 21-oz. English sheet glass, and painted three times.

	Length.	Width.		
1 Light Frame,	4 ft.	by 6 ft.		£2 15 0
2 "	8 "	by 6 "	Cash Prices.	4 7 6
3 "	12 "	by 6 "		5 17 6
4 "	16 "	by 6 "	Carriage Paid.	7 7 6
5 "	20 "	by 6 "		8 17 6
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CARRIAGE paid to any goods station in England and Wales, to Dublin, Cork, Glasgow, and Edinburgh, or stations equivalent.
CUCUMBER FRAME LIGHTS.
6 by 4 feet, glazed and painted ... 15s. each.
Unglazed and unpainted ... ... 6s. each.
Carriage Paid on Orders of 40s. value.
SURVEYS MADE, and every description of Horticultural Buildings and Appliances fixed by experienced workmen in any part of the kingdom.
CATALOGUES of all our manufactures, including CONSERVATORIES, GREENHOUSES, FRAMES, BOILERS, HORTICULTURAL IMPLEMENTS, IRON BUILDINGS, POULTRY and KENNEL REQUISITES, IRON FENCING, WIRE NETTING, &c.

JAMES SENDALL & CO.,
HORTICULTURAL BUILDERS, CAMBRIDGE.



CONSERVATORIES,
GREENHOUSES,
ORCHID HOUSES, VINERIES, &c.,
Erected in any part of the Kingdom. Gentlemen waited on. Plans prepared to suit requirements. Heating Apparatus arranged with due regard to efficiency and economy in fuel.
Estimates and Lists free.

HELLIWELL'S

PATENT IMPERISHABLE

GLAZING WITHOUT PUTTY,

FOR GREENHOUSES and all kinds of HORTICULTURAL BUILDINGS, YARDS, RAILWAY STATIONS, and every description of ROOF COVERING. Saves all Painting and Puttying and Breakage, and is absolutely Watertight and Free from Drip.

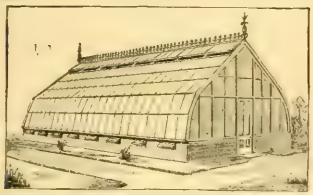
No more expensive at first cost.

All Houses can be taken to pieces and re-erected.

References given to works in all parts of the country of many years' standing.

Designs and Estimates Free, and Measurements taken Free of Cost.

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ALL KINDS.

Testimonials.

"Shirburn Castle, January 5, 1890.

"SIR,—As you requested my opinion of the houses which you erected for me some 4 years ago, I beg to inform you that I consider them a perfect success, and I have recommended them to many of my neighbours.—Yours truly (signed) MACCLESFIELD."

"Hornby Castle, Lancaster, February, 1890.

"Major FOSTER has much pleasure in stating that the vineries and forcing houses which were erected by Mr. Helliwell in 1884, continue to give perfect satisfaction, both to himself and his gardener."

"Estate Office, Ripley, Yorkshire, January 23, 1890.

"Sir HENRY INGILBY has much pleasure in stating that the glazing work executed by you, under your patented system, at the Ripley Castle Gardens, has been in every respect entirely satisfactory. The work has stood its 8 years' wear and tear extremely well, and has hitherto cost nothing to keep it in repair."

HELLIWELL, 9, Victoria Street, Westminster.

PROTECT YOUR GARDENS from the Ravages of Birds.—Strong NETTING supplied by G. Robinson at 35 square yards for 1s.; is oiled and dressed; will not rot if kept out in all weathers; sent any width; carriage paid on all orders over 5s.; can be sent on approval; hundreds of testimonials. Read the following:—"Broadstairs, Kent, May 12, 1888. To my fellow gardeners.—I have had Garden Netting from G. Robinson, Fish Merchant, Rye, Sussex, and it gave me great satisfaction.—Yours truly, G. HAWKINS, Gardener to S. E. Wyatt, Esq." Commoner Netting at 50 square yards for 1s.

GEORGE ROBINSON, Fish Merchant, Rye, Sussex.

STEEL FENCING WIRE

of all kinds, Barb Wire, Hay Bands, Wire Netting and Fencing Materials. Wood's Patent Wire Mattresses.

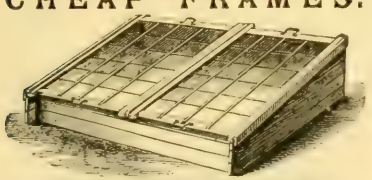
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LONGFORD WIRE, IRON and STEEL COMPANY, Ltd., WARRINGTON.

To Nurserymen, Seed Merchants, and Florists.

J. BLACKBURN AND SONS are offering Archangel Mats lower than any other house in the trade; also Petersburg Mats, and Mat Bags, Raffia Fibre, Tobacco Paper, and Shading. Prices free.—4 and 5, Wormwood Street, E.C.

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PORTABLE CUCUMBER FRAMES.

R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered free to any station in England:

		£	s.	d.
1-light frame, 4 ft. by 6 ft.	Carriage and Packing Cases FREE.	2	0	0
2-light frame, 8 ft. by 6 ft.		3	2	6
3-light frame, 12 ft. by 6 ft.		4	15	0
6-light frame, 24 ft. by 6 ft.		8	10	0

Larger sizes at proportionate prices.

R. HALLIDAY & CO.,

Hothouse Builders and Engineers, Royal Horticultural Works,

Middleton, Manchester.

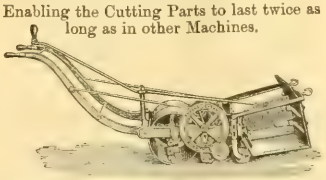
London Agent—Mr. H. SKELTON, Seedsman, &c., 2, Holloway Road, N.

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THE ORIGINAL LAWN MOWER FITTED WITH

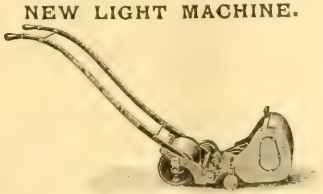
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Enabling the Cutting Parts to last twice as long as in other Machines.



These Machines are strong and substantial, and very easily worked. They make the Lawn like velvet, and are not liable to get out of order. ILLUSTRATED CIRCULARS, with full particulars of Machines (from 28s.), for Hand, Pony, and Horse-power, sent free on application.

NEW LIGHT MACHINE.



WILL MOW VERGES ROUND FLOWER BEDS, &c.

VERY EASY TO WORK.

Prices and Particulars on application.

GARDEN ROLLERS OF ALL SIZES.

ALEX. SHANKS & SON,

Dens Ironworks, Arbroath,

And 110, Cannon Street, London, E.C.

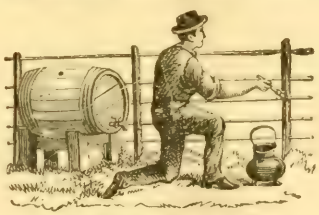
A Large Stock of all sizes of Machines always kept in LONDON, where Repairs are also executed by experienced workmen.

LONDON ADDRESS for Repairs:—

5, Old Swan Lane, Upper Thames Street, E.C.

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for Preserving Ironwork, Wood, or Stone.



(Registered Trade Mark.)

An excellent substitute for oil paint, at one-third the cost. Used in all London Parks, at Windsor, and Kew Gardens, and on every important estate in the Kingdom. Has stood the test of forty years' trial. Requires no mixing; can be applied cold by any ordinary labourer.

Price 1s. 8d. per gallon at the manufactory, or carriage paid to any railway station, 1s. 8d. per gallon in casks of 36, 18, or 9 gallons.

CAUTION.—Every Cask bears the above Registered Trade Mark. Beware of cheap imitations.

HILL & SMITH,

Brierley Ironworks, Dudley;

118, Queen Victoria Street, London, E.C;

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TANNED NETTING, for Preserving Fruit Trees, Flower Beds, &c., from Frost and Blight; 35 square yards for 1s. Sent any width; carriage paid on all orders over 5s. I do not require payment till you have received and approved of the Netting. Note the Address

HY. JOHN GASSON, Fish Merchant, Rye.

VIRGIN CORK

Light and Mossy. Direct from our forests. Apply for Prices.

ROBINSON BROS.,

Cork Merchants, Halifax, Yorks, and 4, Albert Street, Manchester.



GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

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DENNIS PARKIRON WORKS

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THE IMPROVED EXPANSION JOINT HOT WATER PIPES

"THE BEST OF ALL"

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HOT WATER JOINTS

EXTRA Strong Tanned NETTING, 50 yards by 4 yards, 8s. per net; 100 yards by 2 yards, 8s. per net. RAFFIA GRASS, 7d. per lb.

J. W. WILLCOCKS, 14, St. Mary's Street, Stamford.

HY. VAN & CO.,

25, Tooley Street, London Bridge, S.E.

PROTECTION for FRUIT and FLOWERS.

GARDEN NETTING, 2 yards wide, 1½d., or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s.

SCRIM CANVAS, 1 yard wide, 3d., and 2 yards, 6d. per yard.

TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece.

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Of every description provided. Reliable *recherché* Novelties. Special attractions for Flower Shows at reasonable terms.

Baroness Burdett-Coutts' Head Gardener, J. WILLARD, Esq., says:—"Entertainment gave greatest satisfaction; as a proof of which, Mr. Burdett-Coutts took the entertainers for a ride at his horse show."

COL. MEURICE,

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ON IRON, WOOD & STONE

ALL COLORS CASH

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8 „ ..	0	5	0	19 „ ..	0	10	6
9 „ ..	0	5	6	20 „ ..	0	11	0
10 „ ..	0	6	0	21 „ ..	0	11	6
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Gardeners and others Wanting Situations.

26 words, including name and address, 1s. 6d., and 6d. for every additional line (about 9 words) or part of a line.

THESE ADVERTISEMENTS MUST BE PREPAID.

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THE UNITED KINGDOM: 12 Months, 15s.; 6 Months, 7s. 6d.; 3 Months, 3s. 9d.

FOREIGN (excepting India and China), including Postage, 17s. 6d. for 12 Months; India and China, 19s. 6d.

Post-office Orders to be made payable at the Post Office, 42, DRURY LANE, W.C., to W. RICHARDS.

PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS, 41, Wellington Street, Strand, London, W.C.

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Assures £1000 at death and full Benefits at £1 per annum.

Hon. EVELYN ASHLEY, Chairman.

Annual Income, £250,000.

80,000 Annual Policy-holders.

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Compensation paid, £2,750,000.

West End Office:—8, Grand Hotel Buildings, W.C.

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W. D. MASSY, } Secretaries.
J. VIAN, }

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MADE WITH BOILING MILK.

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